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Communicable Disease Control Directorate Guideline

Guidelines for the screening and management of MRSA in healthcare workers

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Contents

Definitions/Acronyms

Abbreviation	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.
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 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 wards/units within acute healthcare facilities that provide care to patients known to be at increased risk of infection, high prevalence of invasive procedures and devices, induced immunosuppression, comorbidity, frailty and increased age e.g. organ and bone marrow transplant, haematology, oncology, adult and neonatal intensive care and burns units. Each acute HCF is to identify their higher-risk wards/units.
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 (flucloxacillin) and consequently other beta-lactam antibiotics. Classification of MRSA cases for the micro-alert system is based on the susceptibility to ciprofloxacin which correlates with epidemic potential. Ciprofloxacin resistant isolates (micro-alert C) have the greater potential to cause outbreaks in hospitals. Ciprofloxacin susceptible isolates (micro-alert B) may have the potential to cause outbreaks.
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 aged care home (RACH)	RACH refers to all public facilities registered to provide 24-hour non-acute care to people not able to live independently. This includes nursing homes, transitional care placement, hostels, hospices and 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 recommendations 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. This guideline supports the application of MP 0177/23 *Screening and Management of Multi-resistant Organisms in Healthcare Facilities Policy*.

2. Introduction

MRSA are *Staphylococcus aureus* (*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.

MRSA is easily spread by multiple routes and can persist in the environment for long periods. In HCFs transmission via HCWs hands remains the most important route for patient MRSA acquisition.

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.

3. HCW MRSA screening recommendations

The routine screening of HCWs who have worked or been hospitalised outside of WA has been discontinued due to the low positivity rate identified from this practice, however it is recommended that HCW MRSA screening be considered in certain situations. The HCW MRSA screening recommendations 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.

3.1 Risk of transmission from HCWs

HCWs who are colonised with MRSA, have skin and soft tissue infections (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.

3.2 Who to screen

Any HCW who develops an exfoliative skin condition, or a SSTI should 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. HCWs should be encouraged to report any skin conditions during the course of their employment.

Consider screening HCWs for MRSA if there is an epidemiological reason for suspecting a HCW as a source of an MRSA outbreak e.g. if transmission persists in a unit despite active infection prevention and control (IPC) measures i.e. standard and transmission-based precautions or if epidemiological aspects of an outbreak are unusual.

3.2.1 HCWs in residential aged care homes

There is currently no evidence to support the routine screening of HCWs who have been employed in WA residential aged care homes (RACH) 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 RACH, the subsequent increased risk of becoming colonised with MRSA and the importance of hand hygiene in minimising this risk.

3.3 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 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".

3.4 Management of positive HCWs

It is recommended that HCWs found to be colonised with any strain of MRSA should be given topical decolonisation as prescribed in Decolonisation treatment for people with MRSA.

Allergy or antimicrobial resistance to topical treatments must be identified as part of the HCW assessment. This includes chlorhexidine allergy and mupirocin resistance.

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 12 weeks (with the caveat that the HCW must not have used any topical antiseptics for the past week and is not on antibiotics at time of screening). Consider increased frequency of screening in an outbreak setting or if there are concerns of ongoing transmission. If they return a positive result, advice should be sought from an Infectious Diseases Physician/Microbiologist. A small proportion of HCWs may be persistently colonised with MRSA. Refer to section 5.1

3.5 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.

3.5.1 Definition of persistent carriage

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

3.5.2 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.

3.5.3 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*.

3.5.4 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, an infectious disease physician or microbiologist, and either IPC or Work Health and Safety 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 potential sources.

3.5.5 Decolonisation or suppression for persistent MRSA carriage in HCWs

- International studies 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 5.1.2) 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.
- Antibiotic therapy should only be initiated in consultation with an infectious disease physician or microbiologist.
- 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.

4. Relevant Legislation

Work Health and Safety Act 2020.

5. Additional Resources

Screening and Management of Multi-resistant Organisms in Healthcare Facilities Standard

Decolonisation treatment for MRSA information for healthcare providers

Decolonisation treatment for people with MRSA information for consumers.

6. Guideline Contact

Enquiries relating to this Guideline may be directed to: Infection Prevention Policy and Surveillance Unit, Communicable Disease Control Directorate

Email: IPPSU@health.wa.gov.au

7. Document Control

Guideline number	Version	Approved by	Published Date	Review Date	Amendments
0004	V.1.	Dr Paul Armstrong	21/02/2022	21/02/2026	Original version
0004	V. 2	Dr Paul Effler	30/03/2023	30/03/2027	As described below

• Updated to align to the mandatory policy requirement, updated WHS act.					
0004	V.3	Dr Paul Armstrong	09/01/2026	09/01/2029	As described below.
• Removal of the mandatory requirement to perform a routine MRSA screen for HCWs who have worked overseas or interstate in the previous 12 months. • Definitions section: Higher-risk unit and MRSA definitions updated. • Introduction section refined and updated. • Section 3: HCW MRSA Screening recommendations updated and re-formatted – sections 3.1 to 3.55. • Section 3.2 inclusion to consider screening HCWs for MRSA if there is an epidemiological reason for suspecting a HCW as a source of an MRSA outbreak. • Section 3.4 reduced MRSA clearance screening protocol to 1 and 12 weeks. • Section 3.5.5 inclusion of decolonisation treatment information. • Inclusion of Section 5: Additional Resources • Removal of Appendix 1: MRSA 5-day decolonisation regimen.					

8. Approval

Approved by	Dr Paul Armstrong, Director, Communicable Disease Control Directorate, Department of Health
Approval date	21/02/2022

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