

<b>PROTOCOL</b>		
<b>FROM:</b>	Service of Infection Prevention & Control	<b>G-113-06-01</b>
<b>TO:</b>	The CBHSSJB medical & nursing staff	<b>DATE OF CREATION:</b> 2002-11-28
<b>OBJECT:</b>	Infections prevention & control measures for MRSA	<b>EFFECTIVE ON:</b> December 2002
<b>APPROVED BY:</b>	The Executive Committee of the Council of physicians, dentists and pharmacists	<b>REVIEW DATE:</b> 2011-03-18
<b>APPLIED BY:</b>	This protocol must be applied by all nurses and physicians working for the Cree Health Board.	
<b>CLIENTELE:</b>	All patients admitted to Chisasibi Hospital and any other appropriate patient receiving care from CBHSSJB.	

**GUIDELINES FOR THE PREVENTION & CONTROL OF THE METHICILLIN-RESISTANT  
STAPHYLOCOCCUS AUREUS**

Service of Infection prevention & control

Based on the document *Guidelines for the Prevention & Control of Methicillin Resistant Staphylococcus aureus* by the MUHC

## 1. INTRODUCTION

The goal of the present document is to inform the health professionals of the measures to adopt with a client carrier of multiple resistant bacteria.

In most acute care institutions, the *Staphylococcus aureus* is a major pathogen in nosocomial infections. During the last decades, its resistance to antibiotics has complicated the treatment of infections caused by that bacterium. Hospitalization remains the main risk factor for acquiring MRSA. Although most clinical infections represent only 15-30% of MRSA identified patients, the reference emphasizes the silently colonized patients unknown as a source and reservoir of MRSA in the hospitals. The studies have shown the significance and the potential benefit of protocols to prevent and control infections in order to reduce the transmission of MRSA, the colonization and, ultimately, the infections of hospitalized patients.

## 2. INDICATIONS

Prevent and control the transmission of MRSA by applying screening measures, by using basic measures and additional precautions designed for contacts with the patients presumed or known as MRSA carriers<sup>1</sup>.

## 3. FIELD OF ACTION

This policy is applicable to all Cree Board of Health & Social Services of James Bay (CBHSSJB) employees, doctors and visitors, which comprises the Chisasibi Hospital and all clinics in the nine communities on the Eeyou Istchee territory.

However, this policy excludes all departments dedicated only to a long-term care mission. The basic measures emphasizing hand hygiene, the appropriate use of gloves and the frequent cleaning of equipment in between users is the responsibility of the employees in these units. These measures must be re-enforced and supervised.

## 4. RESPONSIBILITIES

All employees providing care are responsible for the implementation, compliance and follow-up of the measures stated in the MRSA protocol.

A doctor or a nurse will initiate additional precautions and the screening of MRSA in relation to the guidelines of this protocol.

The nursing staff is in charge of placing the appropriate signs on the patient's door and file. The nursing staff should document the beginning and the termination of the precautions related to the MRSA in the patient's active file.

The Infection Prevention & Control Service (IPCS) is in charge of the MRSA surveillance and the identification of the contacts to a new index case.

## 5. BASIC MEASURES

The basic measures are the interventions with the best potential to prevent the transmission of infectious germs. This includes an adequate hygiene of the hands as well as the appropriate use of the personal protective equipment.

## 6. SCREENING POLICY

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<sup>1</sup>Agence de développement de réseaux locaux de services de santé et de services sociaux du Québec – Région du Saguenay-Lac-St-Jean. (2005). *Prévention des infections : Protocole pour la prévention de la transmission des bactéries multirésistantes; Staphylococcus aureus résistant à la méthicilline (SARM), Entérocoques résistant à la vancomycine (ERV)*. Septembre 2005.

An active MRSA screening policy is essential in order to identify the complete reservoir of MRSA among the hospitalized patients. Among them, many develop MRSA during their hospitalization and can remain silent carriers. In order for the additional precautions to be effective in preventing the spread of MRSA, the new cases must be identified and isolated early.

### 6.1 Admission screening

The nasal screening must be done as soon as the decision is made to hospitalize the patient. All patients must be screened upon admission.

### 6.2 Screening during hospitalization

#### 6.2.1 New case of MRSA detected during hospitalization

- Remove the index case from the shared room
- Confirm the new case with a 2nd MRSA screening
- If the result is:

Positive: continue with the contact precautions. Do not screen again for the next three months if the patient is still hospitalized.

Negative: the perianal screening is indicated, consult the infections prevention nurse.

#### 6.2.2 Screening of exposed patient who shared the room and unit screening

##### **If the patient newly identified as index case is admitted on the unit for < 48 hours.**

Screen the index case roommates to identify their present status.

The IPC nurse will identify all patients who shared the room with the index case during the month before the positive screening.

The patients who share the same room with the index case during < 48 hours do not require contact precautions. This applies only if the index case is removed from the room. If the index case is still in the room, all patients shall be placed on contact precautions whatever the duration of their exposure.

Two screenings must be done on two (2) different days once the index case has been relocated to another room. Take into account the screenings done once the index case is relocated.

Admission in the room is forbidden if the index case has not been relocated.

##### **If the patient newly identified as index case has been admitted on the unit for > 48 hours**

UNIT SCREENING: If the index case was not previously on contact precautions, do a screening of all the patients on the unit.

Repeat the screening every seven (7) days until there are no more new cases as shown by three weekly negative screenings in a row on the unit.

If the index case has shared his room with other patients for more than 48 hours, all of them have to be placed on contact precautions.

The others have to remain on contact precautions until you get two negative screenings of the unit. Take into account only the screenings done once the index case was no longer in the room.

Admissions in the room are forbidden.

#### 6.2.3 Screening acute patients during a stay $\geq 14$ days

Every active patient with a hospitalization over 14 days on the unit and where there is a MRSA reservoir ( $\geq 1$  pt MRSA +) should be screened every two (2) weeks throughout this patient's hospitalization.

#### 6.2.4 Screening of chronic patients

The chronic patients have to be screened on the first Tuesday of each month.

#### 6.2.5 Screening of lodging patients

The lodging patients must be screened previously at their admission by the community from where they originate. The result of the screening must be sent to the nurse in charge of lodging before the patient arrival.

#### 6.2.6 Screening in an outbreak context

Consult the IPC Service.

### 6.3 Screening in the hemodialysis department

Screen hemodialysis patients regularly every three (3) months and upon their return from a consultation from another hospital.

## 7. ANATOMICAL SITES FOR SCREENING

7.1 The following sites must be screened for MRSA:

- The nose
- Any wound not yet healed or with discharge
- Any site with medical equipment (Excluding peripheral and central IV sites)
- For stoma (gastrostomy, tracheostomy)
  - Suprapubic catheter site
  - Urine: only if there is a urinary catheter; send the urine in a sterile container.
- Respiratory secretions
- Intubated patients
  - Patients with tracheostomies
  - Throat cultures are acceptable only if the patient has previously been found positive through expectorations and an expectoration cannot be obtained.
- Any site previously identified as positive

These sites are indicated for the following patients:

- Upon admission at the hospital
- Patients sharing a room with a patient newly identified with MRSA+
- During the screenings of a unit
- Patient known as a carrier of MRSA
- During the monthly screening of the chronic patients
- Patient hospitalized for more than 14 days

**NOTE:** Write MRSA Screening and the screening site on the request form for the laboratory instead of culture and the antibiogram (c/s). This gives them more precise information of which germ to look for.

#### 7.2 Perianal area

- During an outbreak
- When deemed necessary by the IPC nurse (ex.: inconsistent MRSA results)

## 8. MRSA SCREENING PROCEDURE

Refer to Appendix II

## 9. THE PERSONS IN CHARGE OF SCREENING

## 9.1 Admissions

The ER nurse (Outpatient Clinic).

9.2 Screening done when the duration of a patient stay is  $\geq 14$  days & screenings in the unit

Organized by the nurse in charge of the unit

## 9.3 Patients sharing the room where and when a new case is identified

The nurse in charge of the unit and the patient's nurse must make sure all patients are screened according to the screening protocol for new cases.

The IPC nurse will identify all exposed patients sharing the room.

**NOTE:** The IPC nurse will assess the process and provide feedback to the unit.

**10. ADDITIONAL PRECAUTIONS**

## 10.1 Instructions for the contact precautions (Cf. the summary grid in Appendix I)

## 10.1.1 Patients previously known as MRSA carriers

**MRSA culture + < 12 months**

- Contact precautions indicated– add droplets if indicated.
- It is possible to do a cohort with other MRSA patients if the last MRSA screening is positive.

**MRSA culture + > 12 months**

- Contact precautions indicated– add droplets if indicated.
- Do not set up a cohort.

## 10.1.2 New MRSA case detected during hospitalization

- Implement additional precautions– add droplets if indicated.
- Confirm the positive result with a second screening.
- If the confirmation screening is positive, continue the additional precautions.
- Do not redo the screening for three months except if the decolonization protocol is initiated.

## 10.1.3 Exposed patients sharing the same room

**If the exposure is of <48 hours**

- Contact precautions are not indicated.
- New admissions in the room are allowed in as much as the index case has been removed from the room.

**If the exposure is of >48 hours**

- Contact precautions – add droplets if indicated.
- No new admissions in the room until two negative MRSA screenings are done and obtained on two (2) different days.

## 10.1.4 Transfers from other hospitals

- Contact precautions – add droplets if indicated.
- Maintain the precautions until a negative MRSA result is obtained.

## 10.1.5 CA-MRSA (Community acquired MRSA) known patient

- Contact precautions – add droplets if indicated.
- Do not place in a cohort.

## 10.1.6 Patient who was hospitalized in the last 12 months in any health care center

- Contact precautions – add droplets if indicated
- Do not place in cohort until the result is available.

**NOTE:** Follow section 12 for the cessation of the precautions.

## 10.2 Instructions for the droplets precautions– Contact

### 10.2.1 MRSA known patient

MRSA known patient who:

- Is intubated or
- Has a tracheostomy or
- Has secretions or an respiratory infection such as
  - A cold
  - pneumonia
  - COPD exacerbation
  - bronchitis
  - influenza

## 10.3 Accommodations

The goal is to accommodate the patients with positive MRSA in separate rooms or areas away from other patients who have no MRSA. Additional precautions signs should be clearly visible and posted on the patient's door, headboard (or curtain) and file.

### 10.3.1 Individual room

Ideally, patients with MRSA should be placed in individual rooms. These rooms should be allocated preferably to the following patients with MRSA:

- A patient requiring isolation for additional reasons. For example: VRE, Clostridium difficile, gastroenteritis, ...
- Patients previously known as MRSA carriers who were positive < 12 months ago and for whom the last screening of known positive sites was negative.
- Patients previously known as positive and who were so > 12 months ago
- Known or suspected CA-MRSA positive patients.

### 10.3.2 Cohorts

This refers to placing several MRSA patients in the same room (cohort room) or in the same geographical area with dedicated health care staff (personnel cohort) for the work shift when most of the care is provided. When the number of patients allows it, this is the ideal arrangement for management.

#### **Considerations to create cohorts**

In order to place in a cohort known MRSA patients, the following risks must be considered:

- Patients with MRSA whose secretions/tracheostomy can transmit MRSA through droplets. Therefore, they are not ideal cases to place in a cohort.
- Patients who have weeping wounds are more at risk to transmit the germ than those without wounds or with dry wounds.
- Patients with MRSA colonization in the urine and who have urinary catheters create a higher risk of transmission.
- An individual room is preferable for the patients listed above.

#### **Room cohorts**

- When an individual room is unavailable, MRSA patients can be grouped into one room with several beds in order to create a cohort.
- Maintain a separation of two (2) metres between infected or colonized patients and the other patients or their visitors.
- Make sure all patients sharing the room and the visitors know the precautions to be respected.

#### **Choosing patients to share the same room**

- It is done based on their capabilities and their visitors' capabilities to apply adequately the basic and additional precaution measures.
- Make sure they are not at high risk for severe diseases if the transmission occurred.

#### **Geographical cohorts**

- If many rooms are used for MRSA patients on one same unit, these rooms should be next to each other in order to create a geographical cohort of patients on the unit.
- When a geographical cohort is created, a physical obstacle (a partial wall) must be set to separate the two areas with the appropriate signs
- A sufficient quantity of clean long-sleeved gowns, gloves, masks and hand hygiene products must be available.

#### **Cohorts of health care staff**

- There should be dedicated nursing staff and beneficiary attendants for MRSA patients during the work shift where most physical and medical care is provided
- Keep the dedicated MRSA staff when covering the breaks on this work shift.
- The staff cohort can be encouraged by:
  - Allowing a lesser patient load for the health care worker.
  - Allowing the health care worker to keep the long-sleeved gown (NOT THE GLOVES) between patients in the same room as long as there are no other organisms suspected such as Clostridium difficile, VRE, etc.
- Cohorts of health care staff are recommended in situations of uncontrollable transmission or during the acute phase of an outbreak.

### 10.4 Personal protective equipment

#### **Gloves**

Wear gloves when entering the room. Change them when soiled and in between the various care provided to the same patient, and then between every patient.

Remove the gloves before leaving the patient's space.

Apply adequate hand hygiene.

#### **Long sleeved gowns**

Wear a long-sleeved gown in order to enter the room. Change it when soiled

Discard adequately the gown when leaving the room.

**Mask (droplet precautions)** recommended if the patient has the following:

- Respiratory secretions
- Exsudative wound

### 10.5 Hand Hygiene

Hand hygiene is an important measure in order to reduce the transmission of micro-organisms. The use of an alcohol based antiseptic hand rinse is acceptable as long as the hands are not visibly soiled and there is no Clostridium difficile.

### 10.6 Dedicated medical equipment

As much as possible, the medical equipment used for the patient must be dedicated especially in case of an outbreak.

#### 10.6.1 Reusable material

The equipments or material that cannot be dedicated and that will be placed back into general use (solute poles, walkers, blood glucose monitors, etc.) must get a final clean up and disinfection before using them for another patient.

#### 10.6.2 Unused material

Discard of all packages of gauze, adhesive tape, syringes, needles, IV catheters, etc. after the patient's departure. Avoid accumulating this type of material in the patients' room to avoid waste.

#### 10.7 Medical file

The medical files are not allowed in the patients' room.

#### 10.8 Waste

A double packaging must be used. The yellow bag is reserved for biomedical waste.

#### 10.9 Linens

Use coloured bags to place the linens of patient's carriers of MRSA. Follow the isolation procedure for transporting and cleaning linens.

#### 10.10 Visitors

The visitors must limit their visit to the person in isolation, and not visit other patients. They must wear the recommended protective equipment.

#### 10.11 Meals

There are no special measures to take with the dishes and utensils.

### 11. DECOLONIZATION PROTOCOL

In general, the decolonization of MRSA patients is not recommended since there are not sufficient results justifying this therapy. Decolonization can be attempted by the physician based on individual risk factors, epidemiological circumstances and specific clinical indications.

Here are examples of indications:

- The dialysis patient who is a nasal carrier of *Staphylococcus aureus*, in order to prevent a bacteraemia related to his central line.
- The pre-op patient who will undergo a high risk surgery (Ex: Heart surgery, orthopaedic implant or other).
- A health care worker with a documented epidemiologic link related to a nosocomial transmission.
- In case of uncontrolled outbreaks.
- Some patients with immunodeficiency.
- Hospitalization more than 2-3 weeks in an institution.

When the decolonization is attempted, the patient should be placed in an individual room with additional precautions.

Following the decolonization, it is important to screen ALL the sites that were positive and this must be started one (1) week after the end of the decolonization and be continued for two (2) additional weeks.

Refer to Appendix IV for the decolonization protocol and exclusion criteria.

### 12. CESSATION OF THE CONTACT PRECAUTIONS

Before the screening, make sure the patient has NOT received ANY anti-MRSA antibiotic during the seven (7) previous days (refer to Appendix IV for the list).

#### 12.1 Known MRSA Patient



Two (2) sets of negative screenings are obtained from different sites known as MRSA positive done on day 0 and day 2 after at least one (1) week without topical or systemic antibiotics.

#### 12.2 Newly identified MRSA patient

Three (3) sets of negative screenings are obtained from all known positive sites over three (3) consecutive weeks of screening, after at least one (1) week without topical or systemic antibiotics.

#### 12.3 Patients sharing a room with a patient index for > 48 hours

Two (2) sets of negative screenings obtained from all potential sites on day 0 & 1.

#### 12.4 Transfer from another country, another long-term care institution and other hospitals

One set of negative screenings are obtained.

#### 12.5 CA-MRSA known patients

Two sets of negative screenings obtained from all know positive sites on day 0 & 1.

#### 12.6 Post decolonization

Additional precautions can be stopped when MRSA screenings are negative for ALL the sites that were positive; and this should start one (1) week after the end of the decolonization and should continue for two (2) additional weeks.

### 13. PATIENT MOVEMENT AND TRAVEL

#### 13.1 Diagnostic tests and treatments

When possible, perform the diagnostic tests and treatments in the patient's room.

Before transport, notify the receiving department of the infection prevention measures taken. This is done to make sure the procedures or treatments are done immediately and that the appropriate precautions are taken before the patient's arrival.

Make sure the health care staff respects the additional precautions for the contacts with the patient.

Decontaminate the surfaces with a germicide approved for the hospital.

The health care staff should apply adequate hand hygiene before and after having contacts with the patient.

#### 13.2 Transport

**The person in charge of transport should make sure of the following:**

- The patient has no contact with the file during transport.
- The patient does not need to wear gloves or a gown during transport.
- The patient applies hand hygiene before leaving his room.
- The person in charge of transport is wearing gloves and a gown.

#### **Transport procedure**

- The person in charge of transport follows the additional precautions posted on the room entrance.
- Covers the wheelchair, including the armrests, with a clean blanket.
- Asks the patient to wash his hands or helps him to do so.
- If the patient is in "droplets isolation contact", makes sure he wears a mask for transport.
- Removes the blanket from the armrests once the patient is sitting in the wheelchair.

- In addition of changing his gloves and gown, the person in charge of transport must carry out the hand hygiene procedure.
- After using the wheelchair or the stretcher, disinfects it with the germicide approved by the hospital.

### 13.3 General activities

Limit the patient to the room, except for the absolutely necessary tests or treatments.

The modifications to the MRSA precautions can be done on an individual basis:

- Compliance to hand hygiene, continence status, control of wound secretions, etc., all must be assessed

If the patient has privileges outside the room, the nurse in charge must make sure of the following:

- The patient understand the rules of hand hygiene
- The patient is wearing clean clothes
- The patient does not wear gloves
- The patient does not visit other hospitalized patients

## 14. HOUSEKEEPING

### 14.1 Daily cleaning

- **Daily:** Clean all surfaces often touched with the germicide approved by the hospital: Bedrails, call bell, telephone, light switch, etc.
- Use a different cleaning cloth for the environment of each patient
- Change the cleaning equipment (Water, cloth, mop, etc.) after cleaning the environment of each patient.

**NOTE:** For patients with respiratory infections or weeping wounds with profuse discharge, CLEAN TWICE A DAY THE SURFACES TOUCHED OFTEN.

### 14.2 Cleaning upon the patient discharge

All high touch, low touch and horizontal surfaces, including the bathroom and floor, must be cleaned according to the Guidelines for cleaning rooms with additional precautions.

## 15. SURVEILLANCE

An active surveillance of MRSA must be carried out to identify the high risk patients with the potential of becoming colonized or asymptomatic.

- Calculation of the incidence rates for all new MRSA nosocomial cases on one unit of patients/days for one given period.
- MRSA screenings and clinical cultures for MRSA patients who should be documented for coming infections or for reinfections.
- Data collection on new nosocomial infections should include the following:
  - Admission date
  - Date of the positive sample
  - Detection method (screening upon admission, transfer, etc.)
  - The source of the sample
  - The initial status: Colonization vs. infection
  - The present risk factors (Y/N):
  - Contact with a person sharing the room
  - Admission in the intensive care
  - Duration of the hospitalization
  - Etc.

## 16. AREAS FOR AMBULATORY CARE

### 16.1 Precautions in the ambulatory clinics

The basic measures must be re-enforced in the ambulatory clinics.

Additional precautions are indicated in the following clinics:

- Hemodialysis
- Wound care

### 16.2 Waiting areas

- Ask the patient to apply hand hygiene upon arrival and departure from the clinic.
- The patient does not need to wear a gown or gloves for the appointment.
- When possible, place the patient directly in the exam room.
- If the patient has a cold, provide a mask and make sure the patient complies with the respiratory etiquette.

### 16.3 Equipment & environment (basic measures)

For ALL patients seen in the ambulatory services (whether they have MRSA or not), the following recommendations must be respected:

- Cover the surfaces the patient is in contact with OR clean the surfaces after the patient leaves
- All equipments and instruments must be cleaned between each patient.
- Do not contaminate the environment when wearing gloves. If the contamination is unavoidable, clean all surfaces touched by the gloved hands before the next patient.

## 17. HEALTH CARE WORKERS

Routine MRSA screenings for the health care workers are not carried out unless there is an epidemiological link between an MRSA patient and the health care worker. All decisions related to

- screening and/or decolonization of the staff
- work restriction and/or assignment of patients

will be made on an individual basis in consultation and in cooperation with the IPCS, the attending physician and the Occupational Health.

## 18. REPORTING INFECTED OR COLONIZED PATIENTS

### 18.1 File

As soon as the presence of a multiresistant bacterium is presumed or demonstrated in a patient, the IPC nurse must be notified immediately. She will inform the staff and the physician of the carrier's condition. The general duty nurse will make sure the information is entered in the care plan and in the list of problems in the file.

### 18.2 Bedside

A briefing poster is placed on the door of the room listing the various measures to take in order to avoid transmission.

### 18.3 Transfer

Transfer to another hospital, residential long-term care facility, rehabilitation centre or homecare:

The Head nurse, the physician or the coordinator on call will notify the receiving centre of the presence of a multiresistant bacterium in the transferred patient so that

they may take the appropriate steps. This communication can be done in writing or by phone before the transfer. It is important to specify that mentioning it in the file of the patient to be transferred is insufficient. A form letter to send the written information to the receiving centre can be found in Appendix V.

If an outbreak occurred in our hospital, we cannot transfer a close or broad contact to a rehabilitation centre or a hospital as long as the culture result is unavailable.

Transfer of the patient at home:

Information will be provided to the patient to explain the reasons why the precautions at the hospital are not necessary at home as well, if he were readmitted, the reasons why he would be again isolated by following the same procedure. If Homecare is necessary, the persons in charge of that department must be informed of the preventive measures to apply. A form letter attesting to the patient carrier condition should also be sent to the CLSC staff (Cf. Appendix VI).

When a patient MRSA carrier gets his discharge and returns home, the information documents (Hand hygiene and MRSA leaflet) should be handed (Cf. Appendix VII).

## **19. PRECAUTIONS UPON THE DEATH OF AN INFECTED PERSON**

Upon the death of person carrier of an infectious disease, some precaution measures must be respected:

- Wear a gown and gloves.
- Wrap the patient with the bed sheet according to the usual procedure.
- Place another bed sheet between the already wrapped patient and the stretcher (i.e., double bed sheet).
- Place the personal effects in a plastic bag and close it properly.
- Hand the bag to the family.
- Upon the departure of the body, the housekeeping attendants can carry out the disinfection of the room.

## **20. TEACHING**

The IPC Service is in charge of providing teaching for the employees on infection prevention and control. It provides also support to the managers to insure compliance to the MRSA policy.

All CBHSSJB managers are responsible for making sure that their employees have received the appropriate teaching and that they apply the prevention measures.

The goal of the teaching includes the importance of hand hygiene, the transmission of micro-organisms significant medically, the basic and additional measures, the appropriate use of the personal protective equipment and the capability to teach the infection prevention and control measures.

## **21. INFORMATION FOR THE PATIENTS, THE FAMILY, THE VISITORS & THE VOLUNTEERS**

### **21.1 Patients**

- Hand hygiene must be re-enforced when leaving or entering the patient room.
- Patients must be informed that they cannot share personal objects or furniture with another patient unless the said-objects have been cleaned and disinfected.
- The patients must comply with the respiratory etiquette.
- The patients must be informed of the privileges and restrictions outside the room.

- The patients must be informed of the rationale behind the declaration of the MRSA status to their family, their doctor, their CLSC nurse and to any other health professional.
- The MRSA leaflet for the patient must be readily available.

#### 21.2 Visitors, families, volunteers

They must receive instructions in relation to the infection control measures implemented when they visit the room.

- Apply hand hygiene when entering and leaving the room.
- Follow the instructions as indicated on the posters
- Remove the personal protective equipment before leaving the room, even if it is just to get ice or water in the corridor.

## 22. EVALUATION PROGRAM

A continuous review process of the results is important in order to assess the MRSA policy and the extent of the transmission. The indicators to assess the policy should be identified and reviewed periodically by the IPC Service. Procedures and practice audits must be part of the objective of the IPC program. Here are a few examples:

- Compliance to hand hygiene
- MRSA screening practices
- Management of the shared and dedicated equipment
- The hospital's cleaning and disinfecting practices
- The employees' compliance to the additional practices

A senior administrator or a clinical manager must receive the MRSA surveillance data to review it and provide feedback, action plans, and improvement for their respective departments.

## 23. CONCLUSION

The problem of bacterial resistance to antibiotics is not new. The recent appearance of these multiresistant bacteria allows us to have a preventive approach regarding this problem and take the necessary means to avoid transmission and the establishment of infection reservoirs in an institution. Controlling the transmission of multiresistant bacteria is based on the cooperation of many workers in our setting. The role of the lab, the doctors, the nurses and the other health and sanitation professionals is essential. Their contribution to detect, prevent and control transmission (Nosocomial and community) limits propagation.

## REFERENCES

- Agence de développement de réseaux locaux de services de santé et de services sociaux du Québec – Région du Saguenay-Lac-St-Jean. (2005). *Prévention des infections: Protocole pour la prévention de la transmission des bactéries multirésistantes; Staphylococcus aureus résistant à la méthicilline (MRSA), Enterococcus résistant à la vancomycine (ERV)*. September 2005.
- Association des professionnels pour la prévention des infections (APPI). *Répertoire d'outils. Bactéries multirésistantes MRSA, ERV, bactéries gram negative*, 1998
- Association for Professionals in Infection Control and Epidemiology. (2009). *APIC TEXT of Infection Control and Epidemiology*, 3<sup>rd</sup> edition. AIPC: Washington.
- Boyce, J. M., Potter-Bynoe, G, Chenevert, C & King, T. *Environmental contamination due to Methicillin-resistant Staphylococcus aureus: Possible infection control implications*. In: *Infection Control and Hospital Epidemiology*, 1997, (18), 622-627.
- Direction risques biologiques, environnementaux et occupationnels, Comité sur les infections nosocomiales du Québec (CINQ), Institut national de santé publique du Québec, MHSSQ. (2006). *Mesures de prévention et de contrôle des infections à Staphylococcus aureus résistant à la méthicilline (MRSA) au Québec*. 2nd edition – Intermediary version.
- Doebbling, B. N., Breneman, D. L., Neu, H. C. & al. *Elimination of Staphylococcus aureus nasal carriage in health care workers: Analysis of six clinical trials with calcium mupirocin ointment*. In: *Clinical Infectious Diseases*. 1993, (17), 466-474.
- Fortin, Ann & al. *Maladies transmissibles : Protocole d'entente pour prévenir la transmission des entérocoques résistants à la vancomycine dans la région de la Montérégie*. Direction de la santé publique, de la Planification et de l'Évaluation de la Montérégie, May 1998.
- Gardam, Michael A. *Is methicillin-resistant Staphylococcus aureus an emerging community pathogen? A review of literature*; In: *The Canadian Journal of Infectious Diseases*, July-August, 2000, 2 (4), p 202-211.
- Groupe de travail sur les entérocoques résistants à la vancomycine, Direction générale de la santé publique. *Mesures de contrôle et prévention des infections à entérocoques résistants à la vancomycine au Québec*. In: *Collection orientations et interventions*. October 1998 1(42), 83-95.
- Health Canada. *Guide de prévention des infections: Prévention de la transmission des entérocoques résistants à la vancomycine au Canada*. *Canada Communicable Diseases Report (CCDR)*. Supplement, Vol. 23S8, December 1997, 1-15.
- Health Canada. *Infection control guidelines: Routine practices and additional precautions for preventing the transmission of infection in health care*. ABRD, 1999, 25S4, 1-82.
- Ministry of Health & Social Services of Québec (MHSSQ). *Les infections nosocomiales: Mesures de contrôle et prévention des infections à Staphylococcus aureus résistant à la méthicilline (MRSA) au Québec*; October 1998.
- Mulligan, M. E., Ribner, B. S., Standiford, H. C. et al. *Methicillin-resistant Staphylococcus aureus: A consensus review of the microbiology, pathogenesis, and epidemiology with implications for prevention and management*. In: *American Journal of Medicine*, 1993, (94), 313-328.

- Provincial Infectious Diseases Advisory Committee Toronto, Public Health Division, Ministry of Health and Long-Term Care. *Best Practices for the Infection Prevention and Control of Resistant Staphylococcus aureus and Enterococci in all health care settings*; March 2007, (accessed on Dec 27, 2007).
- Service de microbiologie et Comité de prévention de l'hôpital du Haut-Richelieu. *Prévention et mesures de contrôle des infections à entérocoques résistants à la vancomycine*. March 1997.
- Siegel, J. D., Rhinehart, E. Jackson, M., Chiarello, L. *The Healthcare Management of Multidrug-Resistant Organisms*. Infection Control Practice Advisory Committee (HICPAC), Center of Disease Control and Prevention (CDC). In: *Healthcare Settings*, 2006.
- Wenzel, R. P., Reagen, D. R., Bertino, Jr J. S. & al. *Methicillin-resistant Staphylococcus aureus outbreak: A consensus panel's definition and management guidelines*. In: *American Journal of Infection Control*, 1998, (26), 102-110.
- Working party report. *Revised guidelines for the control of Methicillin-resistant Staphylococcus aureus infection in hospitals*. In: *Journal of Hospital Infection*. 1998, (39), 253-290.

## APPENDIX I – Summary Grid of the MRSA Policy

Category	Precautions	Screening	D/C Precautions
<b>Admissions</b>			
Known (+) <12 months	<b>Contact (± droplets)</b> Can place in cohort	Upon admission x 2 If (+) : q 3 months	If not in cohort & (-) x 2 at daily screenings AND *If no longer under MRSA antibio x ≥ 7d
Known (+) >12 months	<b>Contact (± droplets)</b> DO NOT PLACE IN COHORT	Upon admission x 1 If (+) : q 3 months	(-) X 2 at daily screenings AND *If no longer taking MRSA antibio x ≥ 7d
Transfer from other hospital	<b>Contact (± droplets)</b>	Upon admission x 1	If (-) x 1
IV drug user or other AC-MRSA risk	<b>Contact (± droplets)</b>	Upon admission x 1	If (-) x 1
Hospitalization in last year	<b>Contact (± droplets)</b>	Upon admission x 1	If (-) x 1
<b>During hospitalization</b>			
Any patient with a duration of stay > 14 days, except chronic patients	<b>Routine</b>	q 14 days	
<b>New cases</b>			
New MRSA (+)	<b>Contact (± droplets) X 3 months</b>	Confirm x 1, then q 3 months If (+) : continue q 3 months If (-) : q weeks x 3	If (-) x 3 at daily screenings * If no longer under MRSA antibio x ≥ 7 d
Exposed roommates if index case admitted <48 hrs	<b>Routine</b>	X 2 post-exposure (different days)	
Exposed roommates if index case admitted >48 hrs	<b>Contact</b>	X 2 post-exposure (different days)	X 2 screenings (-) (different days)
Screening of unit if index case admitted >48 hrs	<b>Routine</b>	Weekly screening x 3 weeks	
<b>Haemodialysis</b>			
All dialysis patients	<b>Routine</b>	q 3 months & also <i>Staph aureus</i>	

Chart inspired from “Summary Grid of the MRSA Policy” in *Guidelines for the Prevention and Control of Methicilline Resistant Staphylococcus aureus* by McGill University Health Center.



## APPENDIX II - Procedure to screen for MRSA

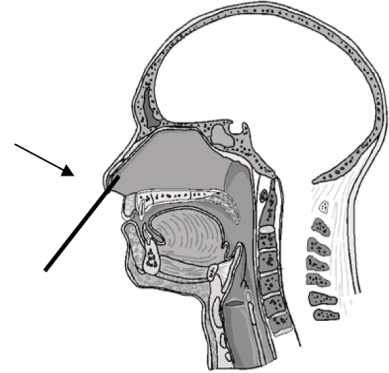
All MRSA samples must be forwarded under MRSA Screening. Do not send samples for cultures or antibiogram (C/A or C/S).

**IT IS IMPORTANT TO HUMIDIFY THE SWAB WITH NS OR NON BACTERIOSTATIC STERILE WATER BEFORE TAKING THE SAMPLE**

**Nose** – use a swab for both nostrils

- Enter the humid swab by 1-2 cm into the anterior vestibule of the nostril.
- Complete 5 manual rotations with the swab in the nostril.
- Repeat the same procedure in the other nostril with the same swab.
- Place the swab in the container for transport.

Depth  
1 to 2 cm



**Respiratory secretions**

- Send the expectorations or respiratory secretions/aspirations in a sterile sample container.
- Do not use a swab
- If an expectoration sample cannot be obtained, send a throat culture.

**Any wound**

- Clean the wound before taking the sample.
- Culture the wound by using the Levine technique: On an area of 1 cm<sup>2</sup> press the swab slightly with a 45° angle in relation to the surface and do a rotation of 360°.
- Place the swab in the container for transport.

**All sites with medical equipments**

- PEG, tracheostomies, suprapubic site, ... (Excluding peripheral and central IV sites)
- Using a humidified swab, do 5 complete rotations around the medical equipment insertion site.
- Place the swab in the container for transport.

**Urine**

- Send a urine sample in a sterile container.

**Perianal area**

- By using a humidified swab, do 5 complete rotations around the perianal area.
- Place the swab in the container for transport.

## APPENDIX III - Glossary

### **Anti-MRSA antibiotics**

All efficient anti-Staphylococcal topical or systemic therapies against MRSA. Ex.: Mupirocin, Vancomycine, Rifampin, Linezolid, Teicoplanin tetracycline, etc.

### **Cohort**

Refers to placing several MRSA positive patients in the same room (room cohort), in the same geographical area (geographical cohort) with dedicated health workers (staff cohort) for the work shift when most physical care is provided.

### **Colonized**

A positive MRSA screening or a culture originating from any anatomical site without evidence of active signs or symptoms indicating an infection.

### **Hand hygiene**

Process to reduce or inhibit the growth of micro-organisms. Hand hygiene can be done by using soap and water (to remove visible dirt) or by using an alcohol based disinfecting gel (when the hands are not visibly dirtied).

### **Infected**

Clinical signs and symptoms of an infection confirmed by an MRSA culture originating from a wound, blood, urine, respiratory secretions, etc.

### **Control measures**

Practices allowing restricting transmission. Ex.: the use of individual rooms and/or personal protective equipment.

### **Nosocomial**

A case acquired in the hospital and primarily detected 48 hrs after admission.

### **Exposed patient**

All patients who received care on the unit from the same health workers who took care of the index case, whatever the duration of the exposure.

### **Index patient**

The first positive MRSA identified patient within a geographical area and within a specific period of time, as identified by the DIPC.

### **Reservoir**

An animate or inanimate environment where MRSA can survive.

### **MSSA**

Methicillin sensitive *Staphylococcus aureus*.

### **MRSA**

Methicillin-resistant *Staphylococcus aureus*

### **CA-MRSA**

Community acquired *Staphylococcus aureus* is a strain of MRSA acquired in the community. This strain is generally sensitive to clindamycin and sulpha- antibiotics.

**Direct care**

Providing direct care with contacts such as bathing, changing clothes, and care for open wounds or lesions. Note: Pushing a wheelchair is not considered as direct care.

**IPCS**

Infection Prevention & Control Service

**Exposed roommates**

All patients who have shared the same room as the newly identified MRSA positive patient. The exposure period starts when the index patient was identified the last time as negative (or since admission if he has not been screened) until the index patient was relocated (moved).

## APPENDIX IV – Decolonization protocol

Medical prescription: “Decolonization of MRSA carrier patients”

The decolonization of MRSA patients is an individual decision to be made by the physician. It must not be prescribed to all patients with a positive MRSA status. It can be postponed or abandoned depending on each patient's medical context (Ex.: Postponement in the prescription to remove a foreign object such as a catheter).

Allergies: \_\_\_\_\_

DATE	DECOLONIZATION PRESCRIPTIONS	MD
	Mupirocin <input type="checkbox"/> Mupirocin 2% (Bactroban) cream to the nostrils bid X 7 days <input type="checkbox"/> Mupirocin 2% cream or ointment to all open wounds X 7 days *Mupirocin cream or ointment can be applied to the nostrils and wounds at the same time.	
	Chlorhexidine Chlorhexidine gluconate 4% bath or shower (including the hair) <input type="checkbox"/> qd for 7 days <input type="checkbox"/> 3x / weeks for 14 days *If the seven-day-treatment is too irritating, can be changed for 3x / week x 14 days.	
	Oral antibiotics (choose two) <input type="checkbox"/> Co-trimoxazole 160 mg-80 mg 1 pill PO bid x 7 days <input type="checkbox"/> Rifampicin 360 mg PO bid x 7 days <input type="checkbox"/> Doxycycline 100 mg PO bid x 7 days	

Doctor signature: \_\_\_\_\_ Licence #: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Initials of the nurse transcribing: \_\_\_\_\_ Checked by the pharmacist (initials): \_\_\_\_\_

CAUTIONS	
<p style="text-align: center;"><b>Doxycycline</b></p> <p><b>CONTRAINDICATED</b> in patients with myasthenia.  <b>DO NOT USE</b> in pregnant or lactating women.  <b>DO NOT USE</b> if there is the potential for drug interactions: warfarin, alcohol, barbiturates, phenytoin and carbamazepine. Verify with the pharmacy or the CPS for further drug interactions.</p> <p style="text-align: center;"><b>Co-trimoxazole</b></p> <p><b>CONSULT A PHYSICIAN</b> if decreased renal function</p>	<p style="text-align: center;"><b>Rifampin</b></p> <p><b>CONTRAINDICATED</b> in patients with liver insufficiency.  <b>DO NOT USE</b> if there is the potential for common drug interactions: warfarin, verapamil, digoxin, quinidine, theophylline, cyclosporin, ketoconazole, oral contraceptives, methadone, and more.  <b>DO NOT USE</b> if HIV patient is taking protease inhibitors or NNTRI's                      Urine / feces / tears may be colored red-orange.                      Verify with the pharmacy or the CPS for further drug interactions.</p>
<ul style="list-style-type: none"> <li>• <b>DO NOT USE</b> doxycycline and rifampin when a patient is receiving one or more antibiotics for other reasons because the antibiotic regimen will be complicated. Administer only the mupirocin 2% and the chlorhexidine 4%.</li> <li>• Vancomycin and linezolid are <b>NOT</b> used for decolonization. For treatment of infections, consult Infectious Diseases. If a patient is receiving vancomycin for other reasons, administer <b>ONLY</b> the 2% mupirocin and the 4% chlorhexidine. <b>DO NOT</b> add doxycycline or rifampin.</li> <li>• Both doxycycline and rifampin should be given together but in the instance where doxycycline can not be given, rifampin should <b>NOT</b> be used alone because of the potential for resistance. Administer <b>ONLY</b> the mupirocin 2% and the chlorhexidine 4%.</li> <li>• Doxycycline can be used without rifampin, along with the 2% mupirocin and the chlorhexidine 4%.</li> </ul>	

Keep a copy of this Medical prescription Decolonization of MRSA carrier patients in the file before sending it the pharmacy to keep a track of it.

**Developed on June 2, 2005, by the MUHC, reviewed on September 15, 2010 by G. Dubé, IPC Nurse.**

**APPENDIX V – Transfer of a patient carrier of a multi-resistant bacterium to another institution**

Patient name: \_\_\_\_\_

File No: \_\_\_\_\_

Date of the culture: \_\_\_\_\_

Origin of the sample: \_\_\_\_\_

The present letter is to notify you that at the time of his departure, the transferred patient named above is a carrier of:

VRE

MRSA

Name & coordinates of the person to reach in order to get additional information:

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

Telephone: \_\_\_\_\_

Institution name: \_\_\_\_\_

**APPENDIX VI - Transfer of a patient carrier of a multi-resistant bacterium to Homecare**

Patient name : \_\_\_\_\_

Hospitalized from \_\_\_\_\_ to \_\_\_\_\_ upon his departure he was the carrier of a multi-resistant bacterium:

VRE

MRSA

You will find below a copy of the recommendations made to the patient.

Notify all your attending physicians of the analysis result

If you receive Homecare inform the person providing you with this care so that he/she may take the necessary precautions

Upon your arrival at a health centre for health care services, always inform the doctor and health care workers so that precautions are taken

You can keep this letter and present it to your doctors.

**APPENDIX VII – Information documents to hand the patient (MRSA & hand hygiene)**

Date \_\_\_\_\_

Madam, Sir,

One of the results from your lab analyses has shown that you are the carrier of the multi-resistant bacterium.

The only control measure we recommend for your daily life is to always wash your hands properly. In addition, when you receive medical care, it is important that the bacterium is not transmitted to other patients. Therefore, we recommend the following:

Notify all your attending physicians of the result.

If you receive Homecare inform the person providing you with this care so that he/she may take the necessary precautions.

Upon your arrival at a health centre for health care services, always inform the doctor and health care workers so that precautions are taken.

You can keep this letter and present it to your doctors.

You will be provided with an information leaflet on multi-resistant bacteria and advice in order to wash your hands properly.

If you need additional information we suggest consulting your physician.

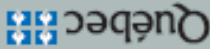
-----  
\_\_\_\_\_  
Signature Date

### What are staphylococci?

Staphylococci are bacteria that are commonly found on people's skin or in the nose. Usually, staphylococci do not create infections in healthy people. They may sometimes cause skin infections, wound infections and, more rarely, pneumonia or blood infections. A staphylococcus infection can be treated with an antibiotic.

## MULTIDRUG-RESISTANT BACTERIA

Developed by the Centre de santé et de services sociaux de la région de la Côte-Nord in collaboration with the Ministère de la Santé et des Services sociaux.

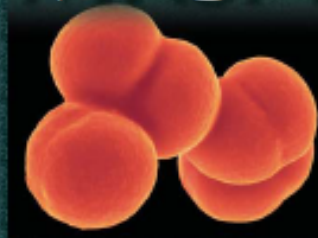


Source: Médecins universitaires de la faculté de médecine (SARM) au Québec. CND, (2008).

June 2016

**INFORMATION ON METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS FOR PATIENTS AND FAMILIES**

# MRSA



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

MRSA is a staphylococcus that has developed a resistance to several types of antibiotics, including methicillin. MRSA does not cause more infections than other staphylococci, but it may limit the choice of treatment (antibiotics).

### How is MRSA detected?

Laboratory analyses of a specimen taken from a wound or nostrils indicate that the bacteria are present. Patients are said to be **carriers**, or **colonized**, when bacteria are present but there is no sign of infection. They are considered to be **infected** when there are signs of infection, for instance, when a wound discharges pus or is red at the edges.

### How is MRSA transmitted?

MRSA is chiefly transmitted from a carrier patient to another patient through the contaminated hands of health care workers. Hence, the best protective strategy is handwashing by workers.

The risk that a carrier will transmit MRSA to family members – including pregnant women and children – is very slight.

### How long does MRSA remain present in nostrils or in a wound?

MRSA may be present in nostrils or in a wound for several months or even years. Thus, people who have been colonized by MRSA may still be carriers when they are readmitted to the hospital.

### What precautions will be taken when a MRSA-carrier patient goes to the hospital?

When a MRSA-carrier is admitted to a hospital or a residential and extended care centre (CHSLD), or when the patient goes to one of these facilities for a consultation, it is important to warn health care workers so that appropriate measures can be taken to limit transmission to other patients.

An MRSA-carrier may be given a single room with private toilet, and special precautions will be taken (workers will wear gloves, gowns). Also specimens will be taken from nostrils and wounds to determine if the person still carries the bacteria.

### How can I prevent MRSA from spreading at home?

Regular handwashing by carriers and family members is the simplest and most effective way. Bandages soiled with secretions must be thrown out in a closed plastic bag. No particular measures are required for dishes and utensils. Clothes belonging to a person who is an MRSA-colonized patient can be washed in the usual way with a standard commercial detergent in hot or warm water.

For healthy people, MRSA is no more dangerous than other bacteria normally found on the skin. If someone in the home is ill and has a weakened immune system, other measures may be necessary, and it is important to discuss this with a physician or nurse before the MRSA-carrier goes home.

### What if MRSA-carrier is receiving home care?

Health care workers providing home care for patients with MRSA must take special precautions to avoid transmitting the bacteria to other patients. Gloves and gowns may be called for in some situations. These measures will no longer be necessary when lab test results indicate that the patient no longer carries the bacteria.

### When should hands be washed in the presence of MRSA?

- Before and after providing care.

Remember that in general, you should also wash your hands:


- before preparing, handling, serving or eating food;
- after going to the bathroom;
- after blowing your nose, coughing or sneezing;
- after accidental contamination by blood or other biological liquids;
- when hands are visibly dirty.

For more information, call your CLSC's Info-Santé line or talk to your doctor.


# 10

Most often forgotten areas when hands are washed

## I WASH MY HANDS



Inside (of hand)

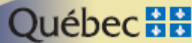


### When do I wash my hands?

- Before and after any contact with a patient
- After any accidental contamination with blood, or when my hands are obviously soiled
- After removing my gloves
- After going to the bathroom
- After blowing my nose, or helping a child blow his or her nose
- Before preparing, handling or serving food, and before eating

Developed by the Direction de santé publique of the Agence de développement de réseaux locaux de services de santé et de services sociaux de la Montérégie in collaboration with the Ministère de la Santé et des Services sociaux.

04-2019-02



### WASHING MY HANDS STEP BY STEP

<b>1*</b> Wet hands		<b>2</b> Add 3 to 5 ml of soap or antiseptic solution		<b>3</b> Lather palms together	
<b>4</b> Rub the palm of the right hand on the back of the left hand and vice versa		<b>5</b> Rub palms together, fingers laced		<b>6</b> Rub the outside of fingers against the palm of the opposite hand	
<b>7</b> Rub thumbs with rotational movements		<b>8</b> Rub fingertips in the palm of the opposite hand		<b>9*</b> Rinse and dry with paper towels. Use paper towels to turn off taps	

\* Not required if a waterless antiseptic solution is used.

# APPENDIX VIII – Admission Information for Prevention and Control of Infections

✓	SYMPTOM, INFECTION OR SUSPICION	ADDITIONAL PRECAUTIONS	INFORMATION
	Asthma – Child	Droplet – Contact	
	Bronchiolitis	Droplet – Contact	
	<i>C Difficile</i> Associated Diarrhea	Contact	
	COPD exacerbation	Droplet	
	Diarrhea – Adult	Basic Measures	Contact precautions if incontinent patient or if unable to respect basic measures.
	Diarrhea – Child	Contact	
	Diarrhea AND nausea/vomiting	Contact	
	Fever – Child	Contact	
	Infected wound	Basic Measures	Contact precautions if dressing does not contain exsudate
	Influenza like illness – Child	Droplet – Contact	
	Influenza like illness – Adult	Droplet	
	Lice & Scabies	Contact	
	Meningitis	Droplet – Contact	
	MRSA / VRE precautions	Contact	If patient admitted in any hospital in the last year. Contact-Droplet PRN
	MRSA known patient	Contact	Contact-Droplet if respiratory infection
	Mumps	Droplet	
	Pneumonia – Adult	Droplet	
	Respiratory tract infection - Child	Droplet – Contact	
	Tuberculosis	Airborne T	
	Varicella & Extended Zona	Airborne – Contact	
	VRE known patient	Contact	

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

“Child” is used here describing any patient unable to apply basic measures. If an adult is unable to apply basic measures, apply the paediatric isolation indications. If more information is required refer to IPC nurse counsellor (#4016)