POLICY NO: 2011

Effective:
09/08

PREVENTION AND CONTROL OF MRSA
(Methicillin-resistant *Staphylococcus aureus*)

I. PURPOSE

To prevent the acquisition, emergence of infection and transmission of MRSA to patients, visitors and staff.

II. OBJECTIVES

This policy defines the procedures to:

A. Identify patients who are at higher risk for MRSA colonization or infection.

B. Screen selected patients to determine if they are colonized with MRSA.

C. Implement appropriate infection control measures to minimize risk to staff, visitors and patients.

D. Treat patients who are colonized with MRSA.

E. Treat patients who are infected with MRSA.

F. Document MRSA status.

III. BACKGROUND

A. General Information

*Staphylococcus aureus (*methicillin sensitive*)* is carried in the nares of approximately 30% of healthy adults. Methicillin-resistant *S. aureus* (MRSA) is a type of *S. aureus* that is resistant to certain antibiotics. Staph infections, including MRSA, occur most frequently among persons in hospitals and healthcare facilities (such as nursing homes and dialysis centers) who have weakened immune systems. In hospitalized patients, MRSA may colonize the nares, pharynx, axilla and peri-anal/rectal areas as well as any site of broken skin, such as surgical wounds, intravenous catheter sites and decubitus ulcers.

MRSA acquired in healthcare settings may cause serious and potentially life-threatening infections, such as bloodstream infections, surgical site infections, or pneumonia. MRSA is more likely to cause serious infections than methicillin sensitive strains, which can result in longer hospital stays and increased health care costs.

MRSA infections can occur in the community as well. Such community-associated infections usually present as skin infections, such as abscesses and boils.

Hand hygiene is the primary way to prevent the spread of MRSA. MRSA is transmitted by:

- Touching infected skin of someone with MRSA
- Touching equipment or objects that have MRSA bacteria on the surface

IV. OWNERSHIP/ACCOUNTABILITY

A. Hospitals

The final authority in a hospital for all services is the governing body, which is responsible for assuring the quality and safety of the care provided. The governing body delegates to the Medical Executive Committee the responsibility and authority to monitor and maintain quality of care. It is the responsibility of all hospital staff for complying with this policy.

Infection control staff have the authority to implement infection control measures for identified patients, in compliance with this policy.

B. Aurora Medical Group (AMG), Aurora UW Medical Group (AUWMG) and Aurora Advanced Healthcare Clinics

The AMG Management Committee is responsible for the review, approval and implementation of this policy in all AMG facilities. The medical director of each AMG clinic and/or AMG region is responsible for ensuring that the policy is followed. Infection control staff have the authority to implement infection control measures for identified patients, in compliance with this policy.

The AUWMG Clinical Management Committee is responsible for the review, approval and implementation of this policy in all AUWMG facilities. The medical director if each AUWMG clinic is responsible for ensuring that the policy is followed.

The Aurora Advanced Healthcare Management Committee is responsible for the review, approval and implementation of this policy in all Aurora Advanced Healthcare facilities. The medical director is responsible for ensuring that the policy is followed. The Infection Control staff has the authority to implement infection control measures for identified patients, in compliance with this policy.

C. Aurora Visiting Nurse Association (AVNA)

The AVNA Management Committee is responsible for the review, approval and implementation of this policy for all AVNA staff.

V. APPLICABILITY

This policy applies to all patients, staff, physicians and visitors at every Aurora hospital, clinic, ambulatory care center and AVNA. (In this policy, ‘hospital’ refers to inpatient settings, free-standing surgery centers and hospital-based outpatient services; ‘clinic’ refers to AMG clinics, AUWMG clinics, Aurora Advanced Healthcare clinics; ‘home health’ refers to a patient’s place of residence where services are provided by AVNA staff.)

VI. DEFINITIONS

A. MRSA – Methicillin-resistant S*taphylococcus aureus*

MRSA is resistant to methicillin and other more common antibiotics such as oxacillin, penicillin and amoxicillin.

1. Healthcare-associated (HA-MRSA)

MRSA occurs most frequently among persons in hospitals and healthcare facilities. The onset of most HA-MRSA occurs OUTSIDE the hospital, therefore is called community-onset, health care- associated MRSA. If the onset is DURING the hospital stay, it is called hospital-onset HA-MRSA.

a. Community-onset

Cases with at least one of the following health care risk factors:

- Presence of an invasive device at time of admission
- History of MRSA infection or colonization
- History of surgery, hospitalization, dialysis, or residence in a long-term care facility in previous year preceding culture date

b. Hospital-onset

Cases with positive culture result from a site with no prior documentation of MRSA, obtained > 48 hours after hospital admission. These cases might also have $\geq$ one of the community-onset risk factors.

2. Community-associated (CA- MRSA):

MRSA infections that occur in otherwise healthy people who have not been recently (within the past year) hospitalized or had a medical procedure (such as dialysis, surgery, catheters) are known as community-associated MRSA infections.

B. MSSA – Methicillin-susceptible *Staphylococcus aureus*

C. Infection – the condition when a pathogen has entered a body site, is multiplying and is causing clinical consequences such as fever, suppurative (purulent) wound or tissue destruction.

D. Colonization – the condition when the pathogen is present in or on a body site but where no symptoms or clinical manifestation of illness or infection are evident; the presence of bacteria without tissue invasion or damage.

E. Decolonization – treatment of colonized patients with antibiotics or other measures to eradicate the organism from the site of colonization (skin and mucous membranes).

VII. LAB TESTS (ACL test abbreviation for ordering)

A. MRSA PCR (MRSASC)– Rapid, qualitative molecular-based assay for the direct detection of MRSA. This assay is currently only FDA approved for use with nasal specimens.

B. Multiplex PCR (SAMRSC)– A PCR reaction where more than one primer set is included in the reaction pool, allowing multiple DNA targets to be amplified and detected in a single reaction tube. This test identifies the presence of both MSSA and MRSA.

C. MRSA culture (CMRSA)– Culture performed on selective and differential medium for direct detection of MRSA.

VIII. PROCEDURE

The following procedures are to be followed when assessing a patient for risk of MRSA. In the hospital setting, these procedures should be applied for all patients who are admitted. In the outpatient and home care settings, these procedures should be followed when the patient's condition warrants consideration of MRSA (i.e., clinical presentation suggestive of MRSA; planned procedure for which MRSA colonization would increase the patient's risk; patient history consistent with MRSA).

A. Identify patients who are at higher risk for MRSA

Patients are considered at higher risk for MRSA based on current evidence-based criteria. These include:

1. History of MRSA (infection or colonization)

   A patient is considered to have a positive history of MRSA if any of the following are identified:
   - Previous positive lab test (PCR or culture) from any lab
   - Patient self-reported history of MRSA
   - Documentation in the medical record of MRSA history.

2. High Risk Patient

   These patients have no previous history of MRSA (infection or colonization) but have one or more of the following risk factors for MRSA:
   - Recent hospitalization, including transfers, within the prior 6 months
   - Admission to the ICU, including direct admits and transfers
   - Patient from long term care/nursing home
   - Dialysis patient
   - Patient from a correctional facility
   - Selected pre-surgical patients pending one of the following procedures:
     - Orthopedic procedure that includes implant/hardware
     - Cardiothoracic surgery
   - Though evidence is limited, additional groups of patients may be considered at higher risk for negative outcomes related to MRSA based on the patient condition and/or treatment plan (i.e., other surgical procedures that involve implants, hardware and/or devices). Therefore, some patients may require screening and/or contact precautions *based on physician discretion*.

B. Screen High Risk Patients

To identify those patients who are colonized with MRSA, it is necessary to screen them with the appropriate laboratory test. Identification of colonized patients will lead to appropriate infection control measures being implemented with the intent to minimize the transmission of MRSA. In addition, colonized patients who are at risk of becoming infected can then be appropriately treated. All lab testing is by Physician Order as determined by the patient condition, procedures ordered and reason for hospital admission or outpatient visit.

1. Identify high risk patients (see VIII.A. above):

   a. History of MRSA
   b. High risk patients

2. Screen high-risk patients

Screening High Risk Patients

Setting	When	Lab Test	Additional/Alternative Lab Tests *Per Physician Discretion**
Hospital	• Test immediately upon admission • Based on patient condition and physician discretion, high-risk patients may be re-screened for MRSA 7 days after admission, even if their initial screening test was negative.	PCR – nares only	If patient has completed treatment for MRSA (infection or colonization) within the previous 2 weeks, the PCR test may not be valid. Culture of the nares may be an alternative-screening test. Culture may be used as an alternative screening test; culture has a longer turn-around time for results and may be less costly, therefore is an option for outpatient screening of pre-surgical patients.
Pre-Surgical Patient	• Test pre-operatively, either in the outpatient setting or during the hospitalization.	Multiplex PCR is recommended for pre-surgical patient for whom the surgeon has concerns regarding MRSA/MSSA colonization	
Clinic and Home Health	• Test when the patient's condition, reason for visit or planned surgical procedure warrants the identification of the patient's MRSA status.	PCR – nares only	

*Additional sites that may be considered for testing if indicated (i.e., previously positive sites). Culture is the appropriate lab test for these sites.

- Peri-rectal
- Axilla
- Any existing wounds
- Vascular catheter insertion sites
- Sites that were previously positive for MRSA

C. Implement Infection Control Measures

Appropriate infection control measures reduce the risk of transmission of MRSA within the health care setting. The selection of infection control precautions depends on the clinical setting, the patient's history and physical condition, and current MRSA status.

1. Types of Precautions (see site Infection Control manual for complete description of precaution strategies)
    - Standard Precautions- follow with all patient encounters in all settings
    - Contact Precautions - follow with all patients who are known to be colonized or infected with MRSA.
        - Hospitalized patients with a history of MRSA are placed in immediate Contact Precautions until their current MRSA status is confirmed

- Droplet Precautions (mask)- follow with all patients *(regardless of MRSA status*) when performing a splash-generating procedure or when caring for a patient with the potential for projectile secretions

2. Initiate precautions depending on the clinical setting and the patient's history of or risk for MRSA (see table).

3. Duration of Precautions

   Patients may be removed from Contact Precautions for an episode of care (i.e., during a hospital stay, clinic visit) when laboratory testing identifies microbiologic clearance. One of the following criteria must be met to remove a patient from Contact Precautions:

   a. Hospitalized patients with a history of MRSA: after the results of their admission screening test (ie, PCR) is reported as NEGATIVE
   b. Hospitalized or Clinic patients that have been treated for MRSA in the previous 2-4 weeks and meet the following:
      i. Patient has been off antibiotic therapy for at least 48 hours
      AND
      ii. Two consecutive sets of negative cultures of all previously positive sites at least 24 hours apart have been obtained.
   c. Sufficient confirmation of the above treatment and microbiologic clearance has been obtained. Laboratory testing to confirm microbiologic clearance may be completed on an outpatient basis, prior to a hospital admission.

Infection Control Measures to Prevent and Control MRSA

Setting and Type of Patient	Type of Precautions	When to Initiate	Additional Infection Control Measures	Removal of Precautions
HOSPITAL, FREE-STANDING SURGERY CENTER, HOSPITAL-BASED OUTPATIENT SERVICES				
History of MRSA	Contact Precautions	Immediately upon admission, prior to any lab tests performed or results returned		If all initial screening tests are negative for MRSA **OR** Documentation is provided indicating appropriate treatment and microbiologic clearance.
High risk patient	Standard precautions			
Patient with positive MRSA test	Contact Precautions	Immediately after laboratory confirmation of MRSA colonization or infection		Patient has received appropriate treatment and microbiologic clearance
All Patients undergoing a splash-generating procedure OR caring for patients with a potential for projectile secretions	Droplet Precautions (masks)	During procedure		After splash-generating procedure is completed OR when there is no potential for projectile secretions
CLINIC SETTING (i.e., AMG, AUWMG and Aurora Advanced Clinics)				
History of MRSA High risk patient	Standard Precautions		• Use disposable equipment, when possible • Follow site policies regarding disinfecting re-usable equipment (BP cuff, tympanic thermometer), and environmental surfaces prior to next room use.	

Setting and Type of Patient	Type of Precautions	When to Initiate	Additional Infection Control Measures	Removal of Precautions
	Contact Precautions	Initiate if patient has: • Uncovered wounds • Incontinent • Hygiene concerns that may expose the environment to secretions/ bodily fluids	Immediately place patient in private exam room; avoid wait time in general reception area	After risk of exposure is resolved.
HOME HEALTH				
History of MRSA High risk patient	Standard Precautions		• Limit the amount of equipment carried into the home • Use disposable equipment, when possible • Follow policies regarding disinfecting re-usable equipment (BP cuff, tympanic thermometer)	
	Contact Precautions	Initiate if patient has: • Uncovered wounds • Incontinent • Hygiene concerns that may expose the environment to secretions/ bodily fluids		After risk of exposure is resolved.

D. Treat patients who are colonized with MRSA

Patient condition or reason for hospital admission or outpatient visit may warrant decolonization to prevent progression to infection.
Consultation with an infectious disease physician may be appropriate for determining treatment course, selection of medications and duration of treatment.

E. Treatment of patients infected with MRSA

Patients who are identified as infected with MRSA may be treated in consultation with an infectious disease physician. Appropriate medication selection and duration of treatment should be driven by clinical severity, infection site, organism susceptibility pattern, and patient allergy history.

F. Document MRSA status

Patients who have MRSA will have their status documented in their medical record in the locations identified below. This information will be maintained, even if a patient has been treated, to provide subsequent health care providers information on the patient's MRSA history.

1. Hospital

   a. **Infection Control** is responsible to enter Permanent History Code (HX MRSA) into Cerner. The HX MRSA information can be found as follows:
      - Top of the computer-generated face sheet in the front of the chart
      - Cerner PowerChart in the following places:
        - Under Pt Info tab, Patient Demographics, Disease Alert field
        - OV1 tab, Encounter Information, *Isolation Precautions: Contact hx MRSA*

   b. **Nursing** is responsible to enter the current isolation precautions in Cerner PowerChart on a daily basis, either Contact or Contact/Droplet. The patient's current isolation status is then visible in: OV1 tab, Encounter Information, *Isolation/Precautions*.

2. Aurora Medical Group and Aurora UW Medical Group Clinics

   a. History of MRSA may be found on the Problem List in Cerner

   b. **Physicians** are responsible for documenting MRSA status in the Problem List. (This documentation may be delegated to other clinic staff.)

3. Aurora Advanced Healthcare Clinics

   a. Patients who have a positive MRSA test will be identified by use of the For Your Information (FYI) section in EPIC (electronic medical record). The MRSA status will be placed on the patient's problem list and medical history list. The **Infection Control staff** will see that this communication is added to the electronic medical record. The MRSA FYI status will not be removed from the chart unless the physician contacts the Infection Control pool (p Ah Infection Control) and indicates removal from the FYI.

   b. **Physicians** are responsible for documenting MRSA status in the Problem List. (This documentation may be delegated to other clinic staff.)

4. Aurora Visiting Nurse Association
   a. **Nursing** is responsible for entering the history of MRSA into Beyond Now in HIPAA Privacy Regulation/Authorizations of Disclosures/Special PHI Restriction.

- o In Roadnotes, the patient's name will be in red.
- o In Homeworks, there will be a red box on the patient level.

b. **Nursing** is responsible for documenting MRSA status in Beyond Now.

c. **AVNA Hospital Coordinators** may view PowerChart to identify patient's MRSA status

d. **Customer Service** is responsible for entering the history of MRSA into Field #121 in the Dezine system.

e. **Pharmacists** are responsible for entering the history of MRSA into the Delivery Instructions section in the CHIP system.

f. **Pharmacists** are responsible for documenting MRSA status in CHIP.

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For more information about MRSA, go to the Care Management/Patient Safety iConnect site