Introduction

Staphylococcus aureus is a gram-positive bacteria, which forms a part of the normal flora found on skin and mucous membranes. Methicillin-resistant Staphylococcus aureus (MRSA) is a strain that has developed resistance to some antibiotics. A person who is colonized or infected with this organism may serve as a reservoir for MRSA, which could then be the source for colonization or infection transmitted to other persons. Infection can occur when MRSA is associated with tissue invasion. Common sites of infection are urine, surgical wounds, invasive devices and soft tissue wounds. Less common infections are bacteremia and pneumonia. Refer to Infection Prevention and Control Manual, MRSA Fact Sheet for more information.

Definition

Health Care Facilities: Are those facilities and community services in Saskatoon Health Region that prevent, treat, and manage illness and the preservation of mental and physical well-being through the services offered by the medical and allied health professionals in Saskatoon Health Region.

Policy

1. Routine Practices are to be used on all clients receiving care.

2. In addition to Routine Practices, use Contact Precautions when giving direct care to clients, known to be infected or colonized with MRSA, especially those at high risk for transmission of MRSA (i.e., clients who have draining skin lesions or wounds not covered by dressings, incontinent of stool, and/or poor compliance with hygienic practices).

3. In addition to Routine Practices, use Contact and Droplet Precautions for clients known to have MRSA and in whom MRSA may be dispersed during care. See Procedure #5.
4. Clients identified as MRSA positive, when available, will have their health records flagged by Infection Prevention & Control Professionals so that at each admission/visit to any health care facility, appropriate precautions are initiated.

**Purpose**

1. To prevent or minimize the transmission of MRSA in the community and in the home through appropriate management of all clients with MRSA whether colonized or infected.

2. To prevent the transfer of genetic traits of vancomycin resistance to MRSA and avoid the development of vancomycin-resistant *Staphylococcus aureus*.

**Procedure**

1. Identification of MRSA positive status in Clients
   - Microbiology notifies Infection Prevention and Control of newly identified clients with MRSA.
   - Infection Prevention and Control notifies the family physician of newly identified clients with MRSA.
   - Infection Prevention and Control flags the client’s health record so that on each admission to the health care continuum, appropriate measures are taken by health care staff.
   - Infection Prevention and Control provides client and family with a [MRSA Fact Sheet](#) from the Section 70-10 Teaching Handouts.
   - If client is being discharged from an urban acute care facility, Client Patient Access Services (CPAS) will advise the receiving agency the client has MRSA and the site it was cultured from. This information is to be noted on the assessment form given to the receiving agency. In the rural area, when client is discharged from a rural acute care facility, the home care assessor will communicate via telephone and/or note this information on the discharge planning/assessment form so that the receiving agency will be advised.

2. Client Placement
   - If possible, the client should have their own room and their own private bathroom. This is especially important if the client has a condition likely to increase dissemination of organisms into the environment, i.e., diarrhea or fecal incontinence not contained by incontinence briefs, wound or stoma not covered with a dressing or appliance to contain drainage, desquamating skin condition, colonized tracheostomy or pneumonia with uncontrolled respiratory secretions. If there are two bathrooms in the home, it is recommended that one bathroom should be dedicated for the client to use.
   - If a single room is not available, do not place MRSA clients in rooms with family members who are at high risk for acquisition of MRSA (i.e., open wounds, poor immune system, on chemotherapy, or poor hygiene).
3. Gloves and Hand Cleaning

- Proper hand washing is the most important way to decrease transmission of MRSA.
- Hands should be cleansed before and after each client and again before leaving the home.
- Wash hands using antibacterial liquid soap and warm water, rinse well, and dry with a paper towel. Do not use the client’s bar soap and/or their towel.
- An alcohol-based hand rub (ABHR) can be used if the hands are not visibly soiled.
- Glove for all direct contact with the client.
- Remove gloves and clean hands before leaving the room and again before leaving the home. Avoid touching environmental surfaces as you are leaving the home. If you do, clean hands again with an ABHR.
- Gloves are not to be washed and reused. They are to be discarded into a plastic bag, tied closed and placed into the garbage container where children and pets cannot get into.

4. Gowns/Aprons

- Gowns/aprons used for routine direct contact client care must adequately cover clothing and protect the skin of the health care provider from exposures to blood and body substances (i.e., be long enough to cover the front of the clothing that may come into contact with the client or with contaminated surfaces).
- Gowns are to have long sleeves with elasticized cuffs that fit snugly at the wrist and have closures at the neck and waist at the back of the gown.
- Impervious disposable gowns/aprons are to be worn for all direct contact with the client that may result in a splash or contact with any body excretions or secretions (this would include bathing the client).
- Gowns/aprons are single use only.
- Remove the gown after gloves are removed by untying at the back, pull forward and turn inside on itself, roll up and discard into a plastic garbage bag. Tie garbage bag tight and place into a garbage container where children and pets cannot get into. Cleanse hands.

5. Masks/Eye Protection

- Wear a procedure mask and eye protection when:
  - The client has pneumonia or signs of respiratory tract illness.
  - Client is positive for MRSA nasal carriage and an upper respiratory illness is present.
  - There is the likelihood of a spray/splash from wounds positive for MRSA (i.e., during vigorous wound cleansing or irrigation).
  - Suctioning and care of clients with a tracheostomy colonized or infected with MRSA.
  - Multi-use eye protection must be cleaned and disinfected with disinfectant wipes or alcohol swabs prior to reuse with another client.
  - Single use mask and eye protection is to be discarded into plastic bag and placed into a garbage container where children and pets cannot get into.

6. Client Transport

- If the client can confine and contain any body fluid positive for MRSA, there is no need to restrict client’s participation in any activities.
- When leaving the home the client must wash their hands using alcohol hand sanitizer or liquid antibacterial soap.
• Assist client with hand cleaning if client is unable to do so on their own.

7. Client-Care Equipment

• Limit the amount of supplies taken into the home to avoid unnecessary waste.
• Store supplies in a clean dry place protected from environmental contamination.
• Dedicate non-critical client-care equipment to a single client (i.e., stethoscope, blood pressure cuff, tourniquet, vacuum, walker and commode).
• All equipment taken in the client’s home must be cleaned and disinfected before use in another client’s home.
• All equipment should be cleaned and disinfected prior to leaving the home and placed into care giver’s vehicle. If this is not possible, bag the equipment before it is placed into the vehicle and bring back to the facility where the equipment can be cleaned and disinfected.
• Any equipment being returned to the supplier has to be cleaned and disinfected prior to sending back to the supplier. Some specialized equipment may have to be cleaned and disinfected/sterilized by the supplier. Store equipment in a safe manner (i.e., plastic bag) until pickup and/or delivery.
• Hospital grade disinfect is to be used on the equipment (i.e., quaternary ammonium compound or accelerated hydrogen peroxide).

8. Visitors/Family

• Instruct visitors and family regarding hand cleaning before and after client contact.
• Provide MRSA Fact Sheet found in Infection Prevention and Control Manual Section 70-10 Teaching Handouts.

9. Client and Family Teaching

• Explain the nature of their infectious process and the precautions being used, as well as the prevention of transmission of MRSA to other family members and friends.
• Explain the importance of hand hygiene, personal hygiene, and good sanitation in the home.
• Provide Information Handout on MRSA found in Section 70-10.

10. Environmental Cleaning

• Frequent cleaning with a cleaner that has a disinfectant in it to all hand contact surfaces and any environmental surfaces touched by the client will reduce the risk of transmission in the home.
• Hand contact surfaces include door knobs, light switches, sink taps, toilet handle, chair arms, computer keys, stereo knobs, etc.

11. Cultures

• The type and frequency of cultures should be assessed on an individual basis. See Appendix A for Retesting Process to Determine MRSA Negative Status.
• Client must be off chlorhexidine gluconate 2% soap and antibiotics to which the MRSA is susceptible for at least 48 hours prior to swabbing. The usual antibiotics are Clindamycin, Vancomycin, Trimethoprim/Sulfamethoxazole (TMP/SMX), Linezolid, Synercid, Daptomycin, Tigecycline, Mupirocin, Fusidic acid. The use of antibacterial soaps and
ointments should be avoided during the entire period of retesting so as not to interfere with culture results.

- Cultures are to be taken from each previously positive site as well as the nares and groin, any wounds, any device sites (excluding peripheral IV – swab opening surrounding device) and sputum from coughing residents. When urine was the original positive site, obtain a perianal swab.

12. Decolonization

- Decolonization may be considered for clients who meet the criteria using Appendix C.
- Any licensed nurse or physician can initiate review of the decolonization criteria for any client who is MRSA positive.
  - If the criteria are met the nursing unit will have the physician order MRSA surveillance swabs to have the MRSA tested for sensitivities to antibiotics.
  - The physician is responsible for ordering the antimicrobial nasal cream that the MRSA is sensitive to.
- Clients with the following criteria are excluded:
  - sputum positive
  - open wounds greater than 1cm
  - indwelling devices
  - living with family or close contacts who are MRSA positive
  - cognitively impaired
  - inadequate resources
  - Mupirocin and Fusidic Acid resistance
  - continued use of antibiotics
- If the client qualifies using Appendix C, use Appendix D MRSA Decolonization Protocol.

References:


Health Canada. Infection control guidelines. Routine practices and additional precautions for preventing the transmission of infection in health care. CDDR 1999; 25S4;14,50,51

RETESTING PROCESS TO OBTAIN AN ACCURATE MRSA NEGATIVE STATUS

- Wait at least 3 months (from the last positive date) before retesting for MRSA
- If client has more than 1 open wound* or more than 1 device site*, delay retesting until healing has occurred or a device has been removed
- Ensure that the client is taking no IV or oral antibiotics at least 48 hours before attempting to retest
- The use of antibacterial soaps (i.e., Chlorhexidine soap) and ointments must be avoided for at least 48 hours prior to swabbing and during the entire period of retesting so as not to interfere with culture results

Label cultures as “MRSA follow up” culture.

Swabs are to be collected from the nose and groin; if present, swab 1 wound* and/or 1 device site*. If urine was the original positive site, collect a perianal swab in addition to nose and groin swabs.

Refer to the attached Specimen Collection Guide for details on swabbing.

One set of cultures negative

Obtain two more sets at least a week apart

If 3 negative sets,

One set of cultures is positive

Repeat cultures in 3 months

For clients with lines or wounds repeat cultures in one year

If still colonized after 6 months reduce frequency of cultures to every 6-12 months

Call or Fax results to Community Infection Control Professional

*Device sites – swab opening surrounding device
*Wound sites – include draining or open wounds/incisions
SPECIMEN COLLECTION GUIDE

Nasal and groin swab for MRSA (Methicillin-Resistant Staphylococcus aureus).
Equipment
- 2 Swabs (Starswab)
- Addressograph label
- Bacteriology requisition - Write “Nose/groin swab for MRSA follow up”

Procedure
1. Don non sterile gloves. Peel open sterile pack.
2. Moisten swab with culture media in tube.
3. Insert 1st swab about ½-1 inch into nares. Gently rotate around the inner surface, clockwise x 2, then counter clockwise x 2. Using the same swab, repeat for the other nares. Insert swab into tube and push in pink plug and label specimen.
4. Peel open 2nd swab. Moisten swab with culture media in the tube.
5. Rotate swab while moving side to side in groin. Using the same swab, repeat on the other groin.
6. Insert swab into tube and push in pink plug and label specimen.
7. Bag both specimens together and send to laboratory with completed requisition.

Perianal swab for MRSA (Methicillin-Resistant Staphylococcus Aureus)
Equipment
- Swab (Starswab)
- Addressograph label
- Bacteriology requisition - Write “Perianal swab for MRSA follow up”

Procedure
1. Position patient on their back or side and expose perineum.
2. Don non sterile gloves.
3. Moisten swab tip with culture media in the tube.
4. Run the tip firmly on the surface of perineal and anal areas.
5. Insert the swab into tube and push in the pink plug.
6. Label, bag specimen and send to laboratory with completed requisition.

Wound* or Indwelling Device* swab for MRSA (Methicillin-Resistant Staphylococcus Aureus)

Equipment
- Swab (Starswab)
- Addressograph
- Bacteriology requisition – Write “Wound or device site swab for MRSA follow up” along with site of swab.

Procedure
1. Position patient as required.
2. Don non sterile gloves.
3. Clean device site or wound with sterile water or normal saline.
4. Moisten swab tip with culture media in the tube.
5. Rotate swab while moving side to side along the wound edge or around the device site opening, ensuring that the entire opening or wound has been swabbed.
6. Insert swab into tube and push in pink plug.
7. Label, bag specimen and send to laboratory with completed requisition.

*wound=open wounds, lesions or incisions
*Indwelling device=trach, PGJ or PEG feeding tube, hemocaths, etc.
Any licensed nurse or physician can initiate a review of the criteria for any client who is MRSA positive.

**Nursing Unit:** Answer qualifiers in step one.

**Step 1: Exclusion Criteria**
Client is excluded if any of the following are checked off
- are sputum positive,
- open wounds greater than 1 cm,
- indwelling devices,
- living with family or close contacts who are MRSA positive
- inadequate resources to carry out decolonization process,
- Mupirocin or Fusidic acid resistant
- continued use of antibiotics.

**Nursing Unit:** If there are no checked squares in step 1; go to Step 2.

**Step 2: Wandering Behaviour**
Decolonization may be considered for clients with wandering behavior if staff can ensure hand hygiene with only liquid soap or alcohol hand sanitizer 48 hours prior to screening swabs being collected.

Qualifies: ✗ No (continue) ✗ Yes (stop)

**Nursing Unit:** If yes is checked go to Step 3.

**Step 3: Compliance**
Clients must also be compliant with daily bathing routine, which may include the use of CHG wipes.

Qualifies: ✗ Yes (continue) ✗ No (stop)

**Nursing Unit:**
1) If “yes” is checked, have the *physician* order nares/groin surveillance for MRSA. Send the specimen to the lab.
   **Important:** Specify “decolonization” on the laboratory requisition.
The lab will test for sensitivity to Mupirocin or Fusidic acid.

2) When sensitivity result is back, have the *physician* order the appropriate nasal ointment/cream from pharmacy. Then continue to Appendix D: Decolonization Protocol.