MULTI RESISTANT STAPHYLOCOCCUS AUREUS (MRSA): MANAGEMENT - SCH

PROCEDURE©

DOCUMENT SUMMARY/KEY POINTS

- This document will discuss six issues:
  - Screening for MRSA for infection prevention and control purposes,
  - Pre-operative screening for *Staphylococcus aureus* carriage to inform perioperative management,
  - Perioperative load reduction therapy ("decolonisation"),
  - Intraoperative antimicrobial prophylaxis, and
  - Infection control for MRSA carriers
  - De-isolation

CHANGE SUMMARY

- Drug dosing for vancomycin amended in concordance with "Surgical Antimicrobial Prophylaxis – SCH"
- Link to Surgical Antimicrobial Prophylaxis – SCH" added

READ ACKNOWLEDGEMENT

- Clinical staff (medical and nursing) should read and acknowledge they understand the contents of this document.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1st November 2015	**Review Period:** 3 years
Team Leader:	Staff Specialist	**Area/Dept**: Infection Prevention & Control

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1 MRSA Screening

Purpose

Screening for MRSA in select "at-risk" patients guides isolation should the patient require hospitalisation.

Whom to Screen

- Paediatric Intensive Care Units,
- High dependency units,
- Bone marrow transplants,
- Solid organ transplants – e.g. renal, liver,
- Neonatal Intensive Care,
- Inter-hospital transfer of chronic patients,
- Patients readmitted within 6 months of MRSA being previously documented.

Frequency of Screening

- Intensive Cares (paediatric and newborn) and High Dependency Units:
  - Paediatric ICU: On admission and discharge to regular ward
  - Level 3 NICU: On admission and at discharge to next level
  - Level 1 and 2 NICU: On admission (as above)
- Inter-hospital transfers: On admission
- Transplant patients: Ideally 7 days prior to a planned procedure, otherwise on admission

Screening Sites

- Nose and throat
- Broken or breached areas of skin (e.g. ulcers, skin tears or recent surgical wounds)
- Device exit sites (e.g. central venous access device sites, colostomy sites, PEG sites, tracheostomy site)
- Urine if an indwelling catheter is present
- Tracheal aspirates (in patients with a tracheostomy)

The request form should state "MRSA Screening." Results are usually available within 24 – 48 hours. It is the responsibility of the requesting clinician's team to access results.

2 Pre-Elective Admission Screening of Surgical Patients

Cardiac Surgery and Orthopaedic Surgery with Prosthesis Insertion

For elective procedures, screening for *Staphylococcus aureus* (MRSA and MSSA) carriage should occur at least 7 days pre-admission. This allows for appropriate microbiological load-reduction interventions ("decolonisation") if needed (see Section 4), and optimisation of peri-operative antimicrobial prophylaxis. Screening in the event of non-elective procedures or procedures in admitted patients should also occur as soon as surgery is planned. This can occur at any time up to the date of surgery.

Frequency of Screening

- Surgically "at-risk" patient groups: prior to elective admission (see above for timing for pre-surgery) or at admission
- Screening Sites (as above)

  The request form should state "*Staphylococcus aureus* (MSSA and MRSA) Preoperative Screening." Results are usually available within 24 - 48 hours. It is the responsibility of the requesting clinician's team to access results.

3 Antibiotic Prophylaxis

The recommendations for intra-operative surgical site infection (SSI) prophylaxis against *Staphylococcus aureus* are as follows. The hospital surgical antimicrobial prophylaxis can be assessed on http://chw.schn.health.nsw.gov.au/o/documents/policies/guidelines/2013-7035.pdf

Non MRSA – carriers (i.e. sensitive staphylococcus isolated)

- Cefazolin (30mg/kg up to 2g, IV), with repeat dose at 4 hours in prolonged procedures

MRSA carriers

- Vancomycin (paediatric dosing) 15 mg/kg up to 1.0 g), IV (slow infusion), ending the infusion just before the procedure (N.B: coordination with the anaesthetist may be required). Repeat dose at 12 hours in prolonged surgery.

If isolate is reported to be "Erythromycin susceptible", can use

- Clindamycin (10mg/kg, up to 600mg with repeat dose at 3 hours in prolonged procedures).

4 *Staphylococcus aureus* "Load Reduction" Protocol

Staphylococcus aureus Load Reduction "Decolonisation" - 5 Day Protocol

The following is a protocol for a "5 day plan" for load reduction ("decolonisation") for *Staphylococcus aureus* (SA) or "Golden Staph" (applicable for either methicillin sensitive (MSSA) or methicillin resistant strains (MRSA).

USE BOTH:

Nasal mupirocin

- Wash hands before use.
- 2% nasal mupirocin (Bactroban) is applied to each nostril, TWICE a day (AM, PM) for 5 days.
- If patient/individual is on an antibiotic for MSSA or MRSA therapy, the "5 day decolonisation" should coincide with the last 5 days of antibiotic treatment
- Place a small amount (size of match head) of ointment onto a clean cotton bud tip and massage gently around the inside of nostril. Do not insert too deeply.
- Use a new cotton bud for each nostril.
- After applying the ointment, press finger against the nose next to the nostril opening and use a circular motion to spread the ointment within the nose.
- Wash hands after application.

AND *EITHER*

Antiseptic body wash

- Suitable body washes are a chlorhexidine-based wash (e.g. Microshield™ 2[1] or MicroshieldTM 4) or bleach baths (see below). If the child has eczema, then *Oilatum Plus* [2](for children ≥ 6 months of age) or bleach baths should be used.
- Apply the antiseptic body wash or use bleach baths daily, for the same 5 days as nasal mupirocin.
- Take care to wash hair, under the arms, inguinal region and in any skin folds.
- Allow the antiseptic to remain on the skin for at least 5 minutes before washing off.

OR

Bleach Baths

- **Older child or adult**: Add to a full bath tub of water (150-180 L), ½ of a cup (125 mL) of ~ 4% bleach. *This is normal household bleach and should be the unperfumed, unscented variety.
- The child or adult can spend a normal time in the bath, generally 5-10 minutes. The bleach baths are given daily for 5 days
- Do not immerse the child's head under the water. Tip: For young children, wet scalp areas and behind ears using a small / facial towel or flannelette. Older kids – tip

[1] Contains 2% or 4% chlorhexidine gluconate respectively. Not recommended for children < 2 months old; bleach baths are recommended in this age group.
[2] Benzalkonium chloride 6% w/w, Triclosan 2% w/w, light liquid paraffin 52.5% w/w – adhere to 'Instructions for Use'

head back and drench scalp/head area with the bleach bath water, take care to avoid eyes

- Once the bath is finished, partially dry the skin by patting it with a towel. Do not rub the skin and don't dry completely.
- Use moisturiser (e.g. "QV Skin lotion") after the bath as the bleach bath can be drying. Using moisturiser from a pump pack will decrease the chance of contamination of the moisturiser with *Staphylococcus aureus*.
- **Newborns or very small infant**: Add **1 ml of ~ 4%** bleach* to 1 L of water in a spray bottle. Spray on skin. AVOID head area (including avoid eyes, face and scalp). Leave for 5 – 10 minutes. Either rinse and dry off or just dry off. Follow daily for 5 days
- Use moisturiser after the bath as the bleach can be drying e.g. "QV Skin Lotion". Using moisturiser from a pump pack will decrease the chance of contamination of the moisturiser with *Staphylococcus aureus*.

5 Infection Control for MRSA Carriers

Isolation

- All MRSA patients must be isolated in a single room at admission.
- If a single room is not available, patients with MRSA may be cohorted in a closed room, preferably with en-suite, as long as their MRSA have same antibiotic sensitivities.
- Consult the Clinical Nurse Consultant in Infection Control and Surveillance, Infectious Diseases Service or Clinical Microbiologist if this is unclear.
- Standard and Contact Precautions must be used. Limit numbers of staff, visitors and equipment to the room of the patient with MRO.

6 De-Isolation

A patient previously known to be colonised or infected with MRSA can only be de-isolated after consultation with either with the CNC in Infection Prevention Control (pager 47140), Infectious Diseases Specialist (Contact via switch) or the Chief RMO (pager 44112).

- The following factors must all be identified and assessed prior to documenting that a patient is clear of a particular MRSA strain
- The samples for MRSA screening must include
  - Nose and throat
  - Samples from other clinically relevant site (e.g. skin if well controlled eczema, sputum if chronic lung disease, exit sites if in-dwelling device present)

The request form must state "MRSA Screening"

De-Isolation Criteria

A patient can be considered for de-isolation in the following circumstances:

- **Clinical Conditions:**
  - **Skin**, **musculoskeletal** or **CNS** infection or colonisation with MRSA: There must be greater than or equal to 3 months since the last positive MRSA specimen

    or
  - **Respiratory tract** infections or **colonisation** with MRSA (e.g. cystic fibrosis See: CF document) There must be greater than or equal to 6 months after the first negative MRSA screening specimens
- With the following **additional criteria:**
  - All open wounds or breached skin sites are healed i.e. there are no signs or symptoms of a wound infection and there is no wound discharge*(*Note: Therefore, MRSA carriers with significantly inflamed skin conditions e.g. severe chronic eczema, epidermolysis bullosa, cannot be deisolated)
  - The patient has no temporary invasive medical device such as central intravenous catheters, urinary catheters, tracheostomy tube or GIT tube
  - The patient has had three consecutive negative screens from relevant screening or clinical sites on three separate occasions at least three days apart after the first negative screen
  - Samples must be taken whilst the patient has had no exposure to antiseptic body wash/soap for two weeks preceding the MRSA screening or to MRSA specific antibiotic(s) in the previous 3 months (including intranasal ointment) and the patient is no longer an inpatient in a very high risk or high risk functional area.(a paediatric medical ward is considered to be a moderate risk, whereas a surgical ward or an ICU is considered to be high risk)

Related information

- **Surgical Antimicrobial Prophylaxis – SCH**
  http://chw.schn.health.nsw.gov.au/o/documents/policies/guidelines/2013-7035.pdf
- NSW Ministry of Health PD2007_084: "*Infection Control Policy: Prevention & Management of Multi-Resistant Organisms (MRO)*": PD2007_084.
  http://www0.health.nsw.gov.au/policies/pd/2007/pdf/PD2007_084.pdf
- NSW Ministry of Health Fact Sheet: "*Staphylococcus aureus in the community - Information for clinicians"* http://www.health.nsw.gov.au/Infectious/factsheets/Pages/Staphylococcus-aureus-community.aspx

References

1. Healthcare Infection Control Special Interest Group, "Decolonisation" : http://hicsigwiki.asid.net.au/index.php?title=Patient_MRSA_decolonisation_instructions (Accessed 11/08/2015)
2. Australian Healthcare Quality and Safety, "MRO Screening and Clearance" 2005 (Now: Australian Commission on Safety and Quality in Health Care) http://www.safetyandquality.gov.au/wp-content/uploads/2012/01/mroscreenjun05.pdf (Accessed 11/08/2015)
3. MRSA report of the Cystic Fibrosis Trust Infection Control Working Group, 2008 https://www.cysticfibrosis.org.uk/media/82040/CD_MRSA_Apr_08.pdf (Accessed 11/08/2015)