



Health and  
Wellness

**Health PEI**  
One Island Health System

# **Prince Edward Island Infection Prevention and Control Methicillin-Resistant *Staphylococcus aureus* (MRSA) Guideline**

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Department of Health and Wellness  
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Health and Wellness

**Health PEI**  
One Island Health System

**Provincial Infection Prevention and Control**  
**Methicillin-Resistant *Staphylococcus aureus***  
**(MRSA) Guideline**

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## Glossary of Terms

**Alcohol-based hand rub (ABHR):** An alcohol-containing preparation (liquid, gel or foam) designed for application to the hands to remove or kill microorganisms. Such preparations contain one or more types of alcohol (e.g., ethanol, isopropanol or n-propanol), and may contain emollients and other active ingredients. ABHRs with a concentration above 60% and up to 90% are appropriate for clinical care.

**Antibiotic Resistant Organism (ARO):** A microorganism that has developed resistance to the action of one or more antimicrobial agents and is of special clinical or epidemiologist significance. An example of a microorganism in this group is MRSA. Other microorganisms may be added to this list if antibiotic resistance is judged to be significant in a specific healthcare facility or patient population, at the discretion of the IPC program or local, regional or national authorities.

**Bacteremia:** The presence of bacteria in the bloodstream.

**Bioburden Reduction:** The degree of microbial decontamination or microbial reduction of a contaminated object.

**Cluster:** In epidemiology a composite of confirmed cases of disease, defect or disability that occur in close proximity to one another with regard to time or space.

**Cohorting:** The sharing of a room or ward by two or more patients who are either colonized or infected with the same microorganism.

**Colonization:** The presence and growth of a microorganism in or on a body with growth and multiplication but without tissue invasion or cellular injury.

**Contact:** Contact exposure occurs when infectious agents are transferred through physical contact between an infected source and a host or through the passive transfer of the infectious agent to a host via an intermediate object.

**Contact Precautions:** A type of Additional Precautions as defined by the Public Health Agency of Canada (PHAC) which is implemented to reduce the risk of transmitting pathogens via contact with an infectious person. Contact Precautions are used in addition to Routine Practices.

**Contamination:** The presence of an infectious agent on a body surface, clothes, gowns, gloves, bedding, toys, surgical instruments, dressings or other inanimate objects.

**Decolonization:** The use of topical and/or systemic antimicrobials to eradicate colonization of resistant bacteria.

**Direct Care:** Providing hands-on patient care, such as bathing, turning and positioning, changing clothes or incontinent products, dressing changes, care of open wounds-lesions or toileting. Assisting with feeding and pushing a wheelchair are not classified as direct care.

**Endemic:** The constant presence of a disease or infectious agent within a certain area.

**Hand Hygiene:** A general term referring to any action of hand cleaning. Hand hygiene is the process for the removal of visible soil and/or removal/reduction of transient microorganisms from the hands. Hand hygiene may be accomplished using soap and running water (when hands are visibly soiled) or an alcohol-based hand rub.

**Healthcare-associated infection (HAI):** Infections that are transmitted within a healthcare setting during the provision of health care.

**Healthcare Providers (HCPs):** Individuals who provide health care or support services, such as nurses, physicians, dentists, nurse practitioners, paramedics, allied health professionals, unregulated healthcare providers, clinical instructors, volunteers and housekeeping staff.

**Hospital-grade Disinfectant:** A low-level disinfectant that has a drug identification number (DIN) from Health Canada indicating its approval for use in Canadian hospitals.

**Infection:** The entry and multiplication of an infectious agent (e.g. bacteria, viruses, etc) in the tissues of the host.

- Symptomatic or clinical infection is one resulting in clinical signs and symptoms (disease).
- Asymptomatic or subclinical infection is an infectious process running a course similar to that of clinical disease but below the threshold of clinical symptoms.

**Long-Term Care (LTC):** Facilities in the public and private sectors that provide nursing care. This does not include Community Care facilities.

**Methicillin-Resistant *Staphylococcus aureus* (MRSA):** *Staphylococcus* (Staph) bacteria that are resistant to the antibiotic methicillin are known as methicillin-resistant *Staphylococcus aureus* or MRSA. MRSA has been associated with health care associated infections and outbreaks.

**Nosocomial:** An infection acquired or occurring in a healthcare setting; also known as a healthcare-associated infection.

**Outbreak:** An outbreak is an increase in the number of cases (colonization or infection) above the number normally occurring in a particular health care setting over a defined period of time.

**Patient/Resident/Client:** Any person receiving health care within a health care setting and for the purpose of this document will be referred to as a patient.

**Personal Protective Equipment (PPE):** Personal protective equipment consists of gowns, gloves, masks, facial protection (e.g. masks and eye protection, face shields or masks with visor attachment) or respirators that can be used by HCPs to provide a barrier that will present potential exposure to infectious microorganisms.

**Precautions:** Interventions to reduce the risk of transmission of microorganisms (e.g. patient-to-patient, patient-to-staff, staff-to-patient, contact with the environment, contact with contaminated equipment).

**Prevalence Screen:** Screening all patients in a defined area (e.g. on a specific unit) at a specific point in time to determine how many are colonized and infected with a specific microorganism.

**PPMRSA (Previously positive MRSA):** Acronym used when flagging a patient chart that is no longer considered MRSA but was a previous positive.

**Reservoir:** Any person, animal or environmental surface in which an infectious agent survives or multiplies, posing a risk for infection.

**Routine Practices:** A comprehensive set of infection prevention and control measures that have been developed for use in the routine care of all patients at all times in all healthcare settings. Routine Practices aim to minimize or prevent HAIs in all individuals in the healthcare setting, including patients, HCPs, staff, visitors, volunteers, and contractors.

**Surveillance:** The systematic method of measuring outcomes and related processes of care, analyzing the data and providing information to members of the health care team to assist in improving those outcomes.

***Staphylococcus aureus*:** Aerobic Gram-positive coccoid bacterium commonly found on the skin and mucous membranes (especially anterior nares) of some individuals. *S. aureus* is the most common cause of health care associated infections.

**Terminal Cleaning:** The thorough cleaning of a patient room or bed space following discharge, death or transfer of the patient, in order to remove contaminating microorganisms that might be acquired by subsequent occupants and/or staff. In some instances, discharge/ transfer cleaning might be used when some types of Additional Precautions have been discontinued.

# Infection Prevention and Control on PEI

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## 1. Purpose

This guideline provides direction for healthcare providers (HCP) on the management of patients who are colonized or infected with Methicillin-resistant *Staphylococcus aureus* (MRSA), thereby reducing the risk of MRSA transmission to other patients and HCPs. The goal is to provide consistent information for all health care settings in PEI, recognizing that each facility/practice setting delivers a specific set of services and has unique challenges with physical layout and resources. Site specific policy and procedures are necessary to address these unique challenges in each practice area.

## 2. Background

MRSA transmission rates can be controlled by sound infection prevention and control practices in all health care settings. Interventions that focus on preventing transmission, such as Routine Practices, have an impact in controlling MRSA.

Infection prevention and control programs that emphasize early identification of colonized patients through active surveillance cultures and the use of Additional Precautions (e.g. Contact Precautions) for preventing transmission, reduce the prevalence and incidence of both colonization and infection, improve patient outcomes and reduce health care costs.

## 3. Introduction

*Staphylococcus aureus* (*S. aureus*) is a common bacteria found in our environment. *Staphylococcus aureus* is a leading cause of healthcare-associated infections (HAIs) and can cause a spectrum of problems from minor skin and wound infections to serious infections such as osteomyelitis and bacteremia which may be associated with significant mortality.

*Staphylococcus aureus* can survive on the skin, particularly the anterior nares, skin folds, hairline, peri-anal area, and umbilicus without causing infection. Approximately 30% of healthy people are asymptotically colonized by *S. aureus* with 10-20% of these permanently colonized in the anterior nares.

Most strains of *S. aureus* are sensitive to beta-lactam antibiotics (e.g. oxacillin/cloxacillin and cephalosporins). In recent years, strains have emerged which are resistant to all penicillins, cephalosporins, and carbapenems, and other commonly used antibiotics in the treatment of *S. aureus*. These strains are known as methicillin-resistant *S. aureus* (MRSA).

## 4. Infection Prevention & Control PEI

The majority of individuals who acquire MRSA are colonized only and generally do not require treatment. Colonization is only harmful to the individual if it leads to an infection. However, colonized patients create a reservoir of MRSA, which increases the risk of transmission to vulnerable patients who may suffer adversely with MRSA. At particular risk are patients with wounds or invasive devices such as intravenous cannulas, indwelling urinary catheters, and gastrostomy tubes. Decolonization is an option in specific cases.

The most common route of MRSA transmission between patients is by the transient presence of MRSA on the hands of HCPs. MRSA can also be transmitted indirectly via equipment that has not been cleaned and disinfected properly between patients or other items in the patient environment.

## 5. Infection Prevention and Control Measures

### 5.1 Admission Culturing

The goal of admission culturing is to rapidly identify all patients who are admitted with MRSA. For most patients MRSA screening cultures are taken from the nares and peri-anal. If the patient has multiple risk sites, a maximum of four screening cultures will be accepted by the provincial lab. Additional sites may include: wounds/lesions, feeding tubes, central lines, etc. If there is a suspected infection at any site, a swab should be taken from this site and sent for culture and sensitivity (C&S). This is not considered routine screening but is part of clinical management.

Rapid alternative methods of testing are being explored by the provincial laboratory and may be available in the future. Testing using PCR/molecular techniques may have a role in certain situations such as out-of-province transfers, emergency surgical cases, and/or other specific cases as determined by the medical microbiologist.

To avoid false negative results, topical antibiotics should be discontinued for 48 hours and systemic antibiotics for 72 hours prior to swabs being collected.

Systemic Antibiotics include;

1. Vancomycin
2. Cotrimoxazole
3. Doxycycline
4. Ciprofloxacin
5. Levofloxacin
6. Moxifloxacin

See Appendix A for specimen collection.

#### 5.1.1 Acute Care Culturing

All patients admitted to an acute care facility will have routine admission MRSA screening cultures completed **except**:

1. Maternity Obstetrics
2. Mental Health Patients
3. Children/Paediatrics (follow local/regional practices)

### **5.1.2 Emergency High risk patients**

Consider screening patients who are in the above exclusion category if high risk, e.g. chronic health conditions requiring multiple encounters with healthcare services;

- Newborns admitted to NICU and direct transfers from other facilities.
- Paediatric patients accessing the health-care system on a frequent basis due to a health condition.

### **5.1.3 Pre-Admission Clinics**

The following patients will be screened in the pre-admission clinics (e.g. pre-surgery) and will be re-screened on admission:

Orthopedic patients

### **5.1.4 Chemotherapy/Ambulatory Care**

Routine screening is not recommended. Consult Infection Control Professional (ICP) for management of known positive MRSA patient.

### **5.1.5 Hemodialysis Unit**

Patients admitted to hemodialysis will be screened on admission (baseline) and every 6 months.

### **5.1.6 Long Term Care**

All patients admitted to long-term care will have admission MRSA screening cultures.

### **5.1.7 Homecare**

Routine MRSA screening culturing is currently not recommended. If the patient is known to be MRSA positive, diligent Routine Practices are followed (e.g. hand hygiene).

MRSA screening culturing of high risk patients (IV therapy, wound therapy) may be considered and will provide surveillance data for HAIs within the Homecare service.

Patients who are screened on admission will also have discharge screening cultures obtained.

## **6. Risk Assessment Screening for Additional Precautions**

Contact Precautions shall be applied until the MRSA screening cultures have been reported if:

1. MRSA alert is present on the medical record and/or the patient has disclosed that they have a MRSA infection in the past year.
2. The patient is a direct transfer from a health care facility outside of the Atlantic Provinces.
3. Transfer from any unit/facility with an active outbreak of MRSA.

Refer to Appendix B for Sample Risk Assessment Tool.

## 6.1 Infection Prevention and Control Measures

The infection control measures to prevent the spread of MRSA are the same whether the patient is colonized or infected. The management of these patients requires additional infection control measures with particular emphasis on:

- Routine Practices which should be implemented for every patient regardless of disease status (Appendix C1).
- Additional Precautions (Appendix C2 – Acute Care, Appendix C3 – Long Term Care, Appendix C4- Homecare, Appendix C5 -Clinics) are applied in addition to Routine Practices.
- Private Room preferred. Consult ICP if private room is not available.
- Hand Hygiene – proper hand hygiene is the single most effective measure for decreasing transmission of MRSA in all practice settings (Appendix D1 How to Handwash, Appendix D2- How to Handrub).
- Environmental Cleaning – regular daily cleaning with special attention to “frequently touched areas” must be performed.
- Provide education to positive MRSA patients (Appendix E1 LTC, Appendix E2 Acute Care, Appendix E3 Health Care Workers)

Lapse of infection control measures may result in the transmission of the organism to other patients or HCPs who may then become the source of colonization or infection to others. Periodic evaluation of infection prevention and control practices in all health care sites should be reviewed.

**Table 1 Precautions for MRSA-Quick Reference Acute Care**

Precautions	Acute Care
Hand Hygiene	4 moments of Hand Hygiene - before and after contact with patient/environment, before aseptic procedure and after body fluid exposure.
Gloves	Before entering the patient's room.
Gown	Before entering the patient's room.
Mask (Surgical)	As per Routine Practices.
Patient Placement	Private room preferred. Door open. Consult infection control if alternate arrangements are required.
Patient Care Equipment	Dedicate non-critical patient care equipment (e.g. BP cuff, thermometer) when possible. Equipment must be cleaned and disinfected after patient use. When possible use single use items and discard after use. Minimize supplies in room-discard equipment/supplies that cannot be cleaned and disinfected following discharge.
Cleaning	Daily cleaning and frequently touched areas twice daily. Use approved hospital grade disinfectant at proper concentration for recommended contact time.
Laundry	Deposit laundry into hamper. May be picked up in the usual manner and treated as all other laundry.
Garbage	Double bagging not required. Garbage from an isolation room is placed directly into the dirty utility room and treated as all other waste in accordance with the PEI waste management protocol.
Room Set-up	Inside room: Laundry hampers, waste can, signage. Outside room: Supplies, PPE, signage.
Patient Transport	Notify receiving area of precautions. Open wounds/lesions must be covered with a dry, intact bandage. Apply clean gown for patient and cover with clean blanket. Patient must perform hand hygiene. Staff in direct contact with the patient should wear gloves and gowns, which can be removed when contact with the patient has finished. After removal of gloves, hand hygiene must be performed.
Dietary	Trays will be treated as normal when returned to food service department. If tray staying in designated area (e.g. kitchenette) on the unit, tray must be placed into a bag.

**Table 2 Precautions for MRSA-Quick Reference Long term Care**

Precautions	Long Term Care
Hand Hygiene	4 moments of Hand Hygiene - before and after contact with patient/environment, before aseptic procedure and after body fluid exposure.
Gloves	When performing direct patient care.
Gown	When performing direct patient care.
Mask (Surgical)	As per Routine Practices.
Patient Placement	Private room preferred. Door open. Consult infection control if alternate arrangements are required.
Patient Care Equipment	Dedicate non-critical patient care equipment (e.g. BP cuff, thermometer) when possible. If equipment is unable to be dedicated, clean and disinfect equipment before and after patient use. When possible use single use items and discard after use.
Cleaning	Daily cleaning and frequently touched areas twice daily. Use approved hospital grade disinfectant at proper concentration for recommended contact time.
Laundry	Deposit laundry into hamper. May be picked up in the usual manner and treated as all other laundry.
Garbage	Double bagging not required. Waste from the patient's room is placed directly into the dirty utility room or designated waste area and be treated as all other waste in accordance with the PEI waste management protocol.
Room Set-up	Inside patient care area: Laundry hamper, waste can, signage. Outside room: supplies, PPE, signage.
Patient Transport	Notify receiving area of precautions. Open wounds/lesions must be covered with a dry, intact bandage. Patient must perform hand hygiene.
Dietary	Trays will be treated as normal when returned to food service department. If tray staying in designated area (e.g. kitchenette) on the unit, tray must be placed into a bag.

**Table 3 Precautions for MRSA-Quick Reference Community**

(Includes Community Care facilities, Homecare, Clinics)

Precautions	Community Care
Hand Hygiene	4 moments of Hand Hygiene - before and after contact with patient/environment, before aseptic procedure and after body fluid exposure.
Gloves	As per Routine Practices (When at risk of contact with body fluids or mucus membranes)
Gown	As per Routine Practices (When at risk of clothing becoming contaminated)
Mask (Surgical)	As per Routine Practices.
Patient Placement	Perform a risk assessment; examine patient’s hygiene, ability to perform hand hygiene and cognitive status.
Patient Care Equipment	Clean and disinfect all equipment following patient use.
Cleaning	Frequently touched surfaces should be cleaned regularly. Use approved hospital grade disinfectant.
Laundry	Laundry can be handled in a normal manner.
Garbage	Garbage to be treated as normal in accordance with PEI waste management protocol.
Room Set-up	No special room set up required for Community Care Facilities.
Patient Transport	Notify area receiving patient on precautions. Open lesions and wounds must be covered with a dry, intact bandage. Patient must perform hand hygiene.
Dietary	Patient performs hand hygiene prior to eating. Dishes may be treated in the usual manner.

## 7. Flagging of Patient Charts for MRSA

It has been shown that flagging a patient record for MRSA provides an early alert to healthcare providers. It is an effective method to quickly identify patients when they present to a health care site so that proper precautions can be initiated. The Infection Prevention and Control Professional(s) in the health care settings have the responsibility to determine flagging and unflagging the charts of patients with MRSA.

An alert for MRSA is placed on the patient's electronic health record (EHR). Removal of the alert will be reviewed by the Infection Control Professional and a decision made based on the clinical condition of the patient and an adequate history of consecutive negative cultures. The alert may be modified from positive MRSA to previously positive MRSA (PPMRSA) with a minimum of 3 consecutive negative swabs spaced at least 5-7 days apart (while off MRSA active antibiotics). Patients with PPMRSA status for 18 or more months should have their PPMRSA status reassessed and removed by infection control professionals or designate. MRSA will remain part of the patient's problem list. Patients with PPMRSA should routinely have MRSA surveillance swabs (no more frequently than weekly in the acute care setting and monthly in the long term care setting).

Documentation in problems and diagnosis in the EHR will be completed by the ICP on all newly diagnosed positive MRSA individuals and when an alert status is changed.

Non-acute practice areas can identify the most effective flagging method for patients with MRSA. These methods may include flagging the care plan, kardex, or paper chart. Patient confidentiality must be maintained when determining the best way to flag a chart.

### Alert categories on Electronic Health Record

Alert	Definition	Meaning	Action
MRSA	Methicillin resistant <i>Staphylococcus aureus</i>	This patient is a known MRSA	Private room, Contact Precautions
PPMRSA	Previously positive MRSA	This patient was MRSA positive in the past. They are no longer positive MRSA	Private room, <u>no</u> Contact Precautions, Routine Practices, contact ICP.

## 8. Ongoing Culturing for Positive MRSA Patients

The need for ongoing culturing for MRSA patients is dependent on the patient population and practice setting.

### 8.1 Acute Care

Positive MRSA patients who have 3 consecutive negative cultures 5-7 days apart may have Contact Precautions removed. (Cultures must be obtained greater than 72 hours post antibiotic therapy [antibiotics listed in 5.1]).

Re-culturing and Additional Precautions will be assessed while the patient is in the facility with direction from the ICP.

### 8.2 Long Term Care (LTC)

In the LTC population, the probability of a patient clearing MRSA on their own is considered low due to advanced age and its effects on the immune system, as well as, the fact that many patients will have a pre-existing chronic disease. For this reason ongoing culturing of a patient who is positive MRSA is not recommended.

**Re-culturing may be recommended if the patient is decolonized or involved in an investigation of an outbreak. If the decision is made to re-culture a positive MRSA patient the following should be done:**

- 1) Complete set of cultures including nasal, peri-anal and all previously positive MRSA areas
- 2) If the first set of cultures is MRSA negative, repeat cultures at least seven days from when the first set was taken.
- 3) If the second set of cultures is negative repeat in 7 days.
- 4) The goal is to have 3 consecutive sets of cultures which are negative for MRSA. The intervals between sets should not be sooner than 5-7 days but may be longer.
- 5) Once 3 sets of negative cultures are obtained the patient can be considered at low risk for transmission of MRSA and contact precautions can be discontinued. Routine practices will continue.
- 6) Change flag on patient chart to PPMRSA.

To avoid false negative results, topical antibiotics should be discontinued for 48 hours and systemic antibiotics for 72 hours prior to swabs being done (Specific antibiotics listed in 5.1).

### 8.3 Community Care Programs

Re-testing patients who are MRSA is not necessary in community care programs/sites. Healthcare providers should continue Routine Practices for all patients.

## 9. Decolonization and Bio-Burden Reduction

MRSA positive carriers are at an increased chance of having MRSA disease and transmitting MRSA in health care facilities. The process to suppress shedding of MRSA is called bio-burden reduction. Decolonization (process to remove MRSA carriage / colonization) is at best only 80% successful. For both decolonization and bioburden reduction, chlorohexidine antibacterial containing soap/wipes, Mupirocin cream/ointment applied to the nares are routinely used, while one or two oral antibiotics are frequently added for decolonization. With either approach, resistance to mupirocin cream can develop so prolonged use is discouraged (limit therapy to 7 days or less).

MRSA Bio-Burden Reduction Indications:	MRSA Decolonization Indications:
<ul style="list-style-type: none"> <li>• Intensive care patients</li> <li>• Patient with respiratory colonization and coughing</li> <li>• Patients thought to be a previous or current point source of an MRSA outbreak (before, during, and after the outbreak)</li> <li>• Patients who are actively shedding during an MRSA outbreak.</li> <li>• Patients who are not candidates or have failed MRSA decolonization but are admitted for orthopedic surgery</li> <li>• Other situations as advised by the medical microbiologist or infection control professional</li> </ul>	<ul style="list-style-type: none"> <li>• Patients booked for orthopedic surgery</li> <li>• Anticipated prolonged length of stay on an acute care unit (&gt;2weeks)</li> <li>• Patients who are non-compliant or cannot emotionally tolerate contact isolation precautions</li> <li>• Patients identified in a point source in a nosocomial spread</li> <li>• Other situations as advised by the medical microbiologist or infection control professional</li> </ul>

For an example for decolonization protocol/order set including a list of contraindications (e.g. respiratory colonization) please see Appendix F.

There is at this time no current Canadian consensus on the widespread use of bioburden reduction or decolonization.

Patients who are successfully decolonized should be placed on PPMRSA status.

## 10. Environmental Cleaning

MRSA can live in the environment for days. However, MRSA is an organism that is killed easily when cleaning is done correctly using proper technique, taking into consideration the mechanical cleaning action and germicidal contact time that is required.

Frequency of cleaning within each unit/facility should be based on risk stratification. Minimum cleaning frequency in patient care areas is at least once daily and additionally as required.

### 10.1 Environmental Services/Housekeeping

- Procedures should be established in each facility for routine care, cleaning and appropriate disinfection of patient furniture and environmental surfaces with a facility approved disinfectant.
- Ensure all furniture, equipment, surfaces and coverings are intact and free of cracks and tears (chipped varnish, tears in furniture, etc.)
- Special attention must be paid to ensure adequate contact time of the disinfectant with all surfaces. Contact times are specific to the product being used in accordance with manufacturer's instructions.
- All horizontal and frequently touched surfaces (handrails, faucets, tables, door knobs, etc.) should be cleaned and then disinfected with a germicidal agent according to policy for your practice site.
- Toilets must be cleaned and disinfected daily.
- Immediately clean up all spills of blood and/or body fluids. Clean and disinfect all affected areas as per facility policy.
- Terminal cleaning must be done when Additional Precautions have been removed or the patient has been discharged or transferred.
- Appendix G- Environmental Services Sample Audit Checklist

### 10.2 Equipment

Responsibility and scheduling for cleaning/disinfection must be clearly defined. Shared equipment that has been in direct contact with the patient/patient environment must be cleaned/disinfected before use with another patient. Outbreaks are frequently associated with equipment that has not been cleaned.

- When possible, dedicate equipment specifically for patients with MRSA.
- To avoid excessive waste, ensure only necessary supplies are taken into the patient room. The supplies in patient rooms that cannot be cleaned and disinfected are discarded when the patient with MRSA is discharged or when MRSA precautions have been removed. This includes but not limited to paper, medical and personal care supplies, etc.
- Use of PPE is required when cleaning and handling soiled patient care equipment, as per Routine practices. This is to prevent contamination to the skin and clothing of the person cleaning the equipment.
- Ensure that personal care items are not shared between patients.

## 11. Dietary

Use of disposable dishes is not required. Regular dishwashing cycles are adequate to clean/sanitize dishes.

In areas where dietary personal deliver trays; the dietary staff enter the room of the positive MRSA patient wearing a clean pair of gloves, place tray in the room, remove and dispose of gloves at the door, and perform hand hygiene upon exiting the patient environment.

Dietary staff can pick up trays from a patient's room wearing a clean pair of gloves; bring the tray outside the room, place the tray on the cart and then remove gloves, dispose of gloves in nearest waste can, perform hand hygiene. No other activities are to be performed by the dietary staff when in the patient room. If patient requires assistance, please notify a nurse/caregiver.

## 12. Movement/Transfer of the Patient

The transfer of a patient with MRSA should be planned in advance and effective communication with all involved parties is essential. Communication with non-care providers should be limited to precautions needed in order to preserve confidentiality of the patient's diagnosis.

MRSA should not be a barrier to clinical care; therefore transfers within a facility or to another facility should not be delayed or prevented. MRSA status should not affect other aspects of care; rehabilitation, investigation or treatment.

### 12.1 Acute Care

The transfer of an infected or colonized patient should be carefully managed. All staff should ensure the receiving area is aware of the patient's MRSA status before transfer to ensure that infection control measures can be implemented.

*These measures should include:*

- Staff in direct contact with the patient should wear gowns and gloves. The gown and gloves must be removed when contact with the patient has finished. Perform hand hygiene following removal of PPE.
- If the bed is used for transport, frequently touched areas on the bed must be cleaned and disinfected before leaving the patient room.
- Where the patient is leaving one area to be admitted to another, they should be transferred on a stretcher or in a wheelchair. The patient's original bed linen should be left behind in the patient environment for laundering.
- Staff preparing to transfer patient must ensure that PPE is clean before exiting room.
- The stretcher or wheelchair must be cleaned and disinfected after use.
- All used linen is considered dirty linen.
- The patient should wear a clean Johnny shirt and be covered by a clean blanket.
- All draining lesions should be covered with an impermeable dressing prior to transfer.
- Mobilization with care providers is encouraged in consultation with infection control. A care plan regarding mobilization outside the room will be done in consultation with the ICP.
- Patients self-ambulating should perform hand hygiene and wear clean clothes prior to exiting room. If accompanied/assisted by a HCP the HCP will wear PPE.

## **12.2 Long-term Care/ Community Care**

In non-acute care settings, precautions may need to be adapted so that patients can take part in therapeutic and social activities. Staff is to emphasize appropriate hand hygiene for these patients and to those who are interacting with them. Contaminated beds and equipment should not be removed from the room until they are thoroughly cleaned and disinfected.

## **12.3 Transfers to Other Hospitals or Healthcare Facilities**

When considering a transfer of any patient with MRSA to another facility, discharge planning and communication must begin in time to ensure proper communications and arrangements for the transfer have been made.

It is the responsibility of the transferring team to communicate the present status and past history of MRSA to the receiving facility and transporters in advance to allow for appropriate placement and precautions to be put in place.

## **12.4 Visits to Clinics and Specialist Departments**

Notification of the patient's MRSA status should be done prior to the appointment so that special arrangements can be made including:

- Where possible, staff should contain patient activity to one area. The room should be cleared of surplus equipment, (e.g. stretchers and mobile equipment).
- Staff providing care to the patient should wear appropriate PPE. Use of gloves is sufficient unless there is a risk of sprays or splashes of body fluids on clothing. When contact with the patient has finished, perform hand hygiene.
- If the patient is being transferred on a stretcher or wheelchair, this must be cleaned and disinfected before being used for another patient.
- All equipment and horizontal surfaces that may have become contaminated should be cleaned and disinfected.
- Any used linen is considered contaminated.

## **13. Deceased Patients**

Precautions should be continued while care of the remains is completed and the body is placed into the morgue or picked up by the funeral home. The morgue stretcher should be cleaned and disinfected as per protocol.

## **14. Outbreak Management**

Confirm that there is an outbreak. Complete MRSA Line List Form (Appendix H). Each new case of MRSA is investigated. However, an outbreak is considered to be a significant increase in the number of cases (colonization's or infections) above the number normally occurring in a particular health care setting over a defined period of time. All outbreaks must be reported to the Chief Public Health Office (CPHO).

Place each positive patient on Contact Precautions as soon as possible after identification of the organism. Form a multi-disciplinary outbreak management team to review the situation and provide guidance and support. The outbreak team should meet regularly for the duration of the outbreak. Members of the team should include representatives from the affected unit such as the nurse manager and charge nurse. Other members of this team would include:

- Administration
- Physician
- Infection Control Professional or designate
- Environmental services
- Employee Health and Communications may be required as AD HOC Members
- Other supports may include:
  - Laboratory designate
  - Medical Microbiologist
  - Chief Public Health Office

#### **14.1 Establish lines of communication:**

Communication within the facility and with Public Health is critical to the success of an outbreak investigation.

Communicate with patients and their family regarding the reason for initiation of Contact Precautions. Maintain patient confidentiality.

If patients from the affected unit require transfer, notify the receiving health care setting or department that the patient is coming from an outbreak unit.

- Maintain communication with local experts.
- Communicate daily with facility leadership and staff as to the progress of the outbreak.
- Determine key spokesperson for the media.
- Inform the laboratory of the outbreak and maintain ongoing communication.

#### **14.2 Identify contacts of each new case:**

Obtain surveillance specimens from all patients that are contacts (e.g. roommates) of the source patient as well as others who may be considered “at risk” for transmissions from the outbreak (Appendix I). At risk patients are considered those who have wounds and/or indwelling devices. Cultures should be taken from the nares and peri-anal and any other risk sites. Further testing of other patients may be done (e.g. roommates) depending on the initial culture results.

Maximum of 6 patients (12 swabs) can be submitted without prior discussion with the Medical Microbiologist per day.

#### **14.3 Initiate prevalence screening/surveillance:**

Consider conducting a prevalence screen/surveillance on the affected floor/unit if additional cases are found after doing contact tracing, particularly if these cases have the same strain as the source patient. Continue active surveillance on a regular basis until levels are back to baseline. Active surveillance may include admission, discharge and/or weekly screening cultures.

#### **14.4 Implement staff education:**

Conduct in-service education on the affected floor/unit and other departments as necessary. If the outbreak affects multiple areas of the facility, facility/program-wide education may be required.

#### **14.5 Environmental Cleaning**

Review environmental cleaning and disinfection practices as well as management and storage of supplies. Routine cleaning and disinfection may not be adequate to remove some organisms from contaminated surfaces. In situations with persistent transmission, consideration may be given to post-cleaning environmental cultures to document that terminal cleaning of rooms is effective.

Review and audit infection prevention and control strategies and practices such as hand hygiene and environmental cleaning (Appendix G).

#### **14.6 Attempt to identify the source of the outbreak:**

Conduct an investigation and review the patient record to attempt to determine the source of the outbreak (e.g. history of care in another health care setting, patient contacts and recent transfer from high-risk units).

The lab will send isolates for molecular typing (one isolate per case) to determine whether cases are epidemiologically linked.

A detailed investigation should be initiated to detect additional cases and possible links between cases, such as equipment, procedures or common staff assignments.

If the suspected source is another health care setting, that setting must be informed about the findings.

#### **14.7 Cohorting of patients and staff**

Consult with infection control to determine if cohorting positive MRSA patients is appropriate in the particular outbreak situation. Consideration of this is based on a risk assessment. Consideration should be given to cohorting staff until the outbreak is resolved.

Consider closing a floor/unit to further admissions or transfers until the outbreak is resolved in consultation with ICP and the outbreak team.

Screening of HCP is done as last resort when the outbreak is prolonged.

#### **14.8 Declaring an Outbreak Over**

An outbreak is declared over by the outbreak management team when there is evidence that no further transmission is occurring.

#### **14.9 Outbreak Report**

Communicate findings of and lessons learned from an outbreak investigation to stakeholders.

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## Appendix A - Specimen Collection for MRSA Screening Culture

Equipment Required	<ul style="list-style-type: none"> <li>• Sterile clear transport swab</li> <li>• Laboratory requisition</li> <li>• Disposable non-sterile gloves</li> </ul>
Procedure	<ul style="list-style-type: none"> <li>• Culture should be taken within 24 hours of admission</li> <li>• Cultures should be taken at least 24 hours after topical and 72 hours after systemic antibiotic/decolonization treatment has ceased</li> </ul>
Nares (anterior)	<ul style="list-style-type: none"> <li>• Insert swab into each nare no further than the length of the cotton bud and rotate gently around inner surface of nostril (1 swab both nares)</li> <li>• Return swab into transport media</li> </ul>
Peri-anal	<ul style="list-style-type: none"> <li>• The peri-anal area is the skin surface 10-15 mm from the anus or inner os of the ostomy</li> <li>• Return swab to transport media</li> </ul>
Wound Swab (open)	<ul style="list-style-type: none"> <li>• One swab per wound</li> <li>• Sample a quarter size area- rotating as the sample is being collected.</li> <li>• Return swab into transport medium</li> </ul>
Labeling of Specimens	<ul style="list-style-type: none"> <li>• 2 unique identifiers required (e.g. Name, PHN# on both the requisition and specimen)</li> <li>• Record date and time collected on both requisition and specimen record site of collection</li> <li>• One requisition for multiple swabs on the same patient</li> </ul>
Transport of Specimens	<ul style="list-style-type: none"> <li>• Specimen may remain at room temperature</li> <li>• Specimen should reach lab within 24 hours of collection</li> </ul>

## Appendix B - Sample MRSA Risk Assessment for Additional Precautions

(Recommended for use in Acute Care, Long Term Care)

Risk factors for initiation of Contact Precautions prior to MRSA screening culture results. If **'yes'** to any of the screening questions → initiate Contact Precautions until negative results are reported.

1. MRSA alert present on the medical record or the patient has disclosed that they have an MRSA infection in the past year?  Yes  No
2. Direct transfer from outside of Atlantic Provinces?  Yes  No
3. Transfer from a unit/facility with an active outbreak of MRSA?  Yes  No

## Appendix C1 - Routine Practices Table

### Hand Hygiene

- Hand Hygiene is performed using alcohol-based hand rub or soap and water:
- Before and after each patient contact
- Before performing invasive procedures
- Before preparing, handling, serving, or eating food
- After performing care involving body fluids
- Before putting on and after taking off gloves and PPE
- After personal body functions (e.g. blowing one's nose)
- Whenever hands come into contact with secretions, excretions, blood and body fluids
- After contact with items in the patient's environment

### Mask & Eye Protection or Face Shield

- Protect eyes, nose and mouth during procedures and care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions
- Wear within 2 meters of a coughing patient

### Gown

- Wear a long-sleeved gown if contamination of uniform or clothing is anticipated

### Gloves

- Wear gloves when there is a risk of hand contact with blood, body fluids, secretions, excretions, non-intact skin, mucous membranes or contaminated surfaces or objects
- Wearing gloves is NOT a substitute for hand hygiene
- Perform hand hygiene before and after removing gloves

### Environment

- All equipment that is being used by more than one patient must be cleaned between patients
- All touched surfaces in the patient's room must be cleaned daily

### Linen & Waste

- Handle soiled linen and waste carefully to prevent personal contamination and transfer of organisms to other patients

### Sharps Injury Prevention

- NEVER RECAP USED NEEDLES
- Place sharps in sharps containers

### Patient Placement/Accommodation

- When possible use a single room for a patient who contaminates the environment  
Perform hand hygiene after leaving the room

## Appendix C2 - Acute Care Precautions Table

### (Contact Precautions in addition to Routine Practices)

#### Hand Hygiene

- Hand Hygiene is performed using alcohol-based hand rub or soap and water:
- Before and after each patient contact
- Before performing invasive procedures
- Before preparing, handling, serving or eating food
- After care involving body fluids
- Before putting on and after taking off gloves and other PPE
- After personal body functions (e.g. blowing one's nose)
- Whenever hands come into contact with secretions, excretions, blood and body fluids
- After contact with items in the patient's environment
- Provide hand hygiene education to patient

#### Patient Placement

- Use a single room with own toileting facilities
- Cohorting with other positive MRSA patients to be done only in consultation with Infection Control
- Door may remain open

#### Gloves

- Wear gloves when entering room
- Wearing gloves is NOT a substitute for hand hygiene
- Perform hand hygiene before and after removing gloves

#### Gown

- Wear a long-sleeved gown when entering room

#### Masks

- As per Routine Practices

#### Environment

- Dedicate routine equipment to the patient (e.g. stethoscopes, commodes)
- All equipment must be disinfected after patient use
- Regular daily cleaning and all frequently touched surfaces in the patient's room must be cleaned at least daily

#### Visitors

- Visitors must wear gloves and a long-sleeved gown
- Visitors must perform hand hygiene before entering and after leaving the patient room

## Appendix C3 - Long Term care Precautions Table

### (Bedside Contact Precautions in addition to Routine Practices)

#### Hand Hygiene

- Hand Hygiene is performed using alcohol-based hand rub or soap and water:
- Before and after each client/resident contact
- Before performing invasive procedures
- Before preparing, handling, serving or eating food
- After care involving body fluids of a client/resident
- Before putting on and after taking off gloves and other PPE
- After personal body functions (e.g. blowing one's nose)
- Whenever hands come into contact with secretions, excretions, blood and body fluids
- After contact with items in the resident's environment
- Clean the resident's hands or assist resident before they leave their room

#### Patient Placement

- Use a single room with own toileting facilities. If not available, resident can be placed with another low risk MRSA patient or other low risk patient (consultation with ICP)
- No restriction to participation in facility activities, as long as secretions can be contained
- Door may remain open
- Sign to be placed on door to check with nurse before entering

#### Gloves

- Wear gloves for direct care
- Perform hand hygiene before and after removing gloves

#### Gown

- Wear a long-sleeved gown for direct care\*

#### Masks

- As per Routine Practices

#### Environment

- Dedicate routine equipment to the client/resident if possible (e.g. stethoscope, commode)
- All equipment must be disinfected after patient use
- All touched surfaces in the client/resident's room must be cleaned at least daily and frequently touched surfaces twice daily

#### Visitors

- Visitors must wear gloves and a long-sleeved gown if they will be providing direct care\*
- Visitors must perform hand hygiene before entry and after leaving the room

**\*Direct Care:** Providing hands-on care, such as bathing, turning patient, changing clothes/incontinent products, dressing changes, care of open wounds/lesions or toileting. Feeding and pushing a wheelchair are not classified as direct care.\*

## Appendix C4 - Home Care Precautions Table

### (Bedside Contact Precautions in addition to Routine Practices)

#### Hand Hygiene

- Hand Hygiene is performed using alcohol-based hand rub or soap and water:
- Before and after each patient contact
- Before performing invasive procedures
- Before preparing, handling, serving or eating food
- After care involving body fluids
- Before putting on and after taking off gloves and PPE
- After personal body functions (e.g. blowing one's nose)
- Whenever hands come into contact with secretions, excretions, blood and body fluids
- After contact with items in the patient's environment

#### Gown

- Wear a long-sleeved gown if contamination of uniform or clothing is anticipated

#### Gloves

- Wear gloves when there is a risk of hand contact with blood, body fluids, secretions, excretions, non-intact skin, mucous membranes or contaminated surfaces or objects
- Wearing gloves is NOT a substitute for hand hygiene
- Perform hand hygiene before and after removing gloves

#### Masks

- As per Routine Practices

#### Equipment

- All equipment must be disinfected after patient use

#### Linen & Waste

- Handle soiled linen and waste carefully to prevent personal contamination and transfer of organisms

#### Sharps Injury Prevention

- NEVER RECAP USE NEEDLES
- Place sharps in sharp containers
- Prevent injuries from needles, scalpels and other sharp devices

## Appendix C5 - Clinics Precautions Table

### (Modified Contact Precautions in addition to Routine Practices)

#### Hand Hygiene

- Performed using alcohol-based hand rub or soap and water:
- Before and after each patient contact
- Before performing invasive procedures
- Before preparing, handling, serving or eating food
- After care involving body fluids
- Before putting on and after taking off gloves and PPE
- After personal body functions (e.g. blowing one's nose)
- Whenever hands come into contact with secretions, excretions, blood and body fluids
- After contact with items in the patient's environment

#### Gown

- Wear a long-sleeved gown if contamination of uniform or clothing is anticipated

#### Gloves

- Wear gloves when there is a risk of hand contact with blood, body fluids, secretions, excretions, non-intact skin, mucous membranes or contaminated surfaces or objects
- Wearing gloves is NOT a substitute for hand hygiene
- Perform hand hygiene before and after removing gloves

#### Masks

- As per Routine Practices

#### Environment

- All equipment must be disinfected after patient use
- Clean all touched surfaces in the exam room after the patient leaves

#### Linen & Waste

- Handle soiled linen and waste carefully to prevent contamination and transfer of organisms to other patients

#### Sharps Injury Prevention

- NEVER RECAP USED NEEDLES
- Place sharps in sharps containers
- Prevent injuries from needles, scalpels and other sharp devices

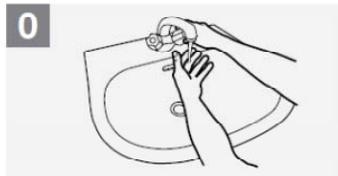
#### Patient Placement/Accommodation

- Limit the time the patient spends in the waiting room

# How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

 Duration of the entire procedure: 40-60 seconds



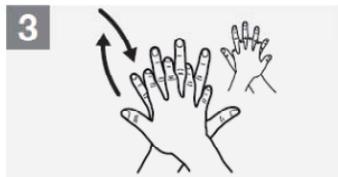
Wet hands with water;



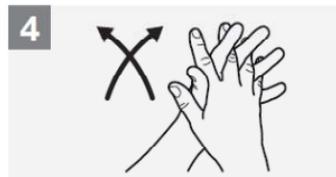
Apply enough soap to cover all hand surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



Palm to palm with fingers interlaced;



Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



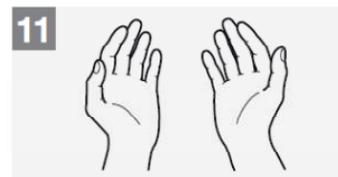
Rinse hands with water;



Dry hands thoroughly with a single use towel;



Use towel to turn off faucet;



Your hands are now safe.



World Health Organization

Patient Safety

A World Alliance for Safer Health Care

SAVE LIVES

Clean Your Hands

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May 2009

# How to Handrub?

**RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED**

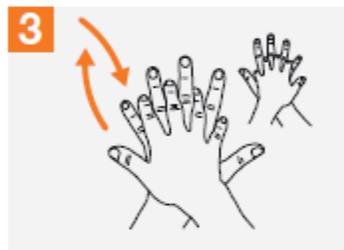
**🕒 Duration of the entire procedure: 20-30 seconds**



**1a** Apply a palmful of the product in a cupped hand, covering all surfaces;



**2** Rub hands palm to palm;



**3** Right palm over left dorsum with interlaced fingers and vice versa;



**4** Palm to palm with fingers interlaced;



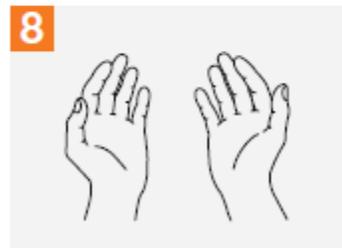
**5** Backs of fingers to opposing palms with fingers interlocked;



**6** Rotational rubbing of left thumb clasped in right palm and vice versa;



**7** Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



**8** Once dry, your hands are safe.

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Clean Your Hands

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## Appendix E1 - Information for Residents/Visitors of Long Term Care

### Methicillin Resistant *Staphylococcus aureus* (MRSA)

#### What is Methicillin-Resistant *Staphylococcus aureus* (MRSA)?

*Staphylococcus aureus* is a germ that normally lives in the nose, rectum, and on human skin. MRSA is a type of *Staphylococcus aureus* that is not killed by the usual antibiotics.

#### How is MRSA spread?

Anyone can get MRSA. You can get it by touching someone or something that has the germs on it and then touching your skin or your nose.

#### Are certain people at risk of getting MRSA?

People most likely to get MRSA are those who:

- Are seriously ill
- Are hospitalized for a long time
- Have taken antibiotics

#### Does everyone that comes in contact with MRSA become sick?

No. Sometimes the germ lives on the body without causing infection and does not require treatment; this is called colonization. If you have an infection with MRSA you may need specific antibiotics.

#### How can we stop the spread of MRSA?

- Hand washing is the best way to prevent the spread of MRSA
- All staff, family members, and visitors should perform hand hygiene before entering and when leaving your room
- Certain precautions may be applied which may include:
  - Private room
  - Staff may wear gowns and gloves when providing care
  - Daily cleaning of your room

#### Can my family and friends visit?

Yes. Things they should do:

- Wash their hands when entering and leaving your room
- Check with staff if bringing in or removing items from your room

#### What happens if I go to the hospital?

- You will be placed in a private room on contact precautions
- People entering your room will be required to wear a gown and gloves
- You will have swabs done

#### Will MRSA go away?

- MRSA may go away on its own, but sometimes it does not
- You should wash your hands frequently
- Your activities will not be restricted

## Appendix E2 - Information for Patients /Visitors of Acute Care

### Methicillin Resistant *Staphylococcus aureus* (MRSA)

#### What is Methicillin-Resistant *Staphylococcus aureus* (MRSA)?

*Staphylococcus aureus* is a germ that normally lives in the nose, rectum, and on human skin. MRSA is a type of *Staphylococcus aureus* that is not killed by the usual antibiotics.

#### How is MRSA spread?

Anyone can get MRSA. You can get it by touching someone or something that has the germs on it and then touching your skin or your nose.

#### Are certain people at risk of getting MRSA?

People most likely to get MRSA are those who:

- Are seriously ill
- Are hospitalized for a long time
- Have taken antibiotics

#### Does everyone that comes in contact with MRSA become sick?

No. Sometimes the germ lives on the body without causing infection and does not require treatment. This is called colonization. If you have an infection with MRSA you may need specific antibiotics.

#### What does this mean for me in the hospital?

- Hand washing is the best way to prevent the spread of MRSA,
- Contact Precautions will be taken when you are in the hospital:
  - Private room
  - Health care workers will wear gowns and gloves when entering your room
  - Daily cleaning of your room
  - Your activity will be restricted. Only leave your room as directed by the nursing staff
- All staff, family members, and visitors should perform hand hygiene before entering and when leaving your room

#### Can my family and friends visit?

Yes. Things they should do:

- Wash their hands when entering and leaving your room
- Follow the directions on the precaution signs before entering your room
- Check with staff if bringing in or removing items from your room
- Reduce or limit visiting other patients

#### Will MRSA go away?

- MRSA may go away on its own, but sometimes it does not
- You should wash your hands frequently
- Your activities will not be restricted
- Your Physician may consider treatment to eradicate the MRSA (decolonization)

### What will happen when I leave the hospital?

The spread of MRSA at home is very low risk and is not likely to occur. The following measures should be taken:

- Handwashing prevents the spread of infection. You and your family should wash your hands regularly with soap and water
- You can return to your normal routine
- Laundry and dishes can be washed as usual
- No special cleaning is required
- In most instances no special precautions are required for visitors to your home

## Appendix E3 - Information for Health Care Workers

### Methicillin Resistant *Staphylococcus aureus* (MRSA)

#### What is MRSA?

*Staphylococcus aureus* (SA) is a bacterium that periodically lives on the skin and mucous membranes of healthy people. When *Staphylococcus aureus* develops resistance to the beta-lactam class of antibiotics, it is called methicillin-resistant *Staphylococcus aureus* (MRSA).

#### How is it spread?

MRSA is spread from one person to another via the hands of healthcare workers. Hands are easily contaminated during the process of providing care or from contact with environmental surfaces in the patient environment.

#### What is colonization and infection?

Colonization occurs when bacteria are present on or in the body without causing clinical signs or symptoms of disease. MRSA can colonize the nose, skin and moist areas of the body such as the perianal/anal area.

Infection occurs when bacteria enters a body site and multiplies in tissue causing clinical manifestation of the disease. This is usually evident by fever, a rise in white blood cell count (WBC), or purulent drainage from a wound or body cavity. Infections with MRSA may be minor, such as pimples or boils but serious infections may also occur such as surgical wound infections, blood infections, and pneumonia.

#### Risk Factors for MRSA Infection

MRSA infection usually develops in hospitalized patients who are elderly or very ill (weakened immune system). Other factors that increase the risk:

- Colonized with MRSA
- Previous hospitalization or transfer between health care facilities
- Presence of an indwelling device

#### What can healthcare workers do to decrease the spread of MRSA?

Hand Hygiene is one of the most important measures for preventing the spread of MRSA. Waterless, alcohol based (60-90% alcohol) hand sanitizers are effective for hand hygiene and should be used at the point of care. Hands should be washed with soap and water when they are visibly soiled. Patients, caregivers and visitors should be instructed in proper hand hygiene. Keep hands healthy and use lotion to keep skin moisturized.

Hand hygiene should occur:

1. Before contact with the patient/patient environment
2. Before performing an aseptic procedure
3. Aftercare involving body fluids
4. After contact with patient/patient environment

## What precautions should be used for MRSA?

Contact Precautions in addition to Routine Practices.

Routine Practices refer to interventions such as hand hygiene, patient placement, and the use of barriers such as gloves, gowns, masks and face shields to be used for all patients regardless of diagnosis and tailored to the characteristics of the patients and their environment.

Contact precautions include:

- Private Room
  - A private room with Contact Precaution signage
  - Occasionally, patients with MRSA may be roomed together. This will be done with direction of the ICP.
- Personal protective equipment (PPE)
  - Gown and gloves are required when entering the patient's room
  - Masks/eye protection are required when the patient has a productive cough and you are going to be within 2 meters of the patient as per routine practices.
- Equipment
  - Direct patient care equipment such as stethoscopes, BP cuffs and commodes may be dedicated to patient rooms.
  - Equipment must be cleaned and disinfected between patients
  - Take the least amount of supplies into the room (e.g. packages of gauze, etc.)
  - When Contact Precautions are discontinued, clean and disinfect all equipment before removing from room. Discard all supplies that cannot be cleaned and disinfected.
- Cleaning
  - All surfaces in patient rooms are cleaned daily and frequently touched surfaces BID in hospital and LTC. At the end of isolation or following patient discharge or transfer, a terminal clean is required.

Contact Precautions may be discontinued only on the advice of an ICP

Acute care patients who have had three negative MRSA screening swabs are placed under PPMRSA (Previous Positive MRSA). They continue to require a private room (unless directed by an ICP) but do not need contact precautions.

Acute care patients who are PPMRSA after 18 or more months will have their status reassessed by an ICP and may have their PPMRSA status removed.

# Appendix F - MRSA Decolonization

QUEEN ELIZABETH HOSPITAL



PRINCE EDWARD ISLAND  
A division of Health PEI

Patient Label

Patient Name: \_\_\_\_\_

PHN: \_\_\_\_\_

K	M	R	<b>Methicillin Resistant Staphylococcus aureus (MRSA) Decolonization Order Set for QEH</b>	Page 1/2
			<p><b>Contraindications for below Decolonization Orders</b></p> <ul style="list-style-type: none"> <li>• Pregnancy (Oral therapies are teratogenic)</li> <li>• Previous Respiratory Infection with MRSA</li> <li>• MRSA Strain is resistant to Rifampin OR High-level resistant to Mupirocin</li> <li>• MRSA Strain is resistant to both Doxycycline AND Trimethoprim-Sulfamethoxazole (TMP-SMX) "Septra™"</li> <li>• Currently on anti-MRSA therapy (i.e. Vancomycin, TMP-SMX, Fluroquinolone, etc.)</li> <li>• Liver tests abnormalities (ALP &gt;200, AST &gt; 100, OR GGT &gt; 100)</li> <li>• Respiratory or moderate to heavy throat colonization (as a surrogate for respiratory) due to increase chance of failure (&gt;50%)</li> </ul> <p><b>Consults:</b></p> <p><input checked="" type="checkbox"/> Notify Infection Control Nurse</p> <p><input checked="" type="checkbox"/> Physician to telephone consult Medical Microbiologist / Infectious Diseases Consultant</p> <p><b>MRSA Colonized:</b> <input type="checkbox"/> Nasal    <input type="checkbox"/> Rectal    <input type="checkbox"/> Throat (See contraindication)    <input type="checkbox"/> Other _____</p> <p style="text-align: center;"><b>Indicators for Decolonization</b></p> <p>MRSA colonized patient (check appropriate box)</p> <p><input type="checkbox"/> Booked for an orthopedic surgical procedure – Date of Procedure _____</p> <p><input type="checkbox"/> Booked for a non- orthopedic surgical procedure Date of Procedure _____ AND</p> <p style="padding-left: 20px;"><input type="checkbox"/> morbidly obese and/ or</p> <p style="padding-left: 20px;"><input type="checkbox"/> previous MRSA related surgical infection</p> <p><input type="checkbox"/> Anticipated prolonged length of stay on an acute care ward (greater than 2 weeks)</p> <p><input type="checkbox"/> Who is non-compliant with or who does not emotionally tolerate contact isolation precautions</p> <p><input type="checkbox"/> Identified as a point source in nosocomial spread</p> <p><input type="checkbox"/> Intensive Care (Consider a first decolonization trial without Doxycycline and Rifampin, uncheck below)</p> <p style="text-align: center;"><b>Potential Indicator for Decolonization</b></p> <p><input type="checkbox"/> At high risk for MRSA infection (prior MRSA infection, diabetes, dialysis, surgical wound, immunosuppressed)</p> <p style="padding-left: 20px;"><input type="checkbox"/> Informal / Telephone OR</p> <p style="padding-left: 20px;"><input type="checkbox"/> Formal Consult with Medical Microbiologist / Infectious Diseases</p> <p><b>Patient Care:</b></p> <p><input checked="" type="checkbox"/> Patient to wash hands with alcohol hand rinse three times daily and when leaving room</p> <p><input checked="" type="checkbox"/> Patient bedding and clothing to be changed after each chlorhexadine bath on days 1,3,5, and 7</p> <p><input checked="" type="checkbox"/> If present Foley catheter changed on day 4 of therapy</p> <p style="text-align: center;"><b>Laboratory Investigations</b></p> <p><b>If not already done:</b></p> <p><input checked="" type="checkbox"/> ALP      <input checked="" type="checkbox"/> AST      <input checked="" type="checkbox"/> GGT      <input type="checkbox"/> β-hCG</p>	
Signature: _____			Name: (Print) _____	Date: _____ Time: _____
<input type="checkbox"/> Sent to Pharmacy (Time) _____			<input type="checkbox"/> Copy To: _____	



Patient Name: \_\_\_\_\_

PHN: \_\_\_\_\_

K	M	R	<b>Methicillin Resistant Staphylococcus aureus (MRSA) Decolonization Order Set for QEH</b>	Page 2/2
<p style="text-align: center;"><b>Medications</b></p> <p><input type="checkbox"/> Mupirocin 2% topical ointment or cream to all open and colonized wounds and drain sites TID x 7 days</p> <p><input checked="" type="checkbox"/> Mupirocin 2% topical cream BID to nares x 7 days</p> <p><input checked="" type="checkbox"/> Sulfamethoxazole-trimethoprim (Septra DS) 1 tablet PO BID x 7 days (Renally Dosed)</p> <p><input checked="" type="checkbox"/> rifAMPIN 300 mg PO BID x 7days with food (Avoid/reduce acetaminophen products and alcohol consumption)</p> <p><input checked="" type="checkbox"/> Chlorhexidine 2% wipes daily x 7 days. Apply to scalp days 1, 3, 5, and 7 (alternative 2% CHG Provone soap)</p> <p><input checked="" type="checkbox"/> Chlorhexidine 1% (Provone soap 1:1 with Baby shampoo). Apply to scalp days 1, 3, 5, and 7</p> <p style="text-align: center;"><b>If patient allergic to Sulfa or Sulfamethoxazole-trimethoprim then substitute</b></p> <p><input type="checkbox"/> Doxycycline 100 mg PO BID x 7 days with food (with or without Rifampin as above)</p> <p style="text-align: center;"><b>Follow Up</b></p> <p><input checked="" type="checkbox"/> 48 hours after completion of decolonization therapy and off all antimicrobials, obtain culture swabs of nares, rectum, and any ostomy, drain/wound sites, central line exit sites, urine if Foley catheter is present and any open skin lesions. (Mark Post-Decolonization )</p> <p><input checked="" type="checkbox"/> Repeat above in one week (Mark Post-Decolonization 1 week)</p> <p><input checked="" type="checkbox"/> Repeat above in two to three weeks (Mark Post-Decolonization 2-3 weeks)</p> <p><input checked="" type="checkbox"/> Notify infection control 48-72 hours before potential discharge, so that they can arrange for family doctor or alternate to do above swabs.</p> <p><input checked="" type="checkbox"/> Infection control is the only authority permitted to remove or downgrade a positive MRSA status</p> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. For patients on proton pump inhibitors consider screening their stool and treating for <i>H. pylori</i> as rifampin is associated with exacerbating gastritis.</li> <li>2. Chance of success with two drug oral therapy is at least 80%. Close contacts may need to be screened if reoccurs especially if the close contacts have symptoms of MRSA infection or history of psoriasis and eczema which places them at risk of being a heavy shedder.</li> <li>3. Decolonization needs to be marked on the paper request form if being used or correctly ordered in CPOE which allows the laboratory to process the swabs separately and provide quantification of the MRSA if found. In special circumstances a liquid broth enrichment or molecular testing can be arranged.</li> </ol> <p><b>References:</b></p> <p>Dow, G. 2010. Decolonization of methicillin-resistant <i>Staphylococcus aureus</i> during routine hospital care: Efficacy and long-term follow-up. <i>CJIDMM</i> 12: 38-44</p> <p>Huang, S.S. et al. 2013. Targeted versus Universal Decolonization to Prevent ICU Infection <i>NEJM</i> 368: 2255-2265</p>				
Signature: _____ Name: (Print) _____ Date: _____ Time: _____				
<input type="checkbox"/> Sent to Pharmacy (Time) _____ <input type="checkbox"/> Copy To: _____				

## Appendix G - Environmental Services Check List Audit- Sample

### Daily Cleaning of Patient Room

High Dusting Performed		
Use high duster/mop head: wipe ledges (shoulder high and above)	YES:	NO:
Vents	YES:	NO:
Lights (*Do not high dust over the patient)	YES:	NO:
Dust TV: Rotate and dust screen and wires. (Remove dust over cart trash gently)	YES:	NO:

### Damp Dust

Ledges (shoulder high)	YES:	NO:
Door Handles	YES:	NO:
Bedside Table/Disinfect Surfaces	YES:	NO:
Glass Surfaces	YES:	NO:
Bathroom All Surfaces	YES:	NO:
Ledges in Bathroom	YES:	NO:
Door Handles	YES:	NO:
Sink	YES:	NO:
Shower Stall	YES:	NO:
Toilet	YES:	NO:
Damp Wipe toilet seat	YES:	NO:
Clean mirrors/chrome	YES:	NO:
Empty Waste Basket	YES:	NO:
Disinfect if wet	YES:	NO:
Check level of Sharps- Replace if $\frac{3}{4}$ full, To soiled utility room after securely closing formatting issue here	YES:	NO:
Floor Disinfection: Sign at Door	YES:	NO:
Wet Floor Cleaning Equipment in Disinfectant	YES:	NO:
Bathroom shower floor	YES:	NO:
Bathroom floor	YES:	NO:

### Terminal Cleaning for MRSA

#### In addition to the above regular cleaning of room

- All curtains must be removed and laundered
- All reusable equipment kept in room must be cleaned/disinfected, even if it has not been used (e.g. ambu bag)

## Appendix H - MRSA Line List

Name/M RN	Admission Date	Admitted From	Risk Factors	MRSA Culture History (if applicable)	Room History (if applicable)	Date MRSA Cultures Taken and Results	Discharge Date (if applicable)	Comments
						<b>Nares:</b> Pos/Neg Date: _____ <b>Perianal:</b> Pos/Neg Date: _____ <b>Other:</b> Pos/Neg Date: _____		
						<b>Nares:</b> Pos/Neg Date: _____ <b>Perianal:</b> Pos/Neg Date: _____ <b>Other:</b> Pos/Neg Date: _____		
						<b>Nares:</b> Pos/Neg Date: _____ <b>Perianal:</b> Pos/Neg Date: _____ <b>Other:</b> Pos/Neg Date: _____		
						<b>Nares:</b> Pos/Neg Date: _____ <b>Perianal:</b> Pos/Neg Date: _____ <b>Other:</b> Pos/Neg Date: _____		
						<b>Nares:</b> Pos/Neg Date: _____ <b>Perianal:</b> Pos/Neg Date: _____ <b>Other:</b> Pos/Neg Date: _____		
						<b>Nares:</b> Pos/Neg Date: _____ <b>Perianal:</b> Pos/Neg Date: _____ <b>Other:</b> Pos/Neg Date: _____		
						<b>Nares:</b> Pos/Neg Date: _____ <b>Perianal:</b> Pos/Neg Date: _____ <b>Other:</b> Pos/Neg Date: _____		

## Appendix I - Outbreak Management

**Table 1: Risk Categories for Facilities**

Risk Category	High	Moderate	Low	Minimal
<b>Units in each category</b>	Intensive Care Special Care Nurseries Oncology	All surgical specialties except Obstetrics and Gynecology	Internal Medicine Acute elderly care Paediatrics Dialysis	Long Term Care Psychiatry Community Setting except dialysis Obstetrics and Gynecology

**Table 2: Actions to be taken on detection of an in-patient colonized or infected with MRSA.**

Risk Category	High	Moderate	Low	Minimal
<b>Contact Precautions of Index Case</b>	Yes	Yes	Yes	Risk assessment to determine level of precautions
<b>Full screen of exposed patients (3 swabs 5-7 days apart)</b>	Yes	Yes	Yes	No: unless attempt decolonization therapy
<b>Contact Precautions of exposed until swab results return</b>	Yes	Yes	No	
<b>Screen other patients in room/unit</b>	All patients in adjacent areas that have been in contact with index case.	All patients in adjacent areas that have been in contact with index case.	All patients in adjacent areas (or in the same chair for dialysis) that have been in contact with index case.	Only on the advice of the ICP