Meticillin-resistant *Staphylococcus aureus* (MRSA) screening protocol

### Approval and Authorisation

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<th>Date</th>
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1. **Introduction**

MRSA stands for Meticillin Resistant Staphylococcus Aureus. It is a type of bacteria that has become resistant to a group of antibiotics called Meticillin. But doctors can still treat MRSA with some other sorts of antibiotics.

1. Meticillin-resistant *Staphylococcus aureus* (MRSA) is a clinically significant pathogen and a major cause of Healthcare-associated infection (HCAI) ([Appendix C: Glossary of Terms](#)).

   - ~40% of *Staphylococcus aureus* blood stream infections (bacteraemias) ([Appendix C: Glossary of Terms](#)) are caused by MRSA and,

   - >50% of *Staphylococcus aureus* surgical site infections (SSIs) are caused by MRSA

2. MRSA may harmlessly colonise the skin and mucosal surfaces of the respiratory and gastrointestinal tract, wounds, intravascular or percutaneous device insertion/exit-sites e.g., cannula or percutaneous entero-gastrostomy (PEG) sites and urinary catheters or bladder urine. MRSA can also be responsible for serious infections such as endocarditis, pneumonia and osteomyelitis.

3. **MRSA infections**:

   - Result in significant morbidity and mortality, mostly in the elderly debilitated host with significant medical co-morbidities.

   - Are difficult to treat due to multi-antimicrobial resistance. MRSA strains are resistant to all β-lactam- class of antibiotics i.e., Penicillins, Cephalosporins, Carbapenems (Imipenem, meropenem and ertapenem). Most healthcare-associated strains are also resistant to Ciprofloxacin and Erythromycin or clarithromycin.

   - Result in increased healthcare costs mainly by increasing length of stay in hospital and through the requirement for treatment with prolonged courses of mostly IV antibiotics.

4. **Mode of spread**:

   - MRSA is spread mainly by indirect contact with a colonised/infected patient via the contaminated hands of carers. Hand decontamination by healthcare workers (HCWs) before and after every patient contact is particularly important in reducing the risk of transmission.

   - MRSA can also be disseminated into the environment and onto equipment via skin scales, air-borne droplets of respiratory secretions, dust etc. that may then act as a reservoir for further spread/contamination.

5. MRSA has become endemic ([Appendix C: Glossary of Terms](#)) in most UK hospitals and two epidemic ([Appendix C: Glossary of Terms](#)) strains of MRSA designated as EMRSA 15 and 6 are currently the most commonly reported strains in England and Wales.
6. **Community-associated MRSA (Appendix C: Glossary of Terms)** is a newly emerging infection warranting vigilance.

7. MRSA prevention and control is a clinically effective and cost-effective healthcare strategy.

### 1.1 Definition

MRSA Screening is the microbiological detection of the presence of MRSA at the common sites of carriage and/or colonisation. (Appendix C: Glossary of Terms)

- MRSA Screening identifies up to 93% of carriers (range 86-93%), depending on the number of sites sampled and type of detection method(s) used.

### 1.2 Background

#### 2008/09 and 2009/10 Operating Framework Requirements

There is a commitment in the Department of Health 2008/09 Operating Framework to introduce MRSA screening.

*Meeting the challenge of HCAI will require additional actions across the system for 2008/09, including: introducing MRSA screening for all elective admissions from 2008/09 and for all emergency admissions as soon as practicable within the next three years.*

This is reiterated in the 2009/10 Operating Framework:

*“From April 2009, all elective admissions must be screened for MRSA in line with Department of Health guidance. This should be extended to cover emergency admissions as soon as possible and definitely no later than 2011.”*

The Department of Health operational guidance 2 requires all organisations which admit relevant elective patients is being asked to publish its MRSA screening policy and a statement of compliance to be signed off by the Chief Executive.

An Assurance Framework, provided by the DoH in Appendix Q, is maintained by the RBFT.

The Department of Health requires all NHS trusts to:

a. Have a screening programme in place
b. Have an established prospective infection surveillance programme and, to regularly fed back surveillance findings to clinical teams (e.g. quarterly or more timely in the case of alert organism surveillance such as MRSA, VRE)

c. The policy is that all relevant elective admissions should be tested for the presence of MRSA and extending this to include emergency admissions no later than 31 December 2010. We expect the patients in the groups described to be screened and positive patients to receive decolonisation/suppression.
d. To provide clear and detailed guidance for effective implementation of RBFT MRSA screening objectives

e. To enhance patient safety and improve clinical outcomes by targeting MRSA prevention and control measures.
f. the majority of elective admissions requiring decolonisation will be identified and will have started and in many cases completed the course of decolonisation before they are admitted. The decolonisation treatment should be done as close to the time of admission and the clinical interventions as is reasonably possible.
g. “Elective admissions” means all relevant electives, including surgical and medical day cases (except ophthalmic day cases, i.e. specialist cataract services) but not children.

- The national data collection previously on UNIFY was discontinued as comprehensive assurance processes are in place both at local and Regional level.
- MRSA ‘colonised’ or ‘infected’ patients (Appendix C: Glossary of Terms) are the primary reservoir of MRSA infection in any clinical setting. Those who acquire MRSA while hospitalised also serve as reservoirs for MRSA transmission in the community.
- Active MRSA surveillance by screening to identify this reservoir of MRSA ‘infected’ or ‘colonised’ patients, and then managing them to reduce the risk of MRSA transmission to other patients is a major component of MRSA prevention programmes.
- Asymptomatic MRSA carriers are at increased risk of invasive MRSA infection e.g., surgical site infections (SSIs) and bacteremia with their own colonising strain. A quarter of those patients who acquire MRSA colonisation during a hospital admission subsequently develop MRSA infection.

1.3 Rationale for admission screening and decolonisation

1.3.1 Screening

Screening allows detection of carriage/colonisation prior to admission to healthcare setting, and through targeted decolonisation therapy and isolation

1.3.2 Decolonisation

Decolonisation protects carrier patients from the risks of MRSA infection (risk reduction from MRSA), and reduces risk of MRSA spread to other patients (risk containment).

1.4 Aim(s):

- To reduce risk of post-operative surgical site infection (SSI) and bacteremia
1.5 Objectives:

- To detect *staphylococcus aureus* (MSSA/MRSA) carriers prior to admission to hospital
- To decolonise prior to the procedure
- To decolonise for post surgical procedure

1.6 Purpose

- **MRSA screening is not a control measure itself**, but an important component of MRSA prevention and control policy and ensures active surveillance.
- MRSA screening is done to identify (or uncover) mostly asymptomatic MRSA carriage and inhibit chain of transmission.
- appropriately manage risk of MRSA in the host patients through effective decolonisation. (The use of and/or antimicrobial treatment/prophylaxis of clinical infections is covered in the Surgical Antimicrobial Prophylaxis Policy on the intranet).
- to reduce its spread to other patients through ‘source’ isolation of colonised/infected patients (where possible). (see Isolation Protocol on the infection control intranet).

1.7 Scope of the policy

The MRSA Screening Policy applies to all relevant admissions to any RBFT clinical area including ‘day care’ areas for treatment or investigations.

2 MRSA Screening Categories

Admission screening must be undertaken within 6 hours of admission (where possible) to detect MRSA carriage in patients. The method of screening is covered in Appendix A. See also MRSA categories in Appendix E.

For renal patients the existing guidance is clear that all patients on dialysis should be screened for MRSA on admission to the programme and then at 3 monthly intervals.

For other regular attenders, such as Radiological patients, to be screened at the beginning, but not at every attendance and then screened every 3 months..

Rationale:

- Admission screening as soon as possible (within 6 h of admission) detects MRSA carriage in patients
- Isolation and/ or decolonisation of MRSA Positive patients prevents transmission/spread of MRSA in clinical areas

Aim:

- Identification on admission of colonised and infected patients
• “Risk containment” by targeting isolation and cohorting facilities for “Proven or Suspected MRSA Positive” patients to minimize the risk of onward transmission to other patients
• “Risk reduction” by reducing bacterial load through decolonisation therapy

2.1 Elective Screening

Elective Screening includes MRSA screening of ‘ALL’ relevant (medical and surgical) admissions and day cases to include Day case ophthalmology, children/paediatrics and maternity/obstetrics.

Elective screening is normally carried out before admission (pre-admission) with some screening undertaken for day cases.

2.1.1 Pre elective Screening

Pre elective screening is required for Elective Surgery with the MRSA screening undertaken prior to an elective surgical procedure through Pre-op assessment clinic.

(Refer to Appendix F: Adult Elective Surgical Admissions: MRSA Clinical Management Algorithm)

Rationale:

• Allows detection of carriage/colonisation prior to admission to healthcare setting, and through targeted decolonisation therapy and isolation
• Protects carrier patients from the risks of MRSA infection (*risk reduction from MRSA*), and reduces risk of MRSA spread to other patients (*risk containment*)
• Prevents the introduction and spread of MRSA into ‘CLEAN’ areas (‘ring fenced’ ‘MRSA free’ wards [Lister and Hunter orthopaedic wards], and other non-endemic clinical areas e.g., ITU, SCBU)

Aim(s):

• To reduce risk of post-operative surgical site infection (SSI) and bacteraemia
• To optimise antimicrobial management of clinical infections
• To optimise use of isolation facilities e.g., “ring fenced” orthopaedic ward and isolation rooms in other wards

Objectives:

• To detect *staphylococcus aureus* (MSSA/MRSA) carriers prior to admission to hospital
• To ‘decolonise’ prior to the procedure
• To guide choice of surgical antibiotic prophylaxis if indicated and ‘appropriate’ antimicrobial management of MRSA infections

Perioperative Antimicrobial Prophylaxis is indicated for ‘High-risk’ surgery (Appendix 4). It should include (as appropriate to the procedure)

Teicoplanin ± Gentamicin ± Metronidazole (*Please refer to Surgical Antimicrobial Prophylaxis Policy*)
2.2 Contact Isolation (refer to ‘isolation protocol’ on the IC intranet site)

1. Keep hospital stay as short as possible
2. ‘MRSA Screen Positive’ patients should be nursed in isolation rooms with contact precautions i.e., gloves and aprons (see Isolation protocol)
3. ‘MRSA Screen Negative’ patients for joint replacement surgery are nursed on the ‘MRSA Free’ “ring fenced” Lister and Hunter ward.

2.2.1 Isolation or Cohorting of Screened Patients

Elective (non-emergency) patients should have pre-admission screening.

Emergency surgical patients should be managed on “risk-based” approach and should be isolated/cohorted until MRSA screening results become available (Appendix H: Adult Emergency Surgical Admissions)

2.3 Adult Elective Medical Admissions

For Adult Elective Medical Admissions refer to Appendix F Adult Medical Admissions: MRSA clinical management algorithm).

a. MRSA screening for patients undergoing insertion of percutaneous entero-gastrostomy (PEG) tube, is organised through Endoscopy

b. MRSA screening for patients undergoing cardiology and radiology interventional procedures, is organised through ‘Cardiology’ clinics and radiology departments respectively

c. MRSA screening for Haematology and Oncology patients, before insertion of Hickman and PICC lines or prior to admission for medical treatment,

d. MRSA screening for renal dialysis patients is organised through Renal dialysis units and/or GPs (Refer to Appendix N: Renal Unit Protocol

2.3.1 MRSA screening for Obstetrics/Maternity

Obstetrics/maternity MRSA screening is undertaken at 34/40 weeks of pregnancy; organised through ANC (Refer to Appendix I: ‘MRSA Pathway for Maternity’)

Paediatrics/children MRSA screening is organised through paediatrics ‘Pre-admission’ clinics (Refer to Appendix J: MRSA Clinical Management Algorithm for Paediatric Elective Surgical Patients).

2.4 Emergency Screening

Emergency Admission MRSA screening must be undertaken for all Emergency Admissions (Medical and Surgical) admitted via A and E, CDU and direct ward admissions from out-patient clinics (refer to Appendix : MRSA Clinical Management of Surgical Emergency Patients & Appendix : MRSA Pathway for Medical Patients).

MRSA screening is done:
• In the CDU as soon as decision to ‘admit’ has been made
• In the admission wards for those directly admitted (via A & E or out-patient clinics) to the wards. MRSA screen is done as soon as possible and within 6 hours of admission.
• Surgical assessment areas on Kennet ward for General surgical patients and Trauma assessment unit on Heygroves ward for the Trauma & Orthopaedics (T&O) patients (Refer to Appendix G: MRSA Clinical Management of Surgical Emergency Patients and Appendix F: MRSA Pathway for Medical Patients). Apart from Neonatal, all emergency patients must be screen within 6 hours of admissions (refer to Appendixes x,y,z for appropriate management).

Emergency patients admitted to the neonatal unit must be screened with 4 hours of admission. Refer to Appendix K: ‘MRSA Pathway for the Neonatal Unit’)

2.5 Periodic MRSA screening

Periodic MRSA screening for surveillance is required for:

• Weekly screening of all patients on the ICU and Neonatal Unit (SCBU)
• Quarterly surveillance of renal dialysis patients (Refer to Appendix N: Renal Unit Protocol)
• Rationale:
• Active surveillance, ‘early warning system’
• Aim:
• Early detection and isolation of ‘newly’ colonised or infected patient to break chain of transmission

2.6 Discharge MRSA Screening

Discharge MRSA screening of Neonatal and ICU is required for those patients who have spent at least 48 hours on the unit prior to discharge to other units. Results to be communicated to the receiving unit(s).

2.7 Admission Screening to “High-Risk” Clinical Units i.e:

• Neonatal Unit within 4 hours of admission (Refer to Appendix L: ‘MRSA Pathway for the Neonatal Unit’)
• ITU within 6 hours of admission

2.8 MRSA Screening for incident/an outbreak investigation

• MRSA screening for incident or an outbreak investigation is required for:
• Screening of patients exposed to ‘index’ case of MRSA e.g. in the same bay/or same ward/unit (Infection Control Team [ICT] will advise in each case)
• Health care staff screening to be organised by the Occupational Health Department (OHD) after liaison with ICT.
2.9 **Health-care staff screening for MRSA** (to be reviewed by OC)

Routine screening of staff for MRSA carriage is not recommended practice although the Infection Control team may advise screening when there are particular epidemiological features to indicate that a staff member or members may be the source of linked cases of MRSA infection.

Health-care staff/ Health-care workers (HCWs) includes doctors, nurses, physiotherapists and other allied health professionals, and non-clinical support staff (e.g. porters) including locum and agency staff

2.9.1 **Pre-employment screening**

Pre employment screening of HCWs for MRSA is not required.

However, on employment the Occupational Health Department (OHD) will advise HCW with chronic skin conditions such as eczema, psoriasis, recurrent boils or otitis externa about the risk of MRSA acquisition and carriage, and transmission of MRSA. If required, the OHD will arrange for the HCW’s appropriate specialist management in discussion with their GP.

2.9.2 **In Employment routine screening of HCWs**

For those HCWs already in employment, routine screening for MRSA carriage is not required due to the lack of stable/fixed cohort of healthcare staff in High risk clinical units/areas such as

- ICU,
- NICU/SCBU,
- Orthopaedic
- MRSA free ring fenced wards,
- Oncology/clinical haematology units.

MRSA screening of an HCW is required:

- When a HCW is receiving treatment e.g. before planned surgery or during antenatal care. In these cases the HCW will be screened and managed by their clinical team in line with the Trust’s ‘MRSA Screening Protocol’. The clinical team should communicate to the OHD the planned course of treatment/management.
- When a HCW is epidemiologically implicated in or linked to MRSA transmission in an outbreak/incident investigation; as advised by the ICT and, in conjunction with the OHD. For example:

  When despite active control measures transmission of MRSA continues in a unit or when epidemiological aspects of outbreak are unusual. The ICT will liaise with and advise the OHD in such a situation.
a. The OHD will arrange for MRSA screening of the HCW.

   o The screening swabs should be collected **at the start of duty shift** to avoid detection of transient nasal carriage that may be lost/cleared within a day or so of removal from contact with MRSA-positive patients and which carries little risk of onward transmission. The results of initial screening or ‘follow-up’ will only be available from the OHD (Mon-Fri: 0900-1700) i.e., not directly available to HCW or ward managers from the laboratory

   o **Sampling sites:** (See appendix P)
     - Anterior nares
     - Throat swab
     - **Any area of abnormal or broken skin (wounds/lesions)**

b. If MRSA is isolated from screening swabs the microbiology department organise for epidemiological typing of the isolate and will advise on interpretation of the findings.

c. The OHD should examine the HCW for skin lesions such as paronychia, perineal sores, chronic skin conditions e.g., eczema, psoriasis or badly bitten nail-beds.

d. The OHD should offer treatment of any underlying skin condition, MRSA screening including pre-screening counselling, decolonisation and post-decolonisation screening for clearance, in accordance with the protocol agreed with the ICT.

e. The OHD (via the HCW’s GP) may consider specialist referral for the management of staff with persistent carriage at extra-nasal sites e.g. referral to dermatology for skin condition and ENT for throat carriage, who should then arrange for follow-up MRSA screening. See below ‘Post-decolonisation screening for MRSA’.

f. MRSA ‘Screen Positive’ HCW should be prescribed ‘S. aureus decolonisation therapy’ for 5 days. ([Appendix x](#)).

g. The active infection must be appropriately treated with antibiotics. ‘S. aureus decolonisation therapy’ should only be started after (active) infection has resolved. Decolonisation is ineffective if active infection is still present.

h. In line with good infection control practice, HCW with ‘active’ infected lesions (with or without treatment) should not engage in ‘direct patient-care’ duties. A temporary (for the period of treatment) re-deployment to non-clinical duties or area of work may be considered by the OHD and discussed with the HCW.

i. All cuts and grazes should be covered with impermeable dressings.

**Criteria for exclusion from, and return to work:**

A HCW who is a ‘nasal MRSA carrier’ only:

- Can return to work after 48 h of starting a five day decolonisation regimen in **ALL clinical areas except “High risk” wards/units (Appendix 4)**.
- Can return to work after completion of a 5d course of decolonisation therapy in **“High risk” wards/units. (Post-decolonisation screening: see below)**
A HCW who is an ‘extra-nasal carrier’ of MRSA i.e., a throat, or a skin carrier with chronic skin condition, will be advised on an individual basis, after full and confidential consultation with relevant parties (including the staff member, their line manager, the ICT, the OHD).

2.9.3 Post-decolonisation’ screening for MRSA:

Post decolonisation screening for MRSA is undertaken:

- To check for success or failure of decolonisation therapy.
- To check if the HCW is a ‘transient’ (nasal) or a ‘persistent’ (including extra nasal) carrier of MRSA

Timing and Frequency of sampling:

Initial sampling is done 48 h after completing a 5 day course of ‘S. aureus decolonisation therapy’ and subsequently, at weekly interval while not receiving antimicrobial therapy. A minimum of three screens should be collected to check for clearance.

Post-decolonisation ‘MRSA Screen Negative’ status is not always required for returning to work. (Refer to Criteria for exclusion from, and return to work)

Failure to clear MRSA colonisation after two courses of treatment i.e., persistent carriage of MRSA should be reviewed by the OHD in conjunction with the ICT, the ward manager and/or HR.

Possibilities for further management include changing treatment agents, systemic antibiotics and if necessary, temporary deployment to other clinical areas or non-clinical work etc. will be explored.
References

- Interim guidance on diagnosis and management of PVL-associated Staphylococcal infections in the UK. Health Protection Agency PVL Working Group, April 2006.
  http://www.his.org.uk/_db/_documents/MRSA_Guidelines_PDF.pdf
- CDC Guidelines: Management of Multidrug-Resistant Organisms In Healthcare Settings, 2006. Siegel JD Emily Rhinehart MD et al.. Healthcare Infection Control Practices Advisory Committee
Appendix A: MRSA Screening Method

Sampling sites:

The Standard set of ‘MRSA Screen’ comprises of:

1. Nose (both anterior nares)
2. Throat swab

Additional swabbing sites

- **Urinary catheters**: A CSU should be sent on admission. Swabs should be taken from the insertion site of supra-pubic catheters.

- **Chronic wounds/ Skin lesions**: Leg ulcers, pressure sores, non-healing wounds, recent surgical wounds, umbilical stump sites in neonates, tracheostomy sites.

- **Intravenous device sites**: Central line sites, peg tube sites.

Collection of ‘MRSA Screen’ swabs:

Please refer to staff guidance document on ‘MRSA Screen’ collection in Appendix P.

General Points: The microbiology laboratory provides 7 day week service for MRSA screening of patients.

Laboratory Testing Method(s): See below the lab testing algorithm

Two types of laboratory methods are used for MRSA screening:

**Culture-based method** involving a direct culture on a ‘chromogenic agar’ medium is routinely used for MRSA Screening.

- This method has a high sensitivity (98%) and specificity (98.8%) for detection of MRSA.
- ‘MRSA Negative’ specimen is identified by either no growth or growth of ‘colourless colonies’ and MRSA Positive specimens by ‘denim-blue’ coloured bacterial colonies that are provisionally identified as MRSA and confirmed with further tests including antimicrobial susceptibility testing against a range of antibiotics.
- Negative results are usually available within 24h of receipt of specimens in the laboratory (including weekends and Bank holidays). ‘Positive’ results may take up to 48 h to finalise.

**PCR-based method** is a rapid molecular detection method with a turn around-time of 5-6 hours from receipt of specimen in the lab, to issue of validated report. This rapid method is validated only for nose swabs.

- To run this method in a cost-effective manner the samples require to be batched on receipt before testing.
- Sensitivity - 96% Specificity of 95%
• Available only Monday – Friday 0900-1500. Result is available on the same working day.
• Currently this testing method is used only for ITU and NNU ‘admission screens’ and emergency trauma and orthopaedics surgical patients. PCR-based testing may be requested for urgent elective procedures in vascular surgery, urology and orthopaedics Mon-Fri after prior discussion with the microbiology laboratory manager.

All MRSA isolates are monitored for Mupirocin resistance. Only ‘S’ (Sensitive) isolates are suitable for decolonisation therapy with Mupirocin.

Mupirocin resistant isolates are reported with an interpretative comment:

“MRSA decolonisation therapy with Mupirocin is less likely to be successful. Please seek advice from ICT”
Appendix A - MRSA Screening-Laboratory Testing Algorithm

**‘MRSA Screen’**
- Nose swab
- Throat swab
- Umbilicus swab (neonates)
- Wound/ulcer swab or skin swab (from breaks such as eczema or, other chronic skin conditions)
- Catheter site swab(s):
  - Intravascular catheter insertion/exit site
  - Suprapubic catheter site swab
- Drain-site/PEG -site swab
- Tracheostomy-site site,
- If catheterised – catheter specimen of urine (CSU),
- Soutum from patients with productive cough

**‘MRSA Screen’**

- ITU, NNU & ‘Urgent Elective surgery’: Mon-Fri: 0900-1400 only
- All other MRSA Screens: ‘7 days a week’

**Nose Swab**

**MRSA PCR**

- Positive
- Negative

**Plate specimen (s) on Chromogenic agar**

**FINAL REPORT: MRSA Screen Positive**

**Day 2**

- **‘Coloured Colonies’ - ‘Prolex’ Positive**
- **‘Colourless colonies’**

**Interim Report: Presumptive MRSA Screen Positive**

**FINAL REPORT: MRSA Screen Negative**

**Day 3**

- Confirmation: ‘Tube Coagulase’ Positive and Antibiotic sensitivities (Meth-R)

**FINAL REPORT: MRSA Screen Positive**

**Result Communication Pathway**

**Electronic:**
- Microbiology system TELEPATH
- ICNet for ICNs (Trust & PCT) & Patient Bed Management system

**Manual:**
- ICNet » PMS ‘Electronic Flag’

**ITU, NNU & ‘Urgent Elective surgery’: Mon-Fri: 0900-1400 only**

**All other MRSA Screens: ‘7 days a week’**

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<th>Nasal Swab Results</th>
<th>Action</th>
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<tbody>
<tr>
<td>Positive</td>
<td>Plate specimen(s) on Chromogenic agar£</td>
</tr>
<tr>
<td>Negative</td>
<td>No further specimens are tested</td>
</tr>
</tbody>
</table>

£ Up to two swabs from same patient may be inoculated on to one plate to economise use of chromogenic agar

* BD IDI-MRSA™ PCR is licensed for ‘nose swab only’. Nose swab in ‘sample buffer’ tube for PCR also will be plated on to chromogenic agar and MRSA isolate will be tested for Antimicrobial susceptibility
Appendix A: S.aureus Decolonisation and MRSA Suppression Therapy

**S.aureus Decolonisation and MRSA Suppression Therapy**

Eradication of MRSA carriage is not guaranteed or permanent. Thus, "decolonisation or suppression" rather than eradication may be a more appropriate term to describe temporary reduction in the number (or ↓ in organism bio burden) below the detection limit of laboratory screening methods that is achieved by decolonisation therapy, as opposed to absolute eradication.

‘S. aureus Decolonisation therapy’ refers mainly to the use of topical agents: nasal ointment and body-wash/shampoo to reduce nasal and skin carriage.

Aim: To reduce the risk of surgical site infection (SSI) with S. aureus (SA) including MRSA

4. Decolonisation is not always possible particularly if patient has chronic skin lesions (eczema, psoriasis, wounds/ulcers), tracheostomy, indwelling devices such as urinary catheter, IV cannulae, nasogastric tubes etc...

5. But, a decrease of carriage by decolonisation therapy can reduce the risk of inoculation to patients’ own surgical wounds. Hence, reduction of the SA microbial burden to a level at which it is no longer a risk for SSI may be an achievable and acceptable target in surgical patients.

6. In all “High risk surgery” such as implant surgery, cardiac, vascular and orthopaedic surgery where consequences of infection are particularly serious, every effort is made to decolonise the patient of SA including MRSA prior to surgery.

7. SA/MRSA decolonised patients should ideally have the shortest time gap between decolonisation treatment and surgery to avoid the risk of re-colonisation with MRSA in that interval.

8. Patients may be given **ONLY** one repeat course. The second course of decolonisation is not started until 5d before the due date of operation timed to finish on the morning of the operation.

9. Patients living in nursing homes or long-term care facilities where there is high prevalence of MRSA are at high risk of reacquiring MRSA between the time of pre-admission screening and/or decolonisation and, that of admission (role of household contacts: pets and partner and environment

10. Re-screening for MRSA following decolonisation is not done as risks of either re-acquisition or return of high microbial burden resulting from delay in surgery outweigh the benefits.

11. Inappropriate use of S. aureus decolonisation must be avoided to prevent development and spread of Mupirocin resistance.

12. When in doubt about the suitability of a patient for S. aureus Decolonisation therapy please contact a member of the Infection Control Team.
‘S. aureus Decolonisation therapy’ Regimen

**Nose:** Mupirocin 2% (Bactroban nasal) to anterior nares three-times daily for five days. The patient should be able to taste mupirocin at the back of the throat after application.
- Use Naseptin (0.5% neomycin plus 0.1% chlorhexidine), if pregnant or if MRSA is, Mupirocin Resistant and Neomycin Sensitive
- If MRSA is resistant to both Mupirocin and Neomycin: Please discuss with the CMM

**Skin:** Chlorhexidine gluconate 4% skin cleanser (Hibiscrub) used daily as a soap substitute in the bath or shower or bed bathing for five days. Apply neat to wet skin with special attention to known carriage sites such as axilla, groin and perineal area before rinsing.

**Scalp:** Chlorhexidine gluconate 4% shampoo (Hibiscrub) on alternate days for five days.

Nasal decolonisation should always be used in conjunction with Skin decolonisation with 4%chlorhexidine solution for body wash/shampoo for 5d

MRSA Suppression therapy involves an antiseptic wash (Hibiscrub®/Octenisan®/Dermol 500®) solution for bath/shower and shampoo with particular attention to sites of colonisation such as axillae, groin and perineum and is recommended for all MRSA colonised patients including those NOT undergoing ‘High Risk’ surgery.

Aim: To reduce skin ‘bio burden’ of MRSA to reduce risk of invasive infections such as bacteraemia

**Throat carriage:** This can be very difficult to eradicate. Systemic antibiotics in conjunction with nasal mupirocin and skin decolonisation may be prescribed to clear persistent carriage Please discuss with Consultant Microbiologist (and/or OHD if involves HCW)

**Conjunctival carriage:** Topical antibiotic preparation based on the drug susceptibility may be used (Please discuss with Consultant Microbiologist)

Clean clothing, bed linen and towels should be provided daily.
Adult Staphylococcus aureus (SA) Decolonisation Therapy Administration Record

This record is to be issued for each patient undergoing SA Decolonisation Therapy.

Course number: 1 or 2 (please circle)

### Patient's details
- **Surname**
- **Forename**
- **DOB**
- **Hospital Number**

### Protocol

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**Nasal Ointment (Please circle)**

- **Bactroban (mupirocin 2%)**
  - Apply THREE times daily to the inner surface of both nostrils.

**In pregnancy:**

- **Naseptin (chlohexidine 0.1% and neomycin 0.5%)**
  - Apply FOUR times daily to the inner surface of both nostrils.

**Body Wash & Shampoo (Please circle)**

- **Hibiscrub (chlorhexidine gluconate 4%)**
  - Apply to wet skin and hair for *one minute then wash off.

**Alternatives:**

- **Skinsan (triclosan 1% - leave for *one minute)**
- **Octenisan (octenidine 0.3% - leave for *three minutes)**

*Please initial in the boxes below to indicate administration.*
Appendix B: Glossary of Terms

AVF: Arterio-venous fistula
AVG: Arterio-venous graft

Bacteraemia: presence of bacteria in the blood.

Bloodstream infection: the presence of microbes in the blood with significant clinical consequences, e.g. shock.

CA-MRSA: Community-associated MRSA infections

Persons with MRSA infections that meet all of the following criteria likely have CA-MRSA infections:

- Diagnosis of MRSA was made in the outpatient setting or by a culture positive for MRSA within 48 hours after admission to the hospital.
- No medical history of MRSA infection or colonization.
- No medical history in the past year of:
  - Hospitalization
  - Admission to a nursing home, skilled nursing facility, or hospice
  - Dialysis
  - Surgery
- No permanent indwelling catheters or medical devices that pass through the skin into the body.

CAPD: Continuous Ambulatory Peritoneal Dialysis

Carrier of MRSA is a person who harbours MRSA with no overt expression of clinical disease. A carrier of MRSA is a potential source of infection to others and rarely, a source of endogenous secondary infection when immunocompromised.

Colonization with MRSA is the presence and multiplication of MRSA at a body site without tissue invasion, damage or clinical disease.

Carrier of MRSA can be:

1. A healthy carrier such as healthcare staff or household contact of MRSA patients or,
2. A colonised carrier such as a patient with open wound/ulcer, or urinary catheter or a HCW with chronic skin condition such as eczema

- Recognised carriage sites for MRSA in healthy carriers include the nose and throat and certain skin sites, such as perineum, groin, axilla and in colonised carriers other body sites such as mucosal surfaces of respiratory or gastrointestinal tract, or wounds/ulcers may also harbour MRSA
- The carriage of MRSA can be transient, intermittent or persistent / chronic i.e., may persist for weeks or months.
- Carriage is commonly persistent at sites of damaged or diseased skin (e.g. wounds, eczema) and at sites of insertion of foreign bodies such as intravenous catheters. Colonization of the throat may be a marker of persistent carriage in
otherwise healthy staff members, and oropharyngeal carriage may persist in those with poor dental care, inadequately cleaned dentures or unhealthy tonsils.

**Cohort isolation**: Placing a patient in a designated area of the ward together with other similar patients, i.e. either known/suspected to be carrying MRSA, or known to be free of MRSA (e.g., orthopaedics MRSA Free zone ‘ring fenced’ areas on Lister and Hunter ward), as appropriate

**CMM**: Consultant Medical Microbiologist

**Contact Precautions**: Contact Precautions are designed to reduce the risk of transmission of epidemiologically important microorganisms by direct or indirect contact. Contact Precautions apply to specified patients known or suspected to be infected or colonized (presence of microorganism in or on patient but without clinical signs and symptoms of infection) with epidemiologically important microorganisms than can be transmitted by direct or indirect contact.

**Endemic disease**: the continued presence of a disease-causing organism with or without infection in a given hospital, a given group of patients in a hospital, or a geographical area despite standard control procedures (see ‘Epidemic’).

**Epidemic**: the outbreak of or acquisition of a disease-causing organism spreading widely among people at the same time in a hospital or community (e.g. in a residential facility) or in a geographical area with a frequency that is clearly in excess of normal expectancy. Certain phage types of MRSA are known to spread easily among and within hospitals and are designated, e.g. EMRSA 15, EMRSA 16, etc. (see ‘Endemic disease/phage type’).

**HDU**: High dependency unit

**HCAI**: Healthcare-associated Infection: Healthcare-associated infections (HAIs) are infections that patients acquire during the course of receiving treatment for other conditions or that healthcare workers (HCWs) acquire while performing their duties within a healthcare setting

**ICU**: Intensive care unit

**PMS**: Patient Management System

**IC1**: Infection Control Electronic flag on the PMS for MRSA

**ICT**: Infection Control Team

**Infection with MRSA**: the entry and multiplication of MRSA in the tissues of the host where they cause tissue damage.

**Isolation**: Placing a patient in a single room and using appropriate infection control precautions either to prevent spread of MRSA from the patient, or to prevent the patient acquiring MRSA (e.g., orthopaedics MRSA Free zone ‘ring fenced’ areas on Lister and Hunter ward), as appropriate.

**SCBU**: Special care baby unit

**NICU**: Neonatal intensive care unit

**PD**: Peritoneal Dialysis

**TDC**: Tunnelled dialysis catheters
Appendix C: Definitions

“High-Risk Surgery” is one that carries high risk of surgical site infection (SSI) or, where consequences of surgical infections are potentially serious and devastating and, for which surgical antimicrobial prophylaxis (SAMP) is generally recommended.

- **Orthopaedic surgery**
  a) Primary arthroplasty (joint replacement)
  b) Revision arthroplasty
  c) Spinal surgery: laminectomy, discectomy, spinal fusion & fixation etc.
  d) Open reduction and internal fixation of fractures

- **Vascular surgery**
  a) Abdominal Aortic Aneurysm (AAA) repair
  b) Femoral-femoral crossover graft, Femoral-popliteal graft
  c) Lower limb amputation
  d) Ulcer/wound/tissue debridement
  e) Varicose vein surgery
  f) Compartment surgery/fasciotomy

- **General surgery**
  a) Colorectal surgery
  b) Appendicectomy (mainly emergency surgery)
  c) Biliary surgery (open)
  d) PEG tube insertion
  e) Gastroduodenal surgery
  f) Oesophageal surgery
  g) Small bowel surgery
  h) Inguinal hernia repair with mesh
  i) Breast surgery

- **Urology**
  a) Transrectal prostate biopsy
  b) Shock-wave lithotripsy
  c) Transurethral resection of prostate (TRUS)

- **Obstetrics and Gynaecology surgery**
  a) Caesarean section
  b) Gynaecological e.g., abdominal and vaginal hysterectomy

“High-risk” Patient is a patient with ≥1 of the following risk factors:

- Known to be previously infected or colonised with MRSA *(Previous MRSA status of the patient can be ascertained by reviewing the Micro-results on EPROA)*
- Hospitalisation in or outside the trust in the past year
- Resident in nursing home or other long-term care facilities
- Diabetes with long-standing (>6 weeks) ulcers
- Frequent re-admissions to any healthcare facility
- Direct inter-hospital transfer
- Transfer from hospitals abroad
- Health care worker (HCW) with any form of direct patient contact
- Prior (in the past month) antibiotic therapy
- IV lines or Central venous catheters (CVCs)
- Intravenous drug abuse
• Patients infected with HIV
• Veterinary staff
• Spouses and partners of HCWs
• Household contact(s) of ‘MRSA Positive’ patients

“High-Risk” Clinical Units are units with highest clinical impact of high MRSA prevalence rate such as high risk for serious MRSA infections or high rates of MRSA infections among colonised patients

Health care staff/ Health-care workers (HCWs) includes doctors, nurses, physiotherapists and other allied health professionals, and non-clinical support staff (e.g. porters), locum and agency staff

Universal MRSA Screening includes screening for MRSA of all elective and emergency admissions including day cases.

Elective Screening includes all (medical and surgical) elective admissions including day cases with the following exceptions:

• Day case dental
• Day case endoscopy
• Minor dermatology procedures, e.g. warts other liquid nitrogen applications

Based on local risk assessment, the following categories of patients are routinely screened:

• Children/paediatrics
• Maternity/obstetrics

This is in variance with the National guidance issued on 31 July 2008, Gateway reference 10324
Appendix D: MRSA Screening Categories

**MRSA Screening Categories**

**Elective Screening**
- Elective Admissions
- 'Day case' Admissions

**Surgery**
- Trauma & Orthopaedics (T & O) Surgery
- Vascular Surgery
- General Surgery incl. breast surgery
- Urology
- ENT & Maxillo-facial surgery
- Ophthalmology
- Gynae & Obstetric surgery (E.g., LSCS)
- Interventional Radiology

**Medicine**
- Cardiac procedures such as stent/pacemaker/defibrillator insertion
- PEG tube insertion
- Hickman/PICC line, Haemodialysis catheter (Tesio line), CAPD catheter insertion
- Radiotherapy
- Joint Injections

**Emergency Screening**
- ALL (Medical & Surgical) Emergency Admissions

**Surgical Admissions**
- T & O surgery
- Vascular surgery
- General Surgery
- Urology
- ENT & Maxillo-facial surgery
- Ophthalmology
- Gynae & Obstetric surgery (E.g., LSCS)
- Interventional Radiology

**‘Discharge screening’**
- "High Risk" clinical wards/units
  - Intensive care unit (ICU)
  - Neonatal intensive care unit (SCBU) Buscot

**Routine Periodic Surveillance**
- Weekly Screening of all patients on ICU, HDU and SCBU
- Quarterly Renal dialysis patients

**Local screening exceptions are:**
- Screening of patients exposed to ‘index’ case of MRSA e.g. in the same bay/ward/unit
- Health care staff screening

*: List of procedure is only indicative but not fully inclusive
Appendix E: Adult Elective Surgical Admissions: MRSA Clinical Management Algorithm

**‘S. aureus Decolonisation Therapy’ for 5 days**
- Nasal Bactroban® 3 times daily
- Hibiscrub® skin wash once daily
- Shampoo hair on alternate days

Patient attends outpatient clinic. Decision to admit

- Patient requires pre-op assessment
- Patient does not require pre-op assessment

Patient attends ‘FIT for SURGERY’ (FFS) from clinic

Screen for MRSA

Check PMS for Electronic Flag (IC1) for MRSA,
If present: Do not re-screen, manage as MRSA Positive

If already screened and MRSA screen NEGATIVE:
- Risk assess for change of circumstances i.e.:
  If ‘High Risk’ for MRSA – RE-SCREEN

- Arrange ‘S. aureus Decolonisation Therapy’:
  To be started EXACTLY 5 d prior to surgery
- Stop Bactroban® after 5 days and continue daily Hibiscrub® skin wash and once a week antiseptic hair shampoo for duration of in-patient stay

MRSA Positive

MRSA Negative

If not already screened – SCREEN NOW

MRSA Positive

MRSA Negative

At Pre-op: Check patient has been

Notify Ward Staff, document patient’s MRSA status in patient’s case and mark electronic flag IC1 on the PMS

Admit for Procedure

‘High Risk’ for MRSA:
- Hospitalisation in or outside the trust in the past year
- Resident in nursing home or other long-term care facilities
- Diabetes with long-standing (>6 weeks) ulcers
- Direct inter-hospital transfer
- Transfer from hospitals abroad
- Health care worker (HCW) with any form of direct patient contact
- IV lines or Central venous catheters (CVCs)
- Household contact(s) of ‘MRSA Positive’ patients
Appendix F: Adult Medical Admissions: MRSA Clinical Management Algorithm

**On Admission:** Check PMS for Electronic Flag (IC1) for MRSA

**PMS Flagged IC1 POSITIVE i.e., ‘Known MRSA Positive’**
- **DO NOT RESCREEN** - Manage as ‘MRSA Positive’
- Document patient’s MRSA status on the transfer form and in patient’s case notes before transfer to ward/department

**MRSA Positive**
- ‘Contact Isolation’
  - Isolate in a single room
  - Use Contact isolation precautions
  - Undertake risk-assessment to determine priority for isolation *(refer to trust Isolation policy)*
  - Contact the ICT, if necessary.

**‘Early appropriate Clinical management of MRSA Positive patient’**
- Discuss treatment of MRSA infection with the CMM
- **No ‘Just-In-Case’ venflons,’urinary catheters**
- Compliance with hand hygiene’ and Aseptic technique

**MRSA Negative**
- MRSA Suppression therapy may be stopped
- Use ‘Standard precautions’

**PMS flag absent or ‘MRSA status Unknown’**
- **Frequent or regular attenders** (except Renal patients): Re-screen **ONLY IF** >3 months since last attendance

**Send within 6 h of admission ‘MRSA Screen’:** Nose (both nostrils with one swab), throat swab ± Wound swab, if any ± CSU, if catheterised

(Except ‘Day Cases’): Start ‘MRSA Suppression Therapy’

**‘Day Case’:** Send a copy of ‘MRSA Screen’ report to patient’s GP
On Admission: Check PMS for Electronic Flag (IC1) for MRSA

PMS Flagged IC1 POSITIVE or ‘Known MRSA Positive’

DO NOT RESCREEN - Manage as ‘MRSA Positive’
Inform clinicians and patient
Document patient’s MRSA status on the transfer form and in patient’s case notes before transfer to ward/department
Start ‘S. aureus Decolonisation Therapy’

Send within 6 h of admission ‘MRSA Screen’: Nose (both nostrils with one swab), throat swab ± Wound swab, if any ± CSU, if catheterised

Surgery within 5 days

PMS flag absent or ‘MRSA status Unknown’

YES

NO

Stop Bactroban® after 5 days and continue daily Hibiscrub® skin wash and once a week antiseptic hair shampoo for duration of in-patient stay

Surgery within 5 days

‘S. aureus Decolonisation Therapy’ for 5 days
- Nasal Bactroban® 3 times daily
- Hibiscrub® skin wash once daily
- Shampoo hair on alternate days

YES

NO

Start ‘S. aureus Decolonisation Therapy’

MRSA screening result

‘MRSA Positive’
- ‘S. aureus Decolonisation Therapy’ may be stopped
- Use ‘Standard precautions’
- Inform clinicians and patient
  - Document patient’s MRSA status on the transfer form and in patient’s case notes before transfer to ward/department

‘MRSA Negative’
- ‘S. aureus Decolonisation Therapy’ may be stopped
- Use ‘Standard precautions’
- Inform clinicians and patient
  - Document patient’s MRSA status on the transfer form and in patient’s case notes before transfer to ward/department

Follow the algorithm for clinical management of ‘Medical Admissions’ or Postponement/ Cancellation of surgery

• Isolate in a single room
• Use Contact isolation precautions
• Undertake risk-assessment to determine priority for isolation (refer to trust Isolation policy)
• Contact the ICT-if necessary.

Appendix G: Adult Emergency Surgical Admissions: MRSA Clinical Management Algorithm
Appendix H: Cancellation/Postponement of Emergency Surgery

**In the event of cancellation/postponement of surgery**

IF surgery is due in \( \leq 5 \)d & **MRSA POSITIVE**
- Continue *S. aureus Decolonisation Therapy* with a second course, if necessary

IF surgery postponed for >5d, or cancelled & **MRSA POSITIVE**
- *S. aureus Decolonisation Therapy* is not started until 5 days before the due date of operation and timed to finish on the morning of operation
- If already started, finish the prescribed course and start the second course 5 days before surgery as above

**MRSA NEGATIVE**
- No further action required
  - Use ‘Standard Precautions’

---

- **Theatre**: Peri-operative antimicrobial prophylaxis appropriate to procedure – refer to surgical antimicrobial prophylaxis policy on the ‘Antibiotic Home Page’.

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- **S. aureus Decolonisation Therapy** for 5 days
  - Nasal Bactroban® 3 times daily
  - Hibiscrub® skin wash once daily
  - Shampoo hair on alternate days
Appendix I: MRSA Pathway for Maternity

MRSA PATHWAY FOR MATERNITY
All women will be screened for MRSA at 34/40. Record result in notes for variations of this see below

- **Woman known to be MRSA POSITIVE:**
  - DO NOT Rescreen
  - Ensure status is recorded - in notes on results page and pink flash sheet
  - DO NOT give decolitisation therapy
  - Give suppression therapy at every admission
  - Give woman information sheet

- **Woman admitted before 34/40 MRSA screen or has previous NEGATIVE MRSA screen:**
  - MRSA screen at every admission
  - NEGATIVE result
  - No further action
  - On admission for delivery/pre operative clerking ensure negative result recorded in notes

- **Woman booked for a day surgery before 34/40:**
  - Take MRSA in ANC when surgery planned
  - Record in notes

  - New POSITIVE result
    - Pathology to inform ANC sister of POSITIVE result

**HOW TO SCREEN:**
- Use charcoal swab moistened with normal saline
- Swab both nostrils with one swab
- Swab throat with one swab
- Use pink pathology form

**CAESAREAN SECTIONS IF MRSA POSITIVE**

- Ensure results recorded in notes
- Ensure woman completed decolisation therapy
- To have suppression therapy during hospital stay
- Woman to be given IV Teicoplanin 400mg + IV Gentamicin 2mg/kg at delivery
- See Obstetric Antibiotic guideline

**IF NO RESULT KNOWN IN LABOUR**

- Screen for MRSA
  - Mark card URGENT
  - Commence suppression therapy (Continue until discharge or NEGATIVE MRSA result)
  - If delivered by LSCS give IV Teicoplanin 400mg + IV Gentamicin 2mg/kg at delivery
    - See Obstetric Antibiotic guideline

**Hibiscrub and Naseptin will be supplied by ANC Sister**
- In an emergency supplies are available on Delivery Suite.
- Decolisation therapy - Hibiscrub use as body wash and shampoo daily. Rub Hibiscrub onto skin as normal soap would be used then rinse off in shower or bath
- Naseptin cream applied to inside both nostrils at discharge.
- Suppression therapy - Hibiscrub. Use daily as a body wash and shampoo until discharge.
- For women with dermatological skin problems use Octenise instead of Hibiscrub. Supplies kept on Delivery Suite

**ANC to contact woman, GP and community midwife and informs all of result. Arranges with the woman to collect Hibiscrub and Naseptin and information leaflet from ANC**
- To start decolonisation therapy immediately for 5 days. Change linen/towels daily for 5 days.
- To bring in suppression therapy when admitted to hospital.

**Record all of above in notes. Record MRSA status on pink flash sheet and results page.**

**ADMISSION TO HOSPITAL**
- **- ANTENATAL, INTRAPARTUM, POST NATAL IF MRSA POSITIVE**

- Commence suppression therapy and continue until discharge

Babies of MRSA POSITIVE mums should be regarded as positive. If <36/40 gestation, Octenise will be prescribed by Paediatrician as a skin wash daily. This should be rubbed into the baby's skin then washed.
Appendix J: MRSA Clinical Management Algorithm for Paediatric Elective Surgical Patients

**Elective surgery: Pre-op assessment**
Check patient’s case notes for any previous MRSA results

- **Screen on Admission**
  - Check patient’s case notes for any previous MRSA results

- **Procedure**

  - **‘MRSA Positive’**
    - Record IC I Flag on the PMS
    - Inform GP and/or dentist
    - DO NOT rescreen on admission
    - Isolate in a single room
    - Use Contact isolation precautions
    - Undertake risk-assessment to determine priority for isolation (refer to trust Isolation policy)
    - Contact the ICT-if necessary.

  - **‘MRSA Negative’**
    - Recall for *S. aureus Decolonisation Therapy*
    - Nasal Bactroban® 3 times daily PLUS Octenisan® (<6 mo) OR Hibiscrub® (>6 mo) skin wash for 5 days
    - DO NOT rescreen on admission

- **Screen at Pre-op clinic**

  - **If ≥5 days prior to surgery**
    - Recalled for *S. aureus Decolonisation Therapy*
    - Theatre: Peri-operative antimicrobial prophylaxis appropriate to procedure
    - Complete FULL 5 days of *S. aureus Decolonisation Therapy*
    - Continue Octenisan®/ Hibiscrub® once daily wash for duration of inpatient stay

- **‘MRSA Positive’**
  - Inform clinicians and the patient/patient’s parents or carers
  - Document patient’s MRSA status on the transfer form and in patient’s case notes before transfer to ward/department

- **‘MRSA Negative’**
  - DO NOT postpone surgery
  - Start *S. aureus Decolonisation Therapy*

- **No attendance at pre-op for overnight admission**

  - Follow the Paediatric Emergency Admission Pathway

- **‘Day Case’**

  - Follow the Paediatric Emergency Admission Pathway

- **Procedure**

  - **‘MRSA Positive’**
    - Isolate in a single room
    - Use Contact isolation precautions
    - Undertake risk-assessment to determine priority for isolation (refer to trust Isolation policy)
    - Contact the ICT-if necessary.
Appendix K: MRSA Pathway for the Neonatal unit

‘MRSA Admission Screen’: Send at 4 hours of admission Nose swab (both nostrils with one swab & umbilicus swab) ± other specimens appropriate to the clinical situation

Await MRSA Screening Result
Use Standard Isolation Precautions

‘High risk for MRSA’ i.e.: Mother is known MRSA Positive, or Transfer from other hospital or ward or clinical unit

YES

NO

Positive

Negative

‘Weekly MRSA Screen’ i.e. every MONDAY

‘Discharge MRSA Screening’ on the day of discharge

YES

NO

‘Source isolate’ preferably in a in a single cubicle with 1:1 Nursing
If not available:
- Risk-assess and isolate either
  - In Incubator on ward adjacent to wash basin not within 3 metres of another baby
  - In open cot in ward adjacent to wash basin not within 3 metres of another baby
- Inform the clinicians and parents
- Document in patient’s case notes and the PMS

Decolonisation
- No decolonisation for pre-term babies (<36 weeks).
- For babies ≥36 weeks: Octenisan® daily bath and nasal Bactroban® 3 times a day for 5 days

Discuss with the ICT regards to available isolation capacity - Complete Incident Form

Positive

If transferred to other hospital/unit: Inform the clinicians and the ICT of the receiving hospital or unit
- Document patient’s MRSA status on the transfer form and in patient’s case notes before transfer to ward/department
- Inform the GP or document in the discharge letter, if discharged home

Negative

No further action
- Document MRSA screening result in the patient’s discharge letter
Appendix L: MRSA Clinical Management Algorithm for Paediatric Medical/Surgical Emergency Admissions

- **PMS Flagged IC1 POSITIVE or ‘Known MRSA Positive’**
  - Isolate in a single room
  - Use Contact isolation precautions
  - Undertake risk-assessment to determine priority for isolation (*refer to trust isolation policy*)
  - Contact the ICT-if necessary.
  - Start ‘**MRSA Suppression Therapy**’ ADD EXACTLY 5 days before surgery
    - Nasal Bactroban® 3 times daily
    - Octenisan® (<6 mo) OR Hibiscrub® (>6 mo) skin wash for 5 days

- **On Admission:** Check PMS for Electronic Flag (IC1) for MRSA

- **PMS flag absent or ‘MRSA status Unknown’**
  - Send within 6 h of admission ‘**MRSA Screen**: Nose (both nostrils with one swab), throat swab (or both groins with one swab) ± Wound swab, if any ± CSU, if catheterised
  - Inform clinicians and the patient/patient’s parents or carer
  - Document patient’s MRSA status on the transfer form and in patient’s case notes before transfer to ward/department
  - MRSA Screening Result
    - ‘**MRSA Negative**’
      - No Further action
    - ‘**MRSA Positive**’
      - Inform clinicians and the patient/patient’s parents or carers
      - Document patient’s MRSA status on the transfer form and in patient’s case notes before transfer to ward/department
      - Record IC I Flag on the PMS

- **Surgery within 5 days**
  - Start ‘**MRSA Suppression Therapy**’ ADD EXACTLY 5 days before surgery
    - Nasal Bactroban® 3 times daily
  - After 5 days, **STOP** Nasal Bactroban® AND
    - Continue Octenisan®/Hibiscrub® once daily wash for duration of inpatient stay

- **YES**
  - MRSA Screening Result Positive/Negative
  - **‘MRSA Positive’**
    - Theatre: Peri-operative antimicrobial prophylaxis appropriate to procedure
    - Start ‘**MRSA Suppression Therapy**’ ADD EXACTLY 5 days before surgery
      - Nasal Bactroban® 3 times daily

- **NO**
  - Start ‘**S.aureus Decolonisation Therapy**’
    - Nasal Bactroban® 3 times daily
    - Octenisan® (<6 mo) OR Hibiscrub® (>6 mo) skin wash for 5 days
  - After 5 days, **STOP** Nasal Bactroban® AND
    - Continue Octenisan®/Hibiscrub® once daily wash for duration of inpatient stay

- **MRSA Screening Result**
  - ‘**MRSA Positive**’
    - Inform clinicians and the patient/patient’s parents or carers
    - Document patient’s MRSA status on the transfer form and in patient’s case notes before transfer to ward/department
    - Record IC I Flag on the PMS
  - ‘**MRSA Negative**’
    - No Further action
Appendix M: Renal Unit Protocol

a) **Pre-insertion of TDC/AVG/AVF** If transferred to other hospital/unit: Inform the clinicians and the ICT

- **S. aureus screen swabs** Nose swab (anterior nares)
  - **S. aureus “Screen Positive”**
    - ‘S. aureus Decolonisation Therapy’ for 5 days
  - **S. aureus “Screen Negative”**

Rescreen for **S. aureus** carriage X 3 monthly

- **S. aureus “Screen Positive”**
  - ‘S. aureus Decolonisation Therapy’ for 5 days
- **S. aureus “Screen Negative”**

**Quarterly Screening for S. aureus** carriage until PD or TDC/AVG is removed, or until 2 consecutive (re)screens collected at least 5 d apart are negative, whilst on dialysis through AVF
Appendix N: Staphylococcus aureus (including MRSA) Decolonisation Therapy – information for patients

1. What is \textit{Staphylococcus aureus} decolonisation therapy?
   - It is a therapy to reduce or control \textit{Staphylococcus aureus} (SA) bacteria, including Meticillin Resistant SA (MRSA) living on the skin and nose, in readiness for your procedure. The therapy aims to reduce the risk of infections following an invasive procedure, such as an operation.
   - SA decolonisation therapy consists of Hibiscrub\textsuperscript{®} (chlorhexidine 4%) wash solution to be used \textbf{only} on the skin and Bactroban\textsuperscript{®} (mupirocin 2%) nasal ointment to be used \textbf{only} in the nose. Both therapies are to be used at the same time.

2. Before using the ointment/wash solution, ask yourself the following questions:
   - Are you allergic to Bactroban\textsuperscript{®} (mupirocin) or Hibiscrub\textsuperscript{®} (chlorhexidine) or anything containing: white soft paraffin or Softisan 649 (a glycerin ester), D-glucono-delta-lactone, isopropyl alcohol, lauryl dimethyl amine oxide, perfume (Herbacol 015393 TB), polyoxyethylene-polyoxypropylene block copolymer, Ponceau 4R (E124), sodium hydroxide, glycerol, or macrogol-7 glycerol cocoate?
   - Are you pregnant or think you may be?
   - Are you breastfeeding?
   - Do you have a large open wound?
   - Do you have psoriasis or eczema?

\textit{If you answer YES to any of the questions above DO NOT use these topical medicines until you have talked to your doctor. You may need to be given an alternative medication or the dose may need to be changed.}
### 3. Plan of treatment

<table>
<thead>
<tr>
<th>Agent</th>
<th>Trade name</th>
<th>Instructions for use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mupirocin 2% nasal ointment</strong></td>
<td><strong>Bactroban®</strong></td>
<td><em>Apply to the inner surface of both nostrils 3 times daily for 5 days</em></td>
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<tr>
<td></td>
<td></td>
<td><strong>How to apply?</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>a) Wash your hands thoroughly using soap and water. Unscrew the</td>
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<td></td>
<td></td>
<td>cap and squeeze a small amount of ointment, about the size of a</td>
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<td></td>
<td></td>
<td>match head, onto your little finger.</td>
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<td></td>
<td></td>
<td>b) Apply ointment to the inside of one nostril.</td>
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<tr>
<td></td>
<td></td>
<td>c) Repeat for the other nostril.</td>
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<tr>
<td></td>
<td></td>
<td>d) Close your nostrils by pressing the sides of the nose together for a</td>
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<td></td>
<td></td>
<td>moment and massage gently upwards until you can taste mupirocin at the back of</td>
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<td></td>
<td></td>
<td>your throat. This will spread the ointment inside each nostril.</td>
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<tr>
<td></td>
<td></td>
<td>e) Wash your hands and replace the cap on the tube.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Keep out of the eyes and ears.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If you need to apply the nasal ointment to another person use a cotton bud</td>
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<tr>
<td></td>
<td></td>
<td>instead of the finger.</td>
</tr>
<tr>
<td><strong>Chlorhexidine 4% wash solution</strong></td>
<td><strong>Hibiscrub®</strong></td>
<td><em>Use ONCE DAILY as a soap substitute in the shower for 5 days.</em></td>
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<tr>
<td></td>
<td></td>
<td>• Apply neat (undiluted) to wet skin directly or to a dampened wash-cloth/disposable</td>
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<td></td>
<td>wipes (single patient use only) and rub onto all areas of the body (particularly</td>
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<td></td>
<td></td>
<td>areas 1, 2, 3 and 4), leave for ONE minute and rinse off.</td>
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<td></td>
<td>• Use a clean and dry personal towel each time i.e. towels should be for</td>
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<td></td>
<td></td>
<td>individual person use and changed daily.</td>
</tr>
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<td></td>
<td></td>
<td>• Keep out of the eyes (if chlorhexidine solution come into contact with the eyes,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>wash out promptly and thoroughly with water) and ears.</td>
</tr>
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<td></td>
<td></td>
<td>• Use as a shampoo on alternate days for the 5 days of treatment.</td>
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<td></td>
<td></td>
<td>• Apply to hair and scalp and leave for ONE minute before rinsing.</td>
</tr>
</tbody>
</table>
General note:

- Start treatment as directed by your nurse/doctor and complete the course.
- If your procedure is postponed, seek further advice from your doctor, nurse or pharmacist.
- After washing, use clean sheets and clothing. Launder items separately from those of other family members, using as high a temperature as the fabric allows.
- For the duration of skin treatment; sheets and towels should be changed daily.
- At the end of your treatment, dispose off all topical medical items as directed.

4. Storage information:

- Do not store above 25°C.

5. What unwanted side effects might your topical medicines have?

- Please refer to the product information leaflet that comes with your topical medications.

6. Where can I get more information about Decolonisation Therapy?

- Contact the Infection Control Team on 0118 322 7115 email: infection.control@royalberkshire.nhs.uk
- Fit for Surgery clinic on 0118 322 6546
Appendix O: Staff guidance on ‘MRSA Screening’

Universal admission screening for MRSA

When do you swab patients?
All admissions to the Trust are being swabbed to identify if they are MRSA positive. This assists you to identify those individuals who will need side rooms (if available) and to also ensure these patients receive the correct treatment for their illness, i.e. appropriate antibiotics.

Sites for swabbing
Nose and throat (see additional information for further advice regarding swabbing sites).

Equipment

<table>
<thead>
<tr>
<th>Screening swabs</th>
<th>Clinically clean gloves</th>
<th>Specimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal saline or sterile water card</td>
<td>Apron</td>
<td>Pink request</td>
</tr>
</tbody>
</table>

The pink pathology form needs to request an **MRSA SCREEN**. This will ensure the correct swab is sent with the correct patient details.

Labelling: Label each swab with the patient’s details and the site from which the swab was taken. Swabs may be bagged together and sent through the pod system.
Details of the GP and GP practice must also be included on the admission screening form.

How to swab

- Standard swabs for bacteriological culture should be used for MRSA screening.
- Swabs should be taken using a swab moistened with sterile saline or sterile water.
- Each swab should be rubbed over the appropriate area approximately 5 times (one swab for the both nostrils and one swab for the throat) to ensure a good quality specimen is taken.
- It is not necessary to pre-moisten swabs before sampling wounds with exudates (oozing wounds).

Nose: rub one swab 5 times around the inside of each nostril. Swab the inner/fleshy area of the nostrils (anterior nares).

Throat: gently wipe one swab over each of the faucial tonsils 5 times. Be careful not to make the patient retch.

Additional swabbing sites

**Urinary catheters:** A CSU should be sent on admission. Swabs should be taken from the insertion site of supra-pubic catheters.

**Chronic wounds/ Skin lesions:** Leg ulcers, pressure sores, non-healing wounds, recent surgical wounds, umbilical stump sites in neonates, tracheostomy sites.

**Intravenous device sites:** Central line sites, peg tube sites.
What if a patient refuses or asks you questions you cannot answer?
Refer to a more senior colleague. Patient information regarding MRSA is available from the infection control web site under “patient leaflets”.

What if the patient already has MRSA?
If the patient is known to have MRSA they **DO NOT** need re-swabbing.

How quickly are results available?
MRSA positive results will be available within approximately 24 - 48 hours.

Where can I find further information?
Information regarding MRSA treatment protocols is also available via the infection control Intranet pages. The infection control team can be contacted on Ext 7114 / 7129 / 7115.