Government of **Western Australia**
Department of **Health**

Guidelines for the Screening and Management of MRSA in Healthcare Workers

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ACKNOWLEDGEMENT OF COUNTRY AND PEOPLE

The Communicable Disease Control Directorate at the Department of Health acknowledge the Aboriginal people of the many traditional lands and language groups of Western Australia. We acknowledge the wisdom of Aboriginal Elders both past and present and pay respect to Aboriginal communities of today.

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Definitions

Term	Definition
Beta-lactam antibiotics	A group of antibiotics that are primarily designed to destroy the bacteria cell wall and therefore kill the organism. This group includes all the penicillins, cephalosporins and carbapenems.
Community-associated MRSA (CA-MRSA)	Refers to distinct strains of MRSA identified by molecular typing. These strains have adapted to survive and spread successfully in the community.
Clinical contact	HCWS who provide direct clinical care to patients i.e. have physical contact with patients.
Contact precautions	A set of infection prevention practices used to prevent transmission of infectious agents that are spread by direct or indirect contact with the patient or the patient's environment which cannot be contained by standard precautions alone. Contact precautions include the use of gloves with an apron or fluid resistant gown (dependant on the degree of risk of contact with blood and body fluids) and other PPE as required as per standard precautions.
Decolonisation	The process of eradicating or reducing asymptomatic carriage of MRSA using topical and / or systemic antimicrobial agents.
Endemic	The constant presence of a disease or infectious agent in a defined area.
Healthcare-associated MRSA (HA-MRSA)	Refers to distinct strains identified by molecular typing. These strains are known to be highly transmissible within and between HCFs and cause outbreaks. HA-MRSA do not spread efficiently between people in the community.
Healthcare facility (HCF)	Includes all public hospitals, nursing posts, satellite dialysis centres, child and mental health services. The guidance provided in this document can be adopted by private hospitals, and the same principles, where applicable, applied in residential and primary care settings.
Healthcare worker (HCW)	Any person working within a HCF including employees, students, trainees, contracted staff and volunteers that are involved in the direct or indirect care of patients.
Higher-risk units	Refers to services within acute HCFs providing care to people known to be at increased risk of MRSA infection. This includes, but is not limited to, organ and bone marrow transplant recipients, haematology and medical oncology patients, those receiving haemodialysis and those admitted to adult, paediatric and neonatal intensive care and burns units.

Term	Definition
Lower-risk units	Refers to services within acute HCFs providing care to people with lower risk of developing severe MRSA infection though they may have a risk for MRSA colonisation e.g. rehabilitation, mental health and palliative care units.
Methicillin	A synthetic beta-lactam form of penicillin developed in the 1960's to counteract increasing resistance to penicillin by *S. aureus.* It is no longer used as treatment, due to toxicity.
Micro-alert	A flag applied to the medical record in the electronic patient management system (WebPAS) to identify carriers of multi-resistant organisms. Micro alert B and C are used for MRSA.
Methicillin- resistant *Staphylococcus aureus* (MRSA)	Those isolates of *S. aureus* that are resistant to methicillin and consequently all other beta-lactam antibiotics e.g. flucloxacillin, amoxycillin / clavulanate and all cephalosporins.
MRSA-positive	Any person who has MRSA isolated from any body-site.
Outbreak	Is defined as when a particular strain of MRSA is detected at rates that are higher than usual. Each HCF needs to consider individual circumstances to decide if the situation defines an outbreak e.g. one case in a higher-risk unit will enact a management plan, whereas two or three cases in a lower-risk area may be required before action is taken.
Residential care facility (RCF)	All private and public facilities registered to provide 24-hour non-acute care to people not able to live independently. This includes nursing homes, hostels, mental health facilities.
Screening	A process to identify people at risk of being colonised with a specific microorganism and obtaining appropriate specimens.
Standard precautions	Refers to work practices that are always required to achieve a basic level of infection prevention and control. The use of standard precautions is to minimise, and where possible, eliminate the risk of disease transmission.
Transmission-based precautions (TBP)	Practices used in addition to standard precautions to prevent transmission of infection. TBPs include contact, droplet and airborne precautions and are used for patients known or suspected to be infected or colonised with an epidemiologically significant or highly transmissible pathogens. They are implemented based upon the mode of transmission of the pathogen.

1. Purpose

This Guideline outlines the requirements for screening healthcare workers (HCWs) for methicillin-resistant *Staphylococcus aureus (MRSA)* and the management of those HCWs who return positive screening results. It is relevant to all healthcare facilities (HCFs) in WA including acute hospitals,residential care, rehabilitation, and mental health settings.

2. Introduction

MRSA are *S. aureus* that have developed resistance to the beta-lactam class of antibiotics e.g. penicillins, cephalosporins and carbapenems. While MRSA is not more pathogenic or virulent than strains of methicillin-sensitive *S. aureus* (MSSA), it does pose greater treatment challenges due to the reduced availability of effective antibiotics and is associated with increased morbidity and mortality.

HCWs may become colonised with MRSA following contact with MRSA-positive people in a HCF or in the community. Transmission of MRSA from HCWs to patients has been reported with several studies describing MRSA outbreaks that have been epidemiologically linked to colonised or infected HCWs, especially when they have exfoliative skin conditions, skin infections or respiratory tract infections. All reasonable efforts should be made to clear HCWs with known MRSA carriage.

The strict adherence to standard and transmission-based contact precautions, with an emphasis on hand hygiene compliance, are required to reduce the risk of acquisition and the transmission of MRSA by HCWs to their patients or residents.

Despite a high prevalence of MRSA in the WA community, MRSA is not considered endemic in WA hospitals. Routine screening of HCWs from outside of WA is performed to prevent the establishment of new MRSA strains, which are prevalent elsewhere in Australia and overseas, from becoming endemic in WA HCFs.

3. Guideline Requirements

The HCW screening requirements apply to all HCWs who have clinical contact i.e. they provide direct clinical care and have physical contact with patients. This includes honorary, permanent, part time or casual HCWs, students, trainees, volunteers or those providing care under contracted services.

All HCFs need to ensure that agencies, including universities that provide clinical contact HCWs, students or trainees comply with these screening requirements.

4. Who to screen

4.1. New HCWs

- All HCWs, who will have clinical contact, are required to have their risk status for MRSA assessed as part of a pre-commencement process.
- MRSA surveillance screening is required prior to commencement of work if the HCW has been hospitalised or worked in any HCF outside of WA in the previous 12 months including volunteer placements.
- MRSA screening swabs can be collected outside of WA, if the HCW has not worked

since collection of the screening swabs.
- A copy of the microbiology results must be provided to the employer.

4.2. Current HCWs

- HCWs who perform clinical duties in any HCF outside of WA, including volunteer placements, and are returning to work, must have MRSA screening performed on their return. HCWs can continue clinical duties pending results.

4.3. Visiting HCWs

- Any visiting HCWs who wear surgical attire and are assisting or observing in an operative / procedural setting and are visiting for less than five days are exempt from screening requirements.
- Any visiting HCWs who will be involved in clinical contact for a period greater than five days, require screening prior to placement.

4.4. Additional HCW Screening

- Screening of HCWs must be considered when a single strain outbreak continues, despite adherence to infection prevention control (IPC) measures i.e., standard and transmission-based precautions.
- Any HCW who develops an exfoliative skin condition, or a skin and soft tissue infection (SSTI) must seek immediate medical advice and have MRSA screening from any skin lesions or wounds. It is recommended that HCWs with these skin conditions do not perform clinical duties until the condition has resolved, however the HCF advisory team must conduct a risk assessment for each case.
- There is currently no evidence to support the routine screening of HCWs who have been employed in WA residential care facilities prior to employment in the acute care setting, or for those HCWs who work across both care settings.
- All HCWs should be educated on the increased prevalence of MRSA in residential care facilities (RCF), the subsequent increased risk of becoming colonised with MRSA and the importance of hand hygiene in minimising this risk.

5. How to screen

- Screening samples are to be taken from the nostrils, throat and any skin lesions or wounds using the following method:
  - rotating a single swab, 2 – 3 times around the inside of the nostril, using the same swab for both nostrils
  - swabbing the posterior pharynx and lateral walls of the pharynx i.e. ‘tonsillar’ area, without touching the buccal mucosa or tongue
  - swabbing any discharging wounds, ulcers or skin lesions.
- Swabs collected from dry sites e.g. nostrils or non-discharging lesions, should be pre-moistened with sterile normal saline or sterile water. Swabs collected from moist sites e.g., discharging wounds, do not need to be pre-moistened.
- It is preferable that all swabs are placed directly into transport medium to optimise culture and transported and stored at room temperature.
- All laboratory request forms are to be marked “For MRSA Screening”.

6. Management of positive HCWs

- HCWs found to be colonised with any strain of MRSA should be given topical decolonisation as prescribed in Appendix 1
- Allergy to chlorhexidine must be ascertained as part of the HCW assessment.
- HCWs can return to work once they have commenced treatment i.e. have initiated one application of nasal ointment and had one body wash, provided they have no skin lesions.
- HCWs are to be screened one week after completion of treatment and then at week four, eight and 12. If they return a positive result during this time, advice should be sought from an Infectious Diseases Physician/Microbiologist. A small proportion of HCWs may be persistently colonised with MRSA. Refer to section 4.4.

6.1. Persistent MRSA carriage

A HCW with persistent MRSA carriage is a relatively uncommon event, however, when this occurs it raises complex issues regarding ongoing decolonisation or suppression treatment and possible redeployment for HCWs who provide clinical care to higher-risk patients.

There is currently no national or international consensus that define persistent MRSA carriage or prescriptive guidelines for HCW management. A case-by-case, risk-management approach, is required that protects both the HCW and the patient.

6.1.1. Definition of persistent carriage

For the purposes of this document persistent carriage is when a HCW returns a positive MRSA result following completion of at least two decolonisation treatment courses.

6.1.2. Risk factors for persistent carriage

Factors associated with decolonisation treatment failure and persistent MRSA carriage in HCWs include:

- non-compliance with decolonisation regimens (treatment and/or hygiene)
- skin infections, lesions or conditions (eczema, psoriasis, dermatitis)
- throat carriage
- multiple-site carriage
- recolonisation from household reservoirs i.e. household members and environment
- poor dental condition
- presence of indwelling devices or foreign-body material e.g. piercings, external fixations
- mupirocin-resistance.

6.2. Risk of transmission from HCWs to patients

- HCWs who are colonised with MRSA, have SSTIs, exfoliative skin conditions e.g., eczema, psoriasis, dermatitis or respiratory infections including rhinitis or sinusitis, have an increased risk of transmitting MRSA.
- Asymptomatic colonised HCWs, including those with throat carriage only, have been

implicated in transmission.

- Persistent nasal carriage and multiple-site carriage are associated with high bacterial loads of S. aureus. Skin carriage rates increase proportionally in these people with some, known as ‘staphylococcal dispersers’, who may heavily contaminate the environment by dispersal of skin scales on movement.

6.3. Risk assessment

The individual risk assessment should take into consideration:

- an evaluation of the HCWs risk factors for persistent carriage
- an evaluation of the HCWs risk factors for transmission
- the role of the HCW and the clinical area the HCW is employed i.e., higher-risk or lower-risk areas (refer to definitions)
- category of MRSA strain isolated from the HCW i.e., micro-alert B or C
- the HCW’s commitment to compliance with further decolonisation or suppression treatment or cessation of treatment
- consequences of redeployment for the HCW and the organisation
- duty of care requirements for the HCW and the organisation under the *WA Work Health and Safety Act 2020*.

6.4. Principles of management

- Communication with the HCW is essential. The HCW must not to be stigmatised and a member of the advisory team should be appointed as a case manager to support the HCW and liaise with an advisory team.
- The advisory team should include the HCWs Manager, a Microbiologist or infectious disease physician, and either IPC or occupational safety and health personnel with guidance from human resource personnel when necessary.
- This team should conduct a risk-assessment and discuss further decolonisation or suppression treatment, work placement and ongoing management.
- The HCW is to be reassured that all information is confidential and available to essential personnel only.
- An agreement with the HCW should be attained and documented that includes a commitment to comply with IPC strategies e.g. hand hygiene, aseptic technique and to inform the team if they plan to change work areas /HCFs prior to clearance.
- There is likely a pool of HCWs with unknown MRSA carriage due to the prevalence of MRSA in the WA community. IPC teams should monitor and investigate increased MRSA acquisition rates in clinical areas to identify the source and determine if HCWs are implicated.

6.5. Decolonisation or suppression for persistent MRSA carriage in HCWs

- International studies and experience in WA (unpublished) have demonstrated that a high proportion of people with persistent MRSA carriage can be decolonised with repeated decolonisation courses that include systemic treatment.
- The likelihood of success is increased when all risk factors for treatment failure (refer

section 4.4.2) are evaluated and addressed.

- There are currently no recommendations on the number of repeat decolonisation courses to pursue following decolonisation failures as this depends on individual risk factors.
- Prior to commencing further decolonisation regimens, obtain an extended set of screening swabs, that include nose, throat, groin and any lesions if present, to determine multi-site carriage.
- Consider increasing the duration of topical decolonisation treatment from 5 days to 10 or 14 days and review the antibiogram to define oral antibiotic selection and the type, combinations and duration of any previous antibiotic selections.
- Examples of appropriate antibiotics for decolonisation include rifampicin, fucidin, cotrimoxazole, ciprofloxacin and clindamycin and combinations of these antibiotics are often employed. A short course of 5 – 7 days of antibiotic therapy should be tried initially, before considering longer courses. Note: beta-lactam antibiotic treatment therapy is inadequate for MRSA decolonisation.
- The Therapeutic Guidelines: Antibiotic provides some guidance for antibiotic regimens used for decolonisation of staphylococcal carriage.
- Suppression treatment is the intermittent or ongoing use of topical agents to reduce the bacterial load and can be considered if the HCW fails to clear MRSA following repeated decolonisation treatments. Following a HCW risk assessment, an individualised intermittent suppression regimen may be an option. The Therapeutic Guidelines: Antibiotic describes one approach that applies mupirocin 2% nasal ointment to each nostril twice daily for the first 5 days of every month for 12 months.
- Screening is required after each decolonisation/suppression course is completed.

7. Relevant Legislation

- *Work Health and Safety Act 2020*.

8. Guideline Contact

Enquiries relating to this Guideline may be directed to:

Infection Prevention Policy and Surveillance Unit

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9. Document Control

Guideline number	Version	Published	Review Date	Amendments
0004	V.1.	21/02/2022	21/02/2026	Original version
0004	V. 2	30/03/2023	30/03/2027	Updated to align to the mandatory policy requirement, updated OSH act.

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Appendix 1 MRSA 5-day decolonisation regimen

MRSA antiseptics

Antiseptic solutions suitable for eradicating or suppressing MRSA colonisation include:

- body washes: chlorhexidine 2 – 4% solution; triclosan 1 - 2%
- nasal ointments: mupirocin 2% (nitrofurazone 0.2% if mupirocin resistance)
- mouth wash: chlorhexidine-based solution.

Note: allergy to chlorhexidine needs to be assessed.

Suggested regimen

- Using either chlorhexidine 2 – 4% or triclosan 1 – 2%, wash the entire body surface once daily for 5 days. Use approximately 25ml of the same solution to shampoo hair on day 1, 3 and 5. Conditioner can be applied after shampooing.
- 2% mupirocin should be applied inside both nostrils, twice daily, for 5 days as described below:
    - a “double match head” quantity of ointment is applied inside each nostril with a cotton bud
    - spread the ointment around the nasal vestibule by squeezing the nose between thumb and forefinger, and rubbing them together
    - patients and carers should receive careful instructions on the correct application of the nasal ointment
    - if high-level mupirocin resistance is reported, nitrofurazone 0.2% nasal ointment is used.
- Prior to starting a decolonisation treatment, any body piercings should be removed for the duration of the treatment.
- Discard old toothbrush, razor and products that contact the skin e.g. deodorant rollers. Wash hairbrush and comb with soap and hot water.
- Dentures should be disinfected by immersion in chlorhexidine mouthwash solution for 1 hour every night or by soaking overnight in a denture cleaning product e.g. Steradent, Polident for the 5 days.
- The use of a chlorhexidine mouthwash solution as a throat gargle can be considered for those HCW’s with throat carriage.
- MRSA-positive neonates should be managed in consultation with a clinical microbiologist or infectious disease physician. The topical agents described above are not to be used on neonates.

Systemic treatment

In some people MRSA colonisation can be persistent refer to section 4.3. in these cases, combined topical and systemic therapy can be given. Such management should be directed by a clinical microbiologist or infectious disease physician.

Appendix 2 Decolonisation treatment instructions

The removal of MRSA from our body is called decolonisation. Sometimes, decolonisation can reduce the risk of acquiring repeated infections or spreading MRSA to others. Decolonisation is the use of an antiseptic body wash and an antibiotic ointment that needs to be prescribed by a doctor.

How to use the nasal ointment ***Apply twice a day for 5 days.***	**How to use the body wash** ***Use once a day for 5 days.***
1. Wash your hands with soap and water or use an alcohol based hand gel just before using your ointment. 2. Use a cotton bud to apply a 'double match head' amount of ointment to the inside of each nostril. 3. spread the ointment around the nasal vestibule by squeezing the nose between thumb and forefinger, and rubbing them together for about 15 seconds 4. Don't get the ointment near your eyes. If any of it gets into your eyes, rinse them well with cool water. 5. Wash your hands with soap and water or use an alcohol based hand gel as soon as you are finished. 6. Do not use any other nasal ointments or nasal sprays during the 5 days.	1. Using a clean washcloth or your hands, apply the body wash to all body areas. Make sure to apply under your arms, behind your ears and your knees, your groin area, and between any skin folds. The soap will not lather very much, and that is OK. 2. When you have finished applying the body wash, leave it on your skin for 2 minutes. 3. Shampoo your hair using the body wash solution on day 1 and day 3 and day 5. Your normal conditioner can be used. 4. Thoroughly rinse the body wash off your skin. **Do not** wash with any other soap or cleanser. 5. Close your eyes and mouth when washing your face or shampooing. If you do get the body wash in your eyes or mouth – rinse well with cool water. 6. Dry off with a clean towel and put on clean clothing. 7. Use a moisturiser for dry skin. 8. If you have dentures, remove them before bed and clean thoroughly. Soak overnight in a denture cleaning product e.g. Steradent, Polident or for 1 hour each night for 5 nights in a chlorhexidine mouthwash solution.

Additional Treatment

You may be advised by your doctor or nurse that you require additional treatment such as mouth washes or oral antibiotics. You will be advised by your doctor or nursing staff if you require more testing for MRSA.

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