The Provincial Infection Prevention and Control Strategy would like to acknowledge the contribution and expertise of the task group that developed this document:

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The committee would like to thank all who have reviewed this document.
# Table of Contents

- Glossary ................................................................. i
- 1. Purpose ............................................................... 1
- 2. Background ........................................................... 1
- 3. Introduction .......................................................... 1
- 4. Admission Screening ............................................... 2
- 5. Infection Control Measures ....................................... 3
  Table 5.1 Precautions for MRSA Quick Reference ............. 5
- 6. Flagging Charts ...................................................... 7
- 7. Ongoing Culturing for MRSA (+) Patients ..................... 7
- 8. Decolonization ....................................................... 8
- 9. Environmental Cleaning ........................................... 9
- 10. Dietary ............................................................. 10
- 11. Movement /Transfer of the Patients ......................... 10
  11.1 Acute care ..................................................... 10
  11.2 Non - acute care .............................................. 11
  11.3 Transfers to other hospitals or healthcare facilities ....... 11
  11.4 Visits to clinics and specialist departments ............... 11
- 12. Deceased Patients ................................................ 12
Appendices
A. Sample Screening Tool ........................................ 17
B. Specimen Collection Guide .................................... 18
C. Routine Practices Table ....................................... 19
D. Acute Care Precautions Table .................................. 20
E. Long Term Care Precautions Table .............................. 21
F. Home Care Precautions Table .................................. 22
G. Clinic Precautions Table ....................................... 23
H. Environmental Checklist ........................................ 24
I. Hand Hygiene Instruction Sheets ................................. 25
   I1 How to Hand Wash ............................................ 26
   I2 How to Hand Rub .............................................. 27
   I3 4 Moments ..................................................... 28
J. Sample Information Sheets ...................................... 29
   J1 Hospital/Facility Staff ......................................... 30
   J2 Family/Visitors ................................................. 32
   J3 Community Health Care Workers ............................ 33
   J4 General Public .................................................. 35
   J5 Patient .......................................................... 37
   J6 Home/Community Care Facility ............................... 39
K. Decolonization Procedure ...................................... 40
L. Outbreak Line List Form ........................................ 43

References ................................................................. 45
Glossary of Terms

Antibiotic Resistant Organism (ARO): A microorganism that has developed resistance to the action of several antimicrobial agents and that is of special clinical or epidemiological significance.

Bacteremia: The presence of bacteria in the bloodstream.

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

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. The patient will be asymptomatic.

Contact: An individual who is exposed to a person colonized or infected with an antibiotic resistant microorganism in a manner that allows transmission to occur (e.g. roommate).

Contact Precautions: A type of Additional Precautions (also known as Transmission Precautions in the USA) to reduce the risk of transmitting infectious agents 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, on 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 (Home Care, Ambulatory Clinics, and LTC): Providing hands-on patient care, such as bathing, washing, turning, changing clothes/diapers, dressing changes, care of open wounds/lesions or toileting. 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 process for the removal of visible soil and removal or killing of transient microorganisms from the hands. Hand hygiene may be accomplished using soap and running water (for removal of visible soil) or the use of an alcohol-based hand rub (when hands are not visibly soiled). Optimal strength of alcohol-based hand rubs is 60% to 90% alcohol.

Hospital-grade Disinfectant: A 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 in the tissues of the host.

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

**Meticillin-resistant Staphylococcus aureus (MRSA):** MRSA are strains of *S. aureus* that are resistant to all of the beta-lactam classes of antibiotics (such as penicillins, penicillinase-resistant penicillins (e.g. cloxacillin) and cephalosporins. You may note in previous documents the word Methicillin has been used instead of Meticillin. However, **Meticillin** is the approved International Nonproprietary Name designated by the World Health Organization for this drug or group of drugs and will be used in this document.

Outbreak: For the purposes of this document, an outbreak is an increase in the number of cases (colonizations or infections) above the number normally occurring in a particular health care setting over a defined period of time.

**Personal Protective Equipment (PPE):** Clothing or equipment worn for protection against hazards.

**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.

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

**Routine Practices:** (Also known as **Standard Precautions** in the USA) The system of infection prevention and control practices to be used with all patients during all care to prevent and control transmission of microorganisms in health care settings.

**Surveillance:** The systematic ongoing collection, collation and analysis of data with timely dissemination of information to those who require it in order to take action.

**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.
1. Purpose
The purpose of this guideline is to provide direction for health care workers on the management of patients who are colonized or infected with MRSA or Meticillin Resistant Staphylococcus aureus, thereby reducing the risk of MRSA transmission to other patients. 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
Rates of transmission of MRSA can be controlled by sound infection prevention and control practices in all health care settings. Interventions that focus on preventing cross-transmission, such as routine practices, have a great 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 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 is a common bacteria found in our environment. It is the leading cause of health care associated infections 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. As many as 30% of the population carry this bacteria at any given time as normal flora. This state is known as colonization. Infection occurs if the organism invades the skin or deeper tissues and multiplies to cause a localized or systemic disease (e.g. blood stream infection).

Most strains of Staphylococcus aureus are sensitive to the beta lactam classes of antibiotics (e.g. penicillin and cephalosporin). In recent years, strains have emerged which are resistant to this class of antibiotics and other commonly used antibiotics in the treatment of S.aureus. These strains are known as meticillin-resistant Staphylococcus aureus (MRSA).

While MRSA is capable of causing the same serious infections as sensitive strains of Staphylococcus aureus, there is little evidence to suggest that it is more pathogenic or virulent (i.e. more likely to cause infection or more severe infection) than non-resistant strains.
MRSA is generally not a danger to healthy people. The majority of patients who acquire MRSA are colonized only and 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 cross infection to vulnerable patients who may suffer adversely with MRSA. At particular risk are patients with wounds or invasive devices such as intravenous cannulas, urinary catheters, and gastrostomy tubes.

The most common way that MRSA is transmitted between patients is by the transient presence of MRSA on the hands of health care workers. MRSA can also be transmitted indirectly via equipment that has not been cleaned properly or other items in the patient environment.

4. Admission Screening
Routine admission screening for MRSA is conducted to identify both colonized and infected patients, in order to control and prevent the spread of MRSA to others.

The protocol for MRSA admission screening in health care sites across PEI involves a screening tool where questions are asked of the patient to determine overall risk. Cultures are taken when indicated, based on the assessed risk and a plan of care is made for the patient including the application of contact precautions if warranted.

The following are known risk factors when screening patients for MRSA:

• Admission to any health care facility in the past 2 years including facilities outside of Canada.
• Diagnosis of MRSA in the past 2 years
• Transfer from a unit/facility with an active outbreak of MRSA
• Transfer from out of province where MRSA is endemic*

Appendix A is a sample screening form which is recommended for admissions to acute care, long term care and home care.

The results of the screening tool determine if screening cultures are required. For most patients screening cultures are taken from the nares and anus. If the patient has multiple risk sites, a maximum of 4 screening swabs will be accepted by the lab. These sites may include: nares, anus, wounds/lesions or feeding tubes.

If there is a suspected infection at any site, a swab should be taken from this site and sent for culture and sensitivity. This is not considered routine screening, but is part of clinical management.

* endemic - the constant presence of a disease or infectious agent within a certain area.
See appendix B for specimen collection instructions.

The application of additional precautions (contact precautions which are in addition to routine practices) pending the results of the specimen screening, depends on the results of the screening tool. It is noteworthy that in acute care, if a patient is being admitted because of uncontrolled dermatitis (large patches of eczema or psoriasis that are shedding many skin squams and that are over a large area of the body which cannot be covered) he/she should be placed on contact precautions until the results of the MRSA screening cultures are known.

5. 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 with MRSA. The management of these patients requires additional infection control measures with particular emphasis on:

- Routine practices which should be done for every patient regardless of disease status. (appendix C)

- Additional precautions (contact precautions) which are applied in addition to routine practices. (appendix D - acute, appendix E - LTC)

- Single room isolation or placement with a low risk patient.

- Environmental cleaning - regular daily cleaning with special attention to “frequently touched areas” must be performed. (appendix F)

Any breach of the above infection control measures may result in the transmission of the organism to other patients or health care workers 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 done.

Hand Hygiene - proper hand hygiene is the single most effective measure for decreasing transmission of MRSA in all practice settings. (appendix I)
# Infection Prevention and Control on PEI

## Table 5.1 Precautions for MRSA - Quick Reference

<table>
<thead>
<tr>
<th>Precautions for MRSA</th>
<th>Hand Hygiene</th>
<th>Gloves</th>
<th>Gown</th>
<th>Mask (surgical)</th>
<th>Patient Placement</th>
<th>Patient Care Equipment</th>
<th>Cleaning</th>
<th>Laundry</th>
<th>Garbage</th>
<th>Room Set-up</th>
<th>Patient Transport</th>
<th>Dietary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute Care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>When entering room</td>
<td>Generally not required for MRSA, if patient has a productive cough, then follow routine practices.</td>
<td>Single room preferred. Consult infection control if alternate arrangements need to be made. - Dedicate use of equipment for the patient when possible. - If it is not dedicated, clean and disinfect equipment before and after use on another patient. - When possible use single use items and discard after use. - Minimize supplies in room as these supplies will be discarded upon patient discharge.</td>
<td>Daily cleaning and frequently touched areas twice daily. (See section 8 of the guideline for details)</td>
<td>- Deposit laundry into hamper (avoid touching outside areas with dirty laundry).</td>
<td>- Double bagging not required. - All bagged and tied waste 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.</td>
<td>Inside room - Laundry hamper - Waste can - Signage Outside room - Supplies and PPE - Hand hygiene supplies - Signage - Waste can</td>
<td>- Notify area receiving patient of precautions. - Open wounds/lesions must be covered with a dry, intact bandage. - Clean blanket and a clean gown for patient. - Patient must perform hand hygiene.</td>
</tr>
<tr>
<td><strong>Long Term Care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>When doing direct patient care</td>
<td>Generally not required for MRSA, if patient has a productive cough, then follow routine practices.</td>
<td>Single room preferred. In consultation with infection control may: - Place 2 low risk MRSA (+) patients in one room - Place one low risk MRSA (+) and a low risk (*) patient in one room.</td>
<td>Dedicate use of equipment for the patient when possible. - If it is not dedicated, clean and disinfect equipment before and after use on another patient. - When possible use single use items and discard after use. - Minimize supplies in room to reduce potential for cross contamination. Any excess supplies will be discarded upon patient discharge.</td>
<td>Daily cleaning and frequently touched areas twice daily.</td>
<td>- Deposit laundry into hamper (avoid touching outside areas with dirty laundry).</td>
<td>- Double bagging not required. - All bagged and tied waste from the patient's room is placed directly into the dirty utility room or designated waste area and treated as all other waste in accordance with the PEI waste management protocol.</td>
<td>Inside patient care area - Laundry hamper - Waste can - Signage Outside room - Supplies and PPE - Hand hygiene supplies - Signage - Waste can (if using masks)</td>
</tr>
<tr>
<td><strong>Community Care Programs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>When at risk of contact with body fluids or mucus membranes (As per routine practices)</td>
<td>Generally not required for MRSA, if patient has a productive cough, then follow routine practices.</td>
<td>Risk assessment to be done, looking at patient’s hygiene, ability to perform hand hygiene, and cognitive status.</td>
<td>Clean and disinfect all shared equipment between clients.</td>
<td>Frequently touched surfaces should be cleaned regularly.</td>
<td>- No special room set up required for Community Care Facilities.</td>
<td>- Notify area receiving patient of precautions. - Open lesions and wounds must be covered with a dry, intact bandage. - Patient must perform hand hygiene.</td>
<td>- Patient cleans hands prior to eating. - Dishes may be treated in the usual manner.</td>
</tr>
</tbody>
</table>

*Low risk room mates - in consultation with infection control, a low risk room mate is someone with: - no or minimal indwelling devices - no wounds - be immunocompetent - be cognitively able to follow instructions for hand hygiene and environmental precautions

Alternatively, hand hygiene routines can be implemented by staff if the patients are unable to follow instructions. Those patients who are not mobile and meet the above criteria are considered low risk.
6. **Flagging of Patient Charts for MRSA**
   In acute care it has been shown that flagging a patient record for MRSA provides an early alert to health care workers. It is an effective method to quickly identify patients when they present to a health care site so that proper precautions can be put into practice. The Infection Prevention and Control Practitioner(s) (ICP) in the health care settings have the responsibility to determine flagging and unflagging the charts of patients with MRSA.

   In acute care in PEI the CIS system is the electronic record in place. An alert for MRSA is placed on the patient’s electronic chart for a minimum of 2 years. After 2 years, removal of the alert will be reviewed by the Infection Control Practitioner (team) and a decision made based on the clinical condition of the patient and if there is an adequate history of consecutive negative cultures.

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

7. **Ongoing Culturing for MRSA (+) Patients**
   The need for ongoing swabbing for MRSA (+) patients is dependent on the patient population and practice setting.

   **Acute Care**
   Re-swabbing and isolation will be done while in the facility with direction from the ICP.

   **Long Term Care**
   In the LTC population, the chance 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 MRSA (+) is not recommended.

   Re-culturing may be recommended if the patient is decolonized or involved in an investigation of an outbreak.

   If the MRSA (+) patient is cultured and the result is negative, the following should be done:

   1) If a set of cultures (culturing all previously positive areas) are negative for MRSA, repeat the set waiting at least 7 days from when the first set was taken.

   2) If that set is also negative, repeat the set waiting at least seven days from when the second set was taken.

   To avoid false negative results, topical antibiotics should not be used for 48hrs and systemic antibiotics should not have been taken for 5 days prior to swabs being done.
3) The goal is to have three consecutive sets of cultures which are negative for MRSA. The intervals between sets should NOT be sooner than 7 days, but can be longer.

4) Once three sets of negative cultures are obtained, the patient can be considered at low risk for transmission of MRSA and contact precautions can be lifted. However, strict routine precautions must be maintained.

5) As long as the patient remains in LTC, it is recommended that cultures (nares and anus and any other previously positive area) be repeated at 1 month, 3 months x2, and then every 6 months for up to 2 years in order to ensure a continued negative status. Cultures for MRSA should also be done if the health care provider has reason to suspect the patient has an infection that might be due to MRSA or the patient is placed on antibiotic therapy.

Community Care Programs
Re-testing patients who are MRSA (+) is not necessary in community care programs/sites. Health Care Workers should continue routine practices when considering precautions.

8. Decolonization

Colonization is defined as the presence and growth of a microorganism in or on a body site with growth and multiplication occurring, but without tissue invasion or cellular injury.

Decolonization refers to the process of reducing bioburden of a particular organism from the skin, nose or other mucosal surfaces. In the case of MRSA colonization, decolonization usually involves topical treatment, such as nasal antimicrobial ointment and antimicrobial body wash. In rare instances, systemic antibiotic treatment may be required and can be considered, if necessary, on the recommendation of the medical microbiologist.

Decolonization may be done on a case by case basis in consultation with the ICP. In the event a physician or ICP decides that decolonization should occur please refer to Appendix J for the procedure used on PEI.

Current evidence does not recommend widespread or repeated MRSA decolonization therapy and suggests the urge to eradicate MRSA from colonized body sites in all patients should be resisted for the following reasons:

• There is risk of further antibiotic resistance to the agents used. Mupirocin resistance has been documented in several studies.
• The long term efficacy is poor in that reversion to a positive state can occur frequently.
• Systemic antibiotic therapy may lead to adverse events.
• Some people will clear MRSA from their system without treatment especially if they return to a relatively healthy state.
• Many colonization sites for MRSA will not respond to decolonization, e.g., anus, sputum.

9. Environmental Cleaning
MRSA can live in the environment from days to weeks. However, MRSA is an organism that is killed easily when cleaning is done properly using proper technique, taking into consideration the mechanical cleaning action and germicidal contact time that is required.

**Environmental Control / 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.
• Special attention must be paid to ensure adequate contact time of the disinfectant with the surfaces. Contact times are specific to the chemical being used.
• All horizontal and frequently touched surfaces (handrails, faucets, overhead tables, doorknobs, etc.) should be cleaned and then disinfected with a germicidal agent according to policy for your practice site, and more often if soiled.
• Toilets must be cleaned regularly – not just when visibly soiled.
• Immediately clean all spills of blood and/or body fluids with a facility-approved disinfectant according to facility approved policy.

**Equipment**
Responsibility for cleaning must be clearly defined and a schedule for regular cleaning be made. Reusable non-critical equipment that has been in direct contact with the patient must be cleaned with a facility-approved disinfectant before use on another patient.

• When possible, dedicate equipment specifically for MRSA colonized and infected patients.
• If it is not possible to dedicate equipment for each individual, then at the very least, the equipment should be disinfected with an appropriate disinfectant wipe after being used on the patient. (See manufacturer’s instructions)
• All equipment that comes in contact with a patient with MRSA and/or their environment, and is visibly soiled, must be cleaned and then disinfected before use on another patient.
• Anything that cannot be cleaned (e.g. paper or supplies) in the patient’s room must be disposed of when the patient is discharged.
Infection Prevention and Control on PEI

• Use of PPE (gloves/gowns) is required when cleaning and handling soiled patient care equipment, as per routine practice. This is to prevent contamination to the skin and clothing of the person cleaning the equipment.

• Personal care supplies, lotions, creams, soaps, are not to be shared between patients.

• The supplies in patient rooms are discarded when the patient with MRSA is discharged.

10. Dietary

• Use of disposable dishes is not required. Regular dishwashing cycles will sanitize dishes sufficiently.

• Trays being placed in a designated area (e.g. kitchenette) on the unit need to be bagged using two person bagging technique.

• In areas where dietary handsout trays, dietary staff can enter rooms of MRSA positive patients wearing a clean pair of gloves, place tray in the room and then remove the gloves and dispose of them, in the waste can at doorway in room before leaving, and then perform hand hygiene.

• If patient is also on droplet precautions a mask is required.

• 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 the gloves and dispose of them 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.

11. Movement/Transfer of the Patients

MRSA should not be a barrier to good 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, such as rehabilitation, investigation, or treatment.

The transfer of a patient with MRSA should be well 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.

11.1 Acute Care

Transport of the infected or colonized patient should be carefully managed. All staff should ensure the receiving area is aware of the patient's MRSA status beforehand so 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.
• If the bed is used for transport, frequently touched areas on the bed must be cleaned.

• Where the patient is leaving one area to be admitted to another, they should be transferred on a stretcher or in a wheel chair to a clean bed. The patients original bed linen should be left behind on the unit for laundering.

• Staff preparing patient for transfer must change PPE before exiting room to transport patient

• The stretcher or wheelchair must be thoroughly cleaned and disinfected after use.

• All used linen should be dealt with as dirty linen.

• A clean blanket should be used to cover patient and a clean johnny shirt should be worn.

• All draining lesions should be covered with an impermeable dressing prior to transfer.

• Mobilization with care providers is encouraged in consultation with infection control.

11.2 Non-Acute Care
In non - acute care settings, precautions may need to be adapted so that clients/residents can take part in therapeutic and social activities at the same time as limiting physical contact. Staff are to emphasize appropriate hand hygiene for these clients and to those who are interacting with them. Dirty beds and equipment should not be removed from the room until they are thoroughly cleaned and disinfected.

11.3 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.

11.4 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:

• Patients known to be infected or colonized with MRSA should be seen at the end of the working session, last on the list where possible.

• Where possible, staff should contain patient activity to one area. The room should be cleared of surplus equipment, e.g. stretchers and mobile equipment.
Infection Prevention and Control on PEI

- Staff providing direct care* to the patient should wear gloves and gowns if soiling of clothing is possible. The gown and gloves must be removed when contact with the patient has finished.
- If the patient is being transferred on a stretcher or wheelchair, this must be thoroughly cleaned and disinfected before being used for another patient.
- All equipment and horizontal surfaces that may have become contaminated should be cleaned and disinfected, as described in section 9.
- Any used linen should be treated as dirty linen.
- After contact has finished, staff must clean their hands thoroughly using liquid soap and water or alcohol based hand rub.

12. 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.

13. Outbreak protocol
13.1 Confirm that there is an outbreak Each new case of MRSA warrants an investigation. However, an outbreak is considered to be an increase in the number of cases (colonizations or infections) above the number normally occurring in a particular health care setting over a defined period of time.

13.2 Place each positive patient on Contact Precautions as soon as possible after identification of organism.

13.3 Form a multi-disciplinary outbreak management team to review the situation and provide guidance and support. Members of the team should include representatives from the affected unit/ward such as the nurse manager and charge nurse. Other members of this team might include:
- administration
- physician
- infection control practitioner or designate
- environmental services
- employee health and communications may be required as ad hoc members

This team should meet regularly for the duration of the outbreak.
13.4 Establish lines of communication:
Communicate with the patients and their families regarding the reason for Contact Precautions, while maintaining 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.

13.5 Identify contacts of each new case:
Obtain surveillance specimens from all patients that are contacts (i.e. roommates) of the source patient as well as others who may be considered “at risk” for transmissions from the outbreak. At risk patients are considered those who have wounds and/or indwelling devices. Cultures should be taken from the nares and anus and any other risk sites (refer to section 4). Further testing of other patients may be done depending on the initial results from the patient contact swabs.

13.6 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.

13.7 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.

13.8 Review environmental cleaning and equipment cleaning practices as well as management and storage of supplies. Routine cleaning 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 discharge cleaning of rooms is adequate.

13.9 Review and audit infection prevention and control strategies and practices, such as hand hygiene and environmental cleaning.
13.10 **Attempt to identify a source for 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.

13.11 **Cohorting of patients and staff:**
Consult with infection control to determine if cohorting 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.

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

13.13 **Consider screening staff contacts** if it can be determined that the outbreak is due to the same strain and that new cases are still being identified despite measures that have been put in place to control the outbreak.

13.14 **An outbreak is declared over** by the outbreak management team when there is evidence that no further transmission is occurring.
Appendices
Appendix A

Sample MRSA Screening Tool
Recommended for use for in Acute Care, Long Term Care and Home Care

1. Risk Factors for Screening Antibiotic Resistant Organisms: MRSA
   
   a) Admission to any health care facility in the past 2 years?
      Yes ☐ No ☐
      If yes screening cultures are required but contact precautions are not required while awaiting results
      Yes ☐ No ☐
   
   b) Known to have MRSA in the past 2 years?
      Yes ☐ No ☐
   
   c) Admitted to a facility “out of Canada” in the past 2 years?
      Yes ☐ No ☐
   
   d) Transferred from a unit/facility with an active outbreak of MRSA?
      Yes ☐ No ☐
   
   e) Transfer from out of province facility where MRSA is endemic*?
      Yes ☐ No ☐

If yes to b, c, d, or e; screening cultures for MRSA as well as the application of contact precautions while awaiting screening result are required. (See MRSA guideline appendix B for specimen collection instruction)

*In acute care, if a patient is being admitted because of uncontrolled dermatitis (large patches of eczema or psoriasis that are shedding many skin squams and that are over a large area of the body which cannot be covered) he/she will be placed on contact precautions until the results of the MRSA screening cultures are known.

2. MRSA swabs collected? Yes ☐ No ☐

Date taken: ________________________________

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

| **Equipment Required** | - Sterile clear transport media swab  
- Laboratory requisition  
- Disposable non-sterile gloves |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Procedure</strong></td>
<td>- Cultures should be taken at least 48 hours after topical and 5 days after systemic antibiotic/decolonization treatment has ceased</td>
</tr>
</tbody>
</table>
| **Nose** *(anterior nares)* | - Pre-moisten swab with clear transport media  
- Insert swab into each nostril no further than the length of the cotton bud and rotate gently around inner surface of nostril (1 swab both nares)  
- Return swab into transport media |
| **Anal** *(Perianal area if there is an ostomy)* | - Pre moistening swab with transport medium is *not necessary* because it is a moist area  
- Insert swab into anal canal approximately 1cm or until the tip of the swab cannot be seen, and rotate while removing  
- Return swab to transport media |
| **Wound Swab** *(draining wounds)* | - Pre moistening swab with transport medium is *not necessary* because it is a moist area.  
- Cleanse wound with sterile saline to remove surface organisms  
- One wound swab – no size limit to wound  
- Rotate swab while moving side to side, wound edge to wound edge, across the wound beginning at one end of the wound and ending at the other end  
- Return swab into transport medium |
| **Labeling of Specimens** | - 2 unique identifiers required e.g. name, PHN # on both the requisition and specimen  
- Record date and time collected on both requisition and specimen  
- Record site of collection  
- One requisition for multiple swabs on the same patient |
| **Transport of Specimen** | - Specimen may remain at room temperature  
- Specimen must reach lab within 24 hours of collection |
### Routine Practices Table

<table>
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<tr>
<td>• After personal body functions (e.g. blowing one’s nose)</td>
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<td>• Whenever hands come into contact with secretions, excretions, blood and body fluids</td>
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<td>• After contact with items in the patient’s environment</td>
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<tr>
<th><strong>Mask &amp; Eye Protection or Face Shield</strong></th>
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<tbody>
<tr>
<td>• Protect eyes, nose and mouth during procedures and care activities likely to generate splashes or sprays of blood, body fluids, secretions or excretions.</td>
<td></td>
</tr>
<tr>
<td>• Wear within 1 meter of a coughing patient.</td>
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<th><strong>Gloves</strong></th>
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<td>• Wearing gloves is NOT a substitute for hand hygiene.</td>
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<tr>
<td>• Perform hand hygiene before and after removing gloves</td>
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<tr>
<th><strong>Environment</strong></th>
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<tr>
<td>• All equipment that is being used by more than one patient must be cleaned between patients.</td>
<td></td>
</tr>
<tr>
<td>• All touched surfaces in the patient’s room must be cleaned daily.</td>
<td></td>
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<tr>
<th><strong>Linen &amp; Waste</strong></th>
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</tr>
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<tr>
<td>• Handle soiled linen and waste carefully to prevent personal contamination and transfer of organisms to other patients.</td>
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<th><strong>Sharps Injury Prevention</strong></th>
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<td>• Place sharps in sharps containers.</td>
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<td>• Prevent injuries from needles, scalpels and other sharp devices.</td>
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<th><strong>Patient Placement/Accommodation</strong></th>
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<tbody>
<tr>
<td>• When possible use a single room for a patient who contaminates the environment.</td>
<td></td>
</tr>
<tr>
<td>• Perform hand hygiene after leaving the room.</td>
<td></td>
</tr>
</tbody>
</table>
Appendix D

Acute Care Precautions Table
(Contact precautions in addition to Routine Practices)

<table>
<thead>
<tr>
<th><strong>Hand Hygiene</strong></th>
<th><strong>Hand hygiene is performed using alcohol-based hand rub or soap and water:</strong></th>
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<td>• Before and after each patient contact</td>
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</tr>
<tr>
<td></td>
<td>• Before preparing, handling, serving or eating food</td>
</tr>
<tr>
<td></td>
<td>• After care involving the body fluids of a patient and before moving to another activity</td>
</tr>
<tr>
<td></td>
<td>• Before putting on and after taking off gloves and other PPE</td>
</tr>
<tr>
<td></td>
<td>• After personal body functions (e.g. blowing one’s nose)</td>
</tr>
<tr>
<td></td>
<td>• Whenever hands come into contact with secretions, excretions, blood and body fluids</td>
</tr>
<tr>
<td></td>
<td>• After contact with items in the patient’s environment</td>
</tr>
<tr>
<td></td>
<td>• Whenever there is doubt about the necessity for doing so</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Patient Placement</strong></th>
<th><strong>Use a single room with own toileting facilities.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Cohorting with other MRSA+ patients to be done only in consultation with Infection Control.</td>
</tr>
<tr>
<td></td>
<td>• Door may remain open.</td>
</tr>
</tbody>
</table>

| **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).** |
|                 | **Disinfect all equipment that comes out of the room.** |
|                 | **Regular daily cleaning and all frequently touched surfaces in the patient’s room must be cleaned BID.** |

| **Visitors** | **Visitors must wear gloves and a long-sleeved gown.** |
|             | **Visitors must perform hand hygiene before entry and after leaving the room.** |
Appendix E

LTC Precautions Table
(Bedside Contact Precautions in addition to Routine Practices)

<table>
<thead>
<tr>
<th>Hand hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand hygiene is performed using alcohol-based hand rub or soap and water:</td>
</tr>
<tr>
<td>• Before and after each client/resident contact</td>
</tr>
<tr>
<td>• Before performing invasive procedures</td>
</tr>
<tr>
<td>• Before preparing, handling, serving or eating food</td>
</tr>
<tr>
<td>• After care involving the body fluids of a client/resident and before moving to another activity</td>
</tr>
<tr>
<td>• Before putting on and after taking off gloves and other PPE</td>
</tr>
<tr>
<td>• After personal body functions (e.g. blowing one’s nose)</td>
</tr>
<tr>
<td>• Whenever hands come into contact with secretions, excretions, blood and body fluids</td>
</tr>
<tr>
<td>• After contact with items in the client/resident’s environment</td>
</tr>
<tr>
<td>• Whenever there is doubt about the necessity for doing so</td>
</tr>
<tr>
<td>• Clean the client/resident’s hands before they leave their room</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Client/Resident Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Use a single room with own toileting facilities if client/resident hygiene is poor</td>
</tr>
<tr>
<td>• If single room is not available, resident can be placed with another low risk MRSA + patient or other low risk negative patient (in consultation with ICP if available in your facility)</td>
</tr>
<tr>
<td>• Door may remain open</td>
</tr>
<tr>
<td>• Sign to be placed on door to check with nurse before entering</td>
</tr>
<tr>
<td>• Perform hand hygiene after leaving the room</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gloves</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Wear gloves for direct care*</td>
</tr>
<tr>
<td>• Wearing gloves is NOT a substitute for hand hygiene</td>
</tr>
<tr>
<td>• Perform hand hygiene before and after removing gloves</td>
</tr>
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<thead>
<tr>
<th>Gown</th>
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<tbody>
<tr>
<td>• Wear a long-sleeved gown for direct care*</td>
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<table>
<thead>
<tr>
<th>Masks</th>
</tr>
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<tbody>
<tr>
<td>• As per Routine Practices</td>
</tr>
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<table>
<thead>
<tr>
<th>Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Dedicate routine equipment to the client/resident if possible (e.g. stethoscope, commode)</td>
</tr>
<tr>
<td>• Disinfect all equipment before it is used by another client/resident</td>
</tr>
<tr>
<td>• All touched surfaces in the client/resident’s room must be cleaned at least daily and frequently touched surfaces BID.</td>
</tr>
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<thead>
<tr>
<th>Visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Visitors must wear gloves and a long-sleeved gown if they will be providing direct care*</td>
</tr>
<tr>
<td>• Visitors must perform hand hygiene before entry and after leaving the room</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Resident activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>• There is no need to restrict the resident’s participation in facility activities, as long as feces, urine, or purulent discharge can be contained and adherence to hand hygiene can be managed</td>
</tr>
<tr>
<td>• Cover open wounds/tracheostomy sites if possible</td>
</tr>
<tr>
<td>• Ensure that resident understands appropriate hand washing techniques and supervise hand washing and toilet activities if the resident is not reliable</td>
</tr>
</tbody>
</table>

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

### Home Care Precautions Table

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

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<tr>
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*Direct Care (outpatient clinics and LTC only):* Providing hands-on care, such as bathing, washing, turning patient, changing clothes/diapers, dressing changes, care of open wounds/lesions or toileting. Feeding and pushing a wheelchair are not classified as direct care.
## Appendix G

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

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<td>• Clean all touched surfaces in the exam room after the patient leaves</td>
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<th>Patient Placement/Accommodation</th>
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<tbody>
<tr>
<td>• Limit the time the patient spends in the waiting room</td>
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<tr>
<td>• If possible schedule the patient’s appointment as the last of the day</td>
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</table>

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Appendix H

Reduce Meticillin-Resistant *Staphylococcus aureus*

Environmental Services Check List Audit

**Daily Cleaning of Patient Room**

1. High Dusting Performed  Yes □  No □
   a. Use high duster/mop head: wipe ledges (shoulder high and above)  Yes □  No □
   b. Vents  Yes □  No □
   c. Lights  Yes □  No □  *Do not high dust OVER the patient*
   d. Dust TV: rotate and dust screen and wires:  Yes □  No □  *Remove dust over cart trash bag gently*

2. Damp Dust
   Cloth (rag) and bucket of germicide (no double dipping of cloth) with proper contact time:  Yes □  No □
   a. Ledges (shoulder high):  Yes □  No □
   b. Door handles:  Yes □  No □

3. Bedside Table – Disinfect Surface:  Yes □  No □

4. Glass Surfaces:  Yes □  No □
   a. Wall spots:  Yes □  No □  N/A □

5. Bathroom all surfaces:  Yes □  No □
   a. Ledges in bathroom:  Yes □  No □
   b. Door handles:  Yes □  No □
   c. Sink:  Yes □  No □
   d. Shower stall:  Yes □  No □
   e. Toilet:  Yes □  No □
   f. Damp wipe toilet seat:  Yes □  No □
   g. Clean mirrors/chrome:  Yes □  No □

6. Empty Waste Basket:  Yes □  No □
   a. Disinfect if wet:  Yes □  No □
   b. Bags – close:  Yes □  No □

7. Needle Boxes:  Yes □  No □
   a. Check level of sharps:  Yes □  No □  N/A □
   b. Replace if ½ to ¾ full:  Yes □  No □  N/A □
   c. To soiled utility room after securely closing:  Yes □  No □  N/A □

8. Floor Disinfection – Sign on Door:  Yes □  No □
   a. Wet floor cleaning equipment in disinfectant:  Yes □  No □
   b. Bathroom shower floor:  Yes □  No □
   c. 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 equipment kept in room must be cleaned/disinfected, even if it has not been used (e.g. ambu bag).
Appendix I

Hand hygiene instruction sheets

11 - How to hand wash
12 - How to hand rub
13 - 4 moments for Hand Hygiene
How to handwash?

WASH HANDS ONLY WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB!

Duration of the entire procedure: 40–60 sec.

1. apply enough soap to cover all hand 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. rotational rubbing of left thumb clasped in right palm and vice versa,
6. rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa,
7. Rinse hands with water,
8. dry hands thoroughly with a single use towel,
9. use towel to turn off faucet.
10. Your hands are now safe.
How to handrub?

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

Duration of the entire procedure: 20-30 sec.

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

1b. Rub hands palm to palm,

2. right palm over left dorsum with interlaced fingers and vice versa,

3. palm to palm with fingers interlaced,

4. backs of fingers to opposing palms with fingers interlocked,

5. rotational rubbing of left thumb clasped in right palm and vice versa,

6. rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa.

7. Once dry, your hands are safe.

WHO acknowledges the Hôpitaux Universitaires de Genève (HUG). In particular the members of the Infection Control Programme, for their active participation in developing this material.

World Health Organization for Patient Safety

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Your 4 Moments for Hand Hygiene

1. **Before Initial Patient/Patient Environment Contact**
   - **WHEN?** Clean your hands when entering:
     * before touching patient or
     * before touching any object or furniture in the patient’s environment
   - **WHY?** To protect the patient/patient environment from harmful germs carried on your hands

2. **Before Aseptic Procedure**
   - **WHEN?** Clean your hands immediately before any aseptic procedure
   - **WHY?** To protect the patient against harmful germs, including the patient’s own germs, entering his or her body

3. **After Body Fluid Exposure Risk**
   - **WHEN?** Clean your hands immediately after an exposure risk to body fluids (and after glove removal)
   - **WHY?** To protect yourself and the health care environment from harmful patient germs

4. **After Patient/Patient Environment Contact**
   - **WHEN?** Clean your hands when leaving:
     * after touching patient or
     * after touching any object or furniture in the patient’s environment
   - **WHY?** To protect yourself and the health care environment from harmful patient germs

Adapted from WHO poster “Your 5 moments for Hand Hygiene,” 2006.

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Appendix J

MRSA Information Sheets

J1 - Hospital/Facility Staff
J2 - Family/Visitor
J3 - Community Based Heath Care Workers
J4 - General Public
J5 - Patient
J6 - Home/Community Care Facility
Appendix J1

Meticillin Resistant *Staphlococcus aureus* (MRSA)

Hospital/Facility Staff Information

**What is MRSA?**

*Staphylococcus aureus* (SA) is a bacteria that may commonly live on the skin, or in the nose of about 30% of healthy people at some point in their life. Most people don’t know that they are carrying SA bacteria.

MRSA is the term for *Staphylococcus aureus* bacteria that have become resistant to semi synthetic penicillins such as cloxacillin and meticillin. It can also acquire resistance to other classes of antibiotics. MRSA infections can be difficult to treat and drugs commonly used for treatment of other susceptible strains of *Staphylococcus aureus* are not always effective.

**How is it spread?**

MRSA is spread by contact. If staff do not clean their hands before and after direct patient care, or remove their gloves between patients, they can pass the microorganism from a person who has it to another person. It can also be spread on equipment that hasn’t been cleaned between contact with patients. This is why **hand hygiene before and after patient care is very important.**

**What do colonization and infection mean?**

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

Infection occurs when bacteria get past the person’s normal defenses and cause disease (e.g., skin bacteria getting into the bloodstream via an intravenous catheter). Infections with MRSA may be minor, such as pimples or boils, but serious infections may also occur, such as surgical wound infections and pneumonia.

**What can staff do to decrease the spread of MRSA?**

**Hand Hygiene**

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 readily available. Hands should be washed with soap and water when they are visibly soiled. Patients, care givers, and visitors should be instructed in proper hand hygiene. Keep hands healthy and use lotion as often as possible, to keep skin moisturized.

**Precautions**

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.

In hospital settings, MRSA positive patients will require contact precautions which are in addition to routine practices, while in other settings, a risk assessment should guide barrier selection.

Contact precautions include:

**Isolation**

A private room with a special precautions sign is ideal. This provides an alert to staff. Staff and visitors should be reminded of any special isolation requirements. Occasionally, patients with MRSA may be roomed together. This will be done with direction of the Infection Control Practitioners.

**Barrier use**

Gowns are required for all direct hands-on contact with the client especially when lifting/turning or bathing the patient and with dressing changes.

Gloves are needed for direct contact with the client and body excretions/secretions. **In hospital, gown and gloves are required when entering the patient’s room.**

Masks are required when the patient has a productive cough and you are going to be within 1 meter or 3 feet 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 as directed by Infection Control. If not dedicated, equipment must be cleaned and disinfected between patients as the organism can be transmitted from one patient to another via shared items. Take the least amount of supplies into the room e.g. packages of gauze. When isolation is discontinued, disinfect equipment and discard all unused supplies.

**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 special terminal clean is required.

**Will additional precautions be discontinued?**
Contact precautions may be discontinued only on the advice of an infection control professional. It is most likely that precautions will continue for the entire stay and for subsequent admissions.

**Can staff become colonized?**
Colonization is usually for a short duration (transient) and about 3% of staff who come in contact with MRSA may become colonized. Strict adherence to hand hygiene before and after every patient contact, after removing gloves and handling used equipment will decrease the risk of becoming colonized. It is important to avoid touching nose and face, especially while in the patients room. It is also recommended to keep the skin on the hands moisturized and in good condition to decrease chance of having open areas on the skin.

If you are healthy, your chances of becoming permanently colonized with MRSA are low.

**Do staff need to be screened to see if they are colonized?**
No, this is not routinely done. If there is an outbreak in an area that has not been able to be controlled by other measures, screening of staff may be done. If a staff member is found to be a carrier, this information is kept strictly confidential and the person will be treated.

**Is there a greater risk of MRSA colonization if the person is pregnant or immunocompromised?**
No, the risk is the same for all staff and it is very low.

(Adapted form the BC Health files and Alberta Health and Wellness Provincial MRSA Guideline)
Appendix J2

Meticillin Resistant *Staphylococcus aureus* (MRSA)

MRSA Visitor, Family, Client information

**What is MRSA?**
Staphylococcus aureus (SA) is a bacteria that may commonly live on the skin, or in the noses of about 30% of healthy people at some point in their life. Most people don't know that they are carrying SA. When these bacteria are in your nose or on the surface of your skin, they will not normally harm you. However, if SA does get into or through your skin, they can cause a variety of infections, such as skin and wound infections. Sometimes SA can cause serious infections in your blood, lungs or other tissues.

MRSA is the term for Staphylococcus aureus bacteria that has become resistant to semi synthetic penicillins such as cloxacillin and meticillin. It can also acquire resistance to other classes of antibiotics. However, MRSA infections can be more difficult to treat and drugs commonly used to treat Staphylococcus aureus are not always effective. Traditionally, MRSA is seen in people who are taking antibiotics and those individuals who are receiving medical care. MRSA, like *Staph aureus*, may also live on the skin or in the noses of people.

More recently, MRSA has been found in people who have no contact with the health care system. In the community setting MRSA most commonly causes skin and soft tissue infections (e.g., boils or abscesses on arms, legs, or elsewhere). These are often treated by a doctor or health care practitioner by draining the abscess and with antibiotics if required. Rarely, MRSA can cause serious infections such as pneumonia and bloodstream infections.

**How is MRSA Spread?**
MRSA bacteria is spread through direct person to person contact with a colonized or infected person. It can be passed from hands that have come in contact with MRSA to any person, object or surface they touch. Hands can also pick up MRSA from contact with an environment that is not clean. Thorough hand washing or rubbing with an alcohol based hand sanitizer is recommended to remove MRSA from the hands.

**What do colonization and infection mean?**
Colonization occurs when bacteria are present on or in the body without causing illness. MRSA can colonize the nose, skin and moist areas of the body.

Infection occurs when bacteria get past the person’s normal defenses and cause disease. Infection with MRSA may be minor, such as pimples and boils, but serious infections may also occur, such as surgical wound infections and pneumonia.

**Can I touch the person I am visiting?**
Yes, you can still have close contact, such as hugging, kissing and hand holding. Just remember to clean your hands properly before entering and leaving an infected person’s home and follow the instructions for entering and leaving the hospital room.

**What can I as a visitor or patient do to help?**
Clean your hands before and after your visit. Follow directions of nursing staff, e.g., you may be asked to wear a gown or gloves when visiting in a hospital. Please do not visit other patients following your visit to one who has MRSA.

**What are my chances of getting MRSA?**
If you are healthy and living in the community, your chances of getting MRSA are low. You may be at higher risk if you have had long-term or frequent use of antibiotics. Other things that may put you at higher risk are long or frequent hospital stays or surgery, injection drug use, and long term illness. The most important thing you can do is wash your hands before eating, drinking, smoking or applying personal care products, and after using the toilet.
Appendix J3

Meticillin Resistant *Staphylococcus aureus* (MRSA)  
Community Based Healthcare Workers (HCWs) Information

**What is MRSA?**  
*Staphylococcus aureus* (SA) is bacteria that may commonly live on the skin, or in the noses of about 30% of healthy people at some point in their life. Most people don’t know that they are carrying SA.

MRSA is the term for *Staphylococcus aureus* bacteria that have become resistant to semi synthetic penicillins such as cloxacillin and meticillin. It can also acquire resistance to other classes of antibiotics.

MRSA infections can be difficult to treat and drugs commonly used for treatment of other strains of *Staphylococcus aureus* are not always effective.

Traditionally, MRSA is seen in people who are taking antibiotics and those individuals who are receiving medical care. More recently, MRSA has been found in people who have no contact with the health care system. This is referred to as community associated MRSA (CA-MRSA).

In the community, MRSA most commonly causes skin and soft tissue infections (e.g., boils or abscesses on arms, legs or elsewhere). These are often treatable with incision and drainage by a health care practitioner alone. In some instances, antibiotics may be required. Rarely, MRSA can cause severe invasive infections such as pneumonia and bloodstream infections. These severe infections require urgent medical treatment.

**How is MRSA spread?**  
MRSA bacteria is spread through direct person to person contact with a colonized or infected person. It can be passed from hands that have been in contact with MRSA to any person, object or surface they touch.

When hands are washed thoroughly or rubbed with alcohol-based hand products, MRSA will likely be removed or destroyed.

However, if the immediate environment is not clean, hands can very quickly become contaminated with MRSA again.

Frequent hand cleaning is necessary to prevent both spreading MRSA to others and to prevent picking it up from others.

There are 5 C’s that describe risk factors for community associated MRSA infections:

- **Crowded** conditions
- close **Contact**
- lack of **Cleanliness**
- sharing **Common** personal items, e.g., towels, wash cloths, razors, clothing
- having **Compromised** or broken skin.

**What do colonization and infection mean?**  
Colonization occurs when bacteria are present on or in the body without causing illness. MRSA can colonize the nose, skin and moist areas of the body.

Infection occurs when bacteria get past the person’s normal defenses and cause disease (e.g., skin bacteria getting into the bloodstream via an intravenous catheter). Infections with MRSA may be minor, such as pimples or boils, but serious infections may also occur, such as surgical wound infections and pneumonia.
What can staff do to decrease the spread of MRSA?

Hand Hygiene:
- Hand hygiene is the most important measure for preventing the spread of MRSA.
- Alcohol-based hand sanitizers (60-90% alcohol) are effective for hand hygiene and should be readily available.
- Hands should be washed with soap and water when they are visibly soiled.
- Patients, care givers and visitors should be instructed in proper hand hygiene.

Equipment:
- If equipment cannot be dedicated to the client, shared equipment must be cleaned and disinfected between patients.

What can patients do to decrease the spread of MRSA?
- Clean hands regularly with soap and water or alcohol based hand sanitizer. If hands are visibly soiled, soap and water works best. Antibacterial soaps are NOT recommended.
- Maintain good general hygiene with regular showering.
- Always clean hands immediately after touching skin or any item that has come in direct contact with a draining wound.
- Keep wounds that are draining covered with clean, dry bandages. If unable to keep a wound covered with a clean, dry bandage at all times, patients should not participate in activities where there is skin to skin contact with other persons (such as athletic activities) until the wound is healed.
- Do not share personal items such as towels, clothing, bedding, bar soap, razors, and athletic equipment that touches the skin.
- Wash clothing using regular laundry soap in the usual wash cycle of a household washing machine.
- Clean shared items e.g., sports equipment or environmental surfaces with over the counter detergent/disinfectant (e.g., Lysol) that are suitable for the type of surface being cleaned.
- If there are signs of an infection, seek appropriate medical care promptly.

Important
- If a patient who has MRSA is admitted into hospital it is very important that admitting staff are informed. Steps will be taken to prevent the spread of the MRSA to other patients and hospital staff.

(Adapted from the BC Health Files and Alberta Health and Wellness Provincial MRSA Guideline)
Appendix J4

Meticillin Resistant Staphylococcus aureus (MRSA)
General Public Information

What is MRSA?
Staphylococcus aureus (SA) is bacteria that may commonly live on the skin, or in the noses of about 30% of healthy people at some point in their lives. Most people don’t know that they are carrying SA bacteria. When these bacteria are in your nose or on the surface of your skin, they will not normally harm you. However if SA does gets into or through your skin, it can cause a variety of infections, such as skin and wound infections. Sometimes SA can cause serious infections in your blood, lungs or other tissues.

MRSA is the term for Staphylococcus aureus bacteria that has become resistant to semi synthetic penicillins such as cloxacillin and meticillin. It can also acquire resistance to other classes of antibiotics.

MRSA infections can be difficult to treat and drugs commonly used for treatment of other strains of Staphylococcus aureus are not always effective.

Traditionally, MRSA is seen in people who are taking antibiotics and those individuals who are receiving medical care. More recently, MRSA has been found in people who have no contact with the health care system.

In the community, MRSA most commonly causes skin and soft tissue infections (e.g., boils or abscesses on arms, legs or elsewhere). These are often treatable with drainage alone or with antibiotics, if required. Rarely, MRSA can cause severe invasive infections such as pneumonia and bloodstream infections. These severe infections require urgent medical treatment.

How is MRSA spread?
MRSA bacteria are spread through direct person to person contact with a colonized or infected person. It can be passed from hands that are not clean to any person, object or surface they touch. When hands are washed thoroughly or rubbed with an alcohol based hand sanitizer, MRSA will likely be removed or destroyed. However, if the immediate environment is not clean, hands can very quickly become contaminated with MRSA again. Frequent hand cleaning is necessary to prevent spreading MRSA to others, and to prevent picking it up from others.

There are 5 C’s that describe risk factors for Community associated MRSA infections:
• Crowded conditions
• close Contact
• lack of Cleanliness
  • sharing Common personal items, e.g., towels, washcloths, razors, clothing
  • having Compromised or broken skin

If you are healthy and living in the community, your chances of acquiring MRSA are low. You may be at higher risk if you have had long-term, frequent, or intensive use of antibiotics.

What do colonization and infection mean?
Colonization occurs when bacteria are present on or in the body without causing illness. MRSA can colonize the nose, skin and moist areas of the body.

Infection occurs when bacteria get past the person’s normal defenses and cause disease (e.g., skin bacteria getting into the bloodstream via an intravenous catheter). Infections with MRSA may be minor, such as pimples and boils, but serious infections may also occur, such as surgical wound infections and pneumonia.
What can people do to decrease the spread of MRSA?

Clean hands regularly with soap and water or alcohol based hand sanitizer (minimum 60 percent alcohol). If hands are visibly soiled, soap and water works best. Antibacterial soaps are NOT recommended.

Wash hands before eating, drinking, smoking or applying personal care products and after using the toilet.

• Maintain good general hygiene with regular showering/bathing.
• Always clean hands immediately after touching skin or any item that has come in direct contact with a draining wound.
• Keep wounds that are draining covered with clean, dry bandages.
• If unable to keep wound covered with a clean, dry bandage at all times, do not participate in activities where there is skin to skin contact with other persons (such as athletic activities) until your wound is healed.
• Do not share personal items such as towels, clothing, bedding, bar soap, razors, and athletic equipment that touches the skin.
• Wash clothing using regular laundry soap in the regular wash cycle of a household washing machine.
• Clean shared items e.g., sports equipment or environmental surfaces with over the counter disinfectant. Use the concentration and the contact time recommended on the bottle.
• Regular cleaning of the frequently touched surfaces in your home will also help reduce the spread.
• If there are signs of an infection, seek appropriate medical care promptly.

How long does MRSA last?

Individuals can carry MRSA in their nose, on their skin or in wounds for weeks or even years. Occasionally the bacteria may clear, however it will often return if antibiotics are used again.

How are MRSA infections treated?

If you are carrying MRSA in your nose or on your skin and you are healthy, you do not need treatment and you should continue with your normal activities. Although you do not pose a health risk to anyone, it is important for you to wash your hands regularly using plain soap and water or using an alcohol hand rub. It is not necessary for you to disclose to your workplace, school or daycare. Mild infections of the skin often may not need to be treated. If necessary, antibiotics will be prescribed by your doctor.

Important: If you are a carrier of MRSA and are going to be admitted into hospital it is very important for you to let admitting staff know. Steps will be taken to prevent the spread of MRSA to other patients and hospital staff.

(Adapted from BC Health Files and Alberta Health and Wellness Provincial MRSA Infection Prevention and Control Guidelines)
Appendix J5

Meticillin Resistant Staphylococcus aureus (MRSA) Patient Information

You Have Tested Positive for MRSA
Please read the following pamphlet to learn more, and ask your healthcare provider if you have any questions.

What is Staphylococcus Aureus?
Staphylococcus aureus (SA) is bacteria that may commonly live on the nose, skin and moist areas of the body.

About 30% of people carry SA and many of them don’t know it. When these bacteria are in your nose or on your skin, they will not normally harm you. However if SA does get into or through your skin, they can cause a variety of infections such as skin and wound infections. Sometimes SA can cause serious infections in your blood, lungs or other tissues.

What is MRSA?
MRSA is the term for Staphylococcus aureus bacteria that have become resistant to semi synthetic penicillins such as cloxacillin and meticillin. It can also acquire resistance to other classes of antibiotics. MRSA infections can be difficult to treat and drugs commonly used for treatment of other strains of Staphylococcus aureus are not always effective.

If a person has MRSA on their nose, skin, or inside their body, it can be spread to other people. So, special precautions are usually taken in the hospital to prevent the spread of MRSA to others. If a person gets MRSA who is already ill, it can be very serious.

I have MRSA, but why is it not causing an infection?
MRSA can live on the nose, skin and moist areas of the body without causing illness. This is called colonization and the individual colonized is called a carrier.

Will I get an MRSA infection?
Infection occurs when bacteria get past the person’s normal defenses and cause disease (e.g., skin bacteria getting into the bloodstream via an intravenous catheter). Infections with MRSA may be minor, such as pimples and boils, but serious infections may also occur, such as surgical wound infections and pneumonia.

How can the spread of MRSA be prevented in the hospital?
It is important to note that MRSA can be spread from one patient to another in a health care facility.

In hospital, you may be placed on special precautions. This means that healthcare providers, family and visitors will take measures such as wearing gowns and gloves to prevent the bacteria from spreading throughout the hospital.

What are these special precautions in hospital?
You may be asked to stay in your room unless you have a test or procedure.

If you need to leave your room for a test or procedure, you must first wash your hands. A staff member will make sure any wounds you may have are covered, and may ask you to wear a mask if you are coughing and in some cases a clean gown.
Persons caring for you will wash their hands and will put on gloves and hospital gowns before entering your room, and remove their gloves and gowns before leaving the room. They may also wear a mask if you are coughing.

All people should wash their hands with plain soap and water or use a waterless hand sanitizer before and after leaving your room. A special precautions card to alert staff may be placed on your door. A cart with all necessary supplies will be placed outside your door.

**How long do I have to stay on these precautions?**
Depending on your situation, you may be retested for MRSA. Special precautions may only be discontinued on the advice of an infection control professional. Usually you will need precautions for your entire stay.

**What do I need to do to protect others?**
Remember that cleaning your hands with plain soap and water or waterless hand sanitizer (as long as your hands are not visibly soiled) is always important both in the hospital and at home. Good personal hygiene by regular showering also helps keep the bacterial count on the skin low.

**How long does MRSA last?**
Healthy people can carry MRSA in their nose, or on their skin, or in wounds that don’t heal well for weeks or even years. While sometimes people clear the bacteria from their bodies, it can and often will return, particularly in those who take antibiotics.

**What about Family and Visitors?**
Family and friends may visit. They will be instructed by your healthcare provider about the use of precautions, proper hand hygiene and respiratory etiquette (e.g., use of a tissue to cover coughs and sneezes and hand hygiene). It is very important that they clean their hands before entering and leaving your room.

**What if I am admitted again?**
If you are admitted again, it is very important for you to alert your healthcare provider that you had previously tested positive for MRSA. On any future admissions, you may be put in a private room and placed on special precautions. Swabs from certain parts of your body may be taken to check for MRSA.

**What can I do to help?**
Clean your hands frequently and please remind others to do the same. Cover your cough/sneeze (if it is with your hands, clean your hands after).
Keep good personal hygiene by regular showering.
Ask your healthcare provider to answer any questions you may have.
If you go to another healthcare facility, or if you are readmitted to the same facility, inform them that you have or had MRSA.

(Adapted from BC Health Files and Alberta Health and Wellness Provincial MRSA Infection Control Guideline)
Appendix J6

Meticillin Resistant *Staphylococcus aureus* (MRSA)

**Patient going Home or to a Community Care Facility**

You need to know that:
- The most important way to control the spread of MRSA is with frequent, thorough handwashing.
- Routine social contact is safe and day to day contact with family or others is fine when good hygiene is followed.

These are the instructions that should be followed:

**Hand Care**
- Hand hygiene can be done with soap and water or alcohol-based hand sanitizers.
- Wash hands after blowing nose and/or putting hand over mouth when coughing or sneezing.
- Wash hands before participating in any group activity such as playing cards.
- Wash hands before and after eating.
- Wash hands before going outside your home or facility to public places.
- Have hand sanitizer available to use when outside of your home or facility.

**Personal Care Items**
- Do not share towels, face clothes, razors, lotions, combs, brushes, or any other personal care items with another person.

**Environmental Cleaning**
- Consistent, regular cleaning assists in reducing the spread of MRSA.
- Allow the disinfectant being used to air dry to ensure sufficient “contact time” to inactivate these bacteria.
- When cleaning, wear regular reusable housekeeping gloves that are only for that person’s space and wash them between uses.
- Spills of moist body substance should be cleaned up as soon as possible.

**Laundry**
- Laundry can be handled in the usual way with detergents, regular wash and dry cycles and can be mixed with household laundry. Soiled laundry should be rinsed before being put into the usual laundry.

**Disposal of Waste**
- Regular household garbage can be used.
- Dispose of dressings or bandages into a plastic bag. Tie the bag securely at the top and put into regular garbage.

**Visitors**
- There is no need to restrict visitors to your home or facility.
- Wash your hands prior to the arrival of visitors.

**Food**
- Wash your hands before and after contact with dishes, taps and/or implements in the kitchen, and before and after preparing food.
- Do not share dishes or eating utensils during meals.
- Dishes can be washed in the usual manner using hot water and standard dish detergent.

**Hospital and Physician Office Visits**
- Advise any health care workers that you are positive for MRSA when you call to make an appointment or go to their work site.
- Make physician office visits at the end of the day if possible.
Appendix K

MRSA Decolonization Decision Algorithm

MRSA Identified

MRSA Infection

MRSA infection treated according to antibiotic susceptibility and clinical presentation

MRSA Colonization

Routine decolonization is not recommended

Possible consideration for decolonization:
- outbreak situation
- recurrence of infection following treatment
- preoperatively

Consultation with ICP or Medical Microbiologist

Decolonization may not be effective* if there are:
- open wounds
- invasive devices
  - intravenous lines
  - urinary catheters
  - feeding tubes
  - tracheostomies
- persistence of carriage in 40% of patients.

(Adapted from PICNet -BC document "Antibiotic Resistant Organisms Prevention and Control Guidelines, Nov. 2008)
Procedure for Decolonization

1. **MUPIROCIN (Bactroban) OINTMENT** if the organism is susceptible:
   (requires prescription).
   - Apply mupirocin ointment to the anterior nares 3 times daily to a maximum of 7 days
   - Using a separate cotton swab applicator for each nare, apply mupirocin to the anterior nares, covering the mucosa by rotating or rolling the swab.
   - After application one should be able to taste the ointment.
   - In order to prevent cross contamination, do not touch the applicator to the top of the ointment tube.

2. **ANTIMICROBIAL BATH AND HAIRWASH:**
   Bathe and shampoo with an antimicrobial skin cleanser with 2% Chlorhexidine Gluconate (CHG) e.g. Laura line antibacterial lotion soap with 2% CHG and 4% isopropyl alcohol, daily for 7 days. (requires prescription)

   **Bathing Procedure - Daily for 7 days:**
   Apply a small amount of the antimicrobial skin cleanser to the wash cloth and then apply to the skin, rubbing over the skin. This product does not lather well. If more of the cleanser is required to cover the body it should be applied with a second clean washcloth. Ensure that the face, hands, axilla, groins, perineum are covered and leave on for 20-30 seconds.

   After covering the body with the cleanser and waiting 20-30 seconds, use another wash cloth to rinse off the cleanser and then towel dry;

   OR

   leave on for 20-30 seconds and then shower to rinse off the cleanser.

   **Shampoo on Days 1, 4 and 7:**
   Shampoo the hair with the same antimicrobial cleanser as is used for bathing, leave on for 20 - 30 seconds, and then rinse with water.

   Patients may use a personal shampoo on any of the other days during the 7 day treatment period when the cleanser is not being applied unless lesions are present on the scalp. If lesions are present antibacterial soap as mentioned above should be used.

3. **CULTURING AFTER DECOLONIZATION:**
   Wait at least 48 hours to culture the patient after the decolonization procedure is completed.

   Obtain a set of two cultures from the patient, the first from both nares (same swab) and the second from the anus as these are the most reliable sites in the detection of MRSA. If the client absolutely refuses the anal swab the groins may be used as an alternative (swabbing both groins with one swab).

   If the first set is negative, repeat the set of two cultures waiting at least seven days after the first set. If that set is also negative, repeat the set of two cultures seven days after the second set. The goal is for three consecutive sets of cultures which are negative for MRSA. The intervals between sets should NOT be sooner than seven days but can be longer.

   Once three sets of negative cultures are obtained, the patient can be considered at low risk for transmission of MRSA and contact precautions can be lifted. However, strict routine precautions must be maintained.

   As long as the patient remains in a closed facility, it is recommended that cultures (nares and anus) be repeated at 1 month, 3 months x2, and then every 6 months for up to 2 years in order to ensure a continued negative status. Cultures for MRSA should also be done if the health care provider has reason to suspect the patient has an infection that might be due to MRSA or the patient is placed on antibiotic therapy.
Failed Decolonization

If any one of the culture results is positive for MRSA, discontinue culturing (continue with precautions).

Determine if a second attempt at decolonization is warranted and if so repeat the decolonization procedure. However, wait at least one month before attempting a second decolonization to minimize resistance to mupirocin. Repeat the cultures as above.

If any follow-up cultures are positive after two courses of decolonization, further decolonization is not recommended. Precautions are to be maintained.
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MRSA Guidelines – May 2009
References


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