

MRSA - Methicillin Resistant Staph Aureus

2.0 Contact Hours

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Methicillin Resistant Staph Aureus (MRSA)

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Objectives:

At the completion of this course, the learner will be able to:

1. Discuss patient teaching for patients with MRSA
2. Discuss how to identify a patient with MRSA
3. List the steps for screening a patient with MRSA
4. Discuss contact isolation precautions for patients with MRSA

INTRODUCTION

Methicillin Resistant Staph Aureus (MRSA) infection refers to bacteria known as *Staphylococcus aureus*, commonly called "staph". In the 1990s, a strain of this bacteria emerged in hospitals that was resistant to the broad-spectrum antibiotics that were commonly used to treat it.

Staph can cause many types of infection; and is one of the most common causes of skin infections such as pimples or boils. Serious infections, such as surgical site infections and pneumonia, can also be caused by staph. Over the years, treatment of these infections has become more difficult because staph has become resistant to many common antibiotics. These resistant bacteria are called MRSA, and the infection can be fatal.

While MRSA is found most commonly in hospitals, non-hospital, or community acquired infections are becoming more frequent. Hospitalized patients who develop

MRSA infections are usually elderly or very sick; they may have an open wound (such as a bedsore) or a tube going into their body (such as a urinary catheter or IV catheter).

These germs are passed along from person to person by touching or by contact with contaminated objects, such as doorknobs, tables, bedrails, or wound dressings.

MRSA (as well as some other germs) can live for many days on environmental surfaces.

Some people may become “colonized” with the germ, which means that they are a carrier of it, but do not have any symptoms and do not feel sick. The most common areas are the skin, such as fingers and the nose. Colonization may pass or last indefinitely. People who are infected may have symptoms such as fever, draining pus, or pneumonia. A person can spread the germ whether they are infected or colonized.

MRSA is treatable, but strong antibiotics may be needed, and treatment may last several weeks. Whenever antibiotics are prescribed, patients should follow instructions carefully and complete the full course. Patients should notify their doctors if the infection does not get better. In addition, patients who are colonized with MRSA may need treatment prior to surgery.

DEFINITIONS

Carrier - An individual who is found to be persistently colonized at one or more body sites.

Colonized - Any person who is culture positive for an antibiotic resistant organism but has no signs or symptoms of infection.

Colonization - Is the presence, growth and multiplication of the organism without observable clinical symptoms or immune response.

Decolonization therapy - Topical and/or systemic antibiotic treatment administered for the purpose of eliminating the carriage state in an individual.

Infection - refers to the invasion of bacteria into tissue with replication of the organism. Infection is characterized by isolation of the organism accompanied by clinical signs of illness such as fever, elevated white blood count, purulence (pus), inflammation, etc.

COLONIZATION VS. INFECTION

MRSA colonization commonly occurs in the axillae, chronic wounds or perineum; the most common area of colonization is the nares. Patients who have Staphylococcus Aureus that is resistant to nafcillin, oxacillin or methicillin should be considered to have multiple resistant staphylococcus aureus and should be identified as having MRSA, regardless of whether or not they are sensitive to antibiotics.

MODE OF TRANSMISSION

- Transmission is primarily by direct contact of hands with a person who either has a purulent site of infection, infection of the respiratory or urinary tract, or is colonized with the organism.
- Transmission may also occur through direct or indirect contact with contaminated surfaces and/ or equipment.

HAND HYGIENE IS THE MOST CRITICAL COMPONENT OF REDUCING NOSOCOMIAL TRANSMISSION OF ORGANISMS

I. ADMISSION OF THE PATIENT:

- The attending physician and/or transferring facility should notify the healthcare facility at the time of admission of a known or suspected multi-drug resistant organism patient.
- Patients known or suspected to have a multi-drug resistant organism infection or colonization should be placed on contact precautions

- The Infection Control Coordinator should order cultures necessary for the investigation of known or suspected MRSA.
- Prior colonization or infection history should be obtained during the nursing admission assessment.
- A patient found infected or colonized with a multi-drug resistant organism within 48 hours of admission should have the transferring facility notified by the Infection Control Coordinator as soon as possible.
- An appropriate precautions sign should be posted at the entrance to the room.
- A “Resistant Organisms” sticker should be placed on the chart by nursing (color dependant upon the healthcare facility).
- All unnecessary equipment should be removed from the room prior to patient placement.

II. IDENTIFICATION OF PATIENTS WITH MRSA

- 1) The facility’s laboratory (lab) should notify both the nursing unit and the Infection Control Coordinator when a positive culture for MRSA is identified.
- 2) The lab should notify the primary care physician of positive multi-drug resistant organism cultures in the event the patient is discharged prior to identification of the organism.

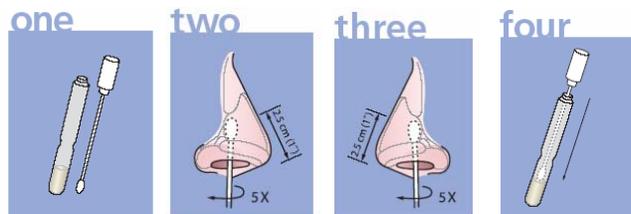
3) An *Infectious Disease Tracking System*, managed by the Infection Control Coordinator, should be set up to interact with the facility's Admitting Department.

- Infection Control Coordinator will enter data to create/maintain the infectious disease records.
- When a patient is re-admitted, a mechanism should be in place to advise the admissions or emergency registration clerk of the patient's previously entered infectious disease condition.
- The admissions or emergency registration clerk should notify the nursing supervisor and/or the Emergency Department (ED) triage nurse of the patient's history.
- The nursing supervisor should make bed assignments to minimize the likelihood of nosocomial transmission of the identified organism as appropriate/indicated.
- The Infection Control Coordinator should monitor identified patients and update the database as necessary.
- The Infection Control Coordinator may order cultures necessary for the investigation of known or suspected MRSA patients and their roommates.

III. SCREENING PROTOCOL

1) MRSA

- The infection Control Coordinator should order nares cultures of roommates of patients newly found to be infected/colonized with MRSA to determine their colonization status and apply isolation precautions as necessary.
- Cultures for MRSA screening should be initiated upon admission for all acute care patients.
- If the patient has a draining wound or an open skin lesion on admission, cultures to rule out MRSA are recommended. Nursing should notify the physician and obtain a culture order.
- Nursing must obtain a physician's order before culturing any surgical wounds.
- MRSA cultures are obtained using one culturette (2 swabs) for both nares.
- The swab tip should be inserted up to 2.5cm (1 inch) from the edge of the nares.
- Roll tip of 1 swab in the right nare, and tip of second swab in the left nare.
- Label specimen "MRSA Surveillance."
- Specimen to be transported to lab within 2 hours of collection.



IV. DECOLONIZATION/TREATMENT

IF THE NARES, AXILLA, OR GROIN SURVEILLANCE CULTURES ARE POSITIVE FOR MRSA:

- Patient should be placed on contact isolation precautions.
- Decolonization therapy can be initiated by the physician on a case by case basis.
Routine decolonization as part of a hospital-wide MRSA reduction program is not recommended.
- Nursing should place a *Decolonization Order Sheet* on the patient's chart for physician's evaluation.
- Should the physician choose decolonization therapy for the patient, the following is recommended:
 - Bactroban ointment is to be applied to each nare two (2) times a day for seven (7) consecutive days.
 - Chlorhexidine gluconate (Hibiclens) to be used as a body wash daily for three (3) consecutive days. (avoiding direct genital and mucous membrane contact)
- The patient may be discharged by the physician during any stage of decolonization therapy.

V. ISOLATION PRECAUTIONS

A. Contact isolation precautions for multi-drug resistant organisms includes, but is not limited to:

1. Handwashing - Strict handwashing and/or use of waterless hand sanitizer is indicated for all persons entering/leaving the patient's room.
2. Gloves (clean/nonsterile) - Applied when entering room and while providing care for the patient. Change gloves after having contact with infective material. Remove gloves prior to leaving the patient's room and cleans hands immediately. Ensure that hands do not touch potentially contaminated environmental surfaces or items when exiting the patient room.
3. Masks - To be worn with patients exhibiting respiratory symptoms, upon entering the room and removed upon exit.
4. Gowns - To be worn for anticipated substantial contact with the patient, environmental surfaces or items in the patient's room.
5. Visitors are encouraged to participate in steps 1-4 as noted above.

B. A single patient room is preferred for patients who require contact precautions. When a single-patient room is not available, consultation with infection control is recommended to assess the various risks associated with other patient placement options (e.g., cohorting).

C. In multi-patient rooms, more than 3-foot spatial separation between beds is advised to reduce the opportunities for inadvertent sharing of items between the infected/colonized patient and other patients. If the infection is

respiratory in nature, both patients must have respiratory involvement with no other organisms present.

- D. Healthcare personnel caring for patients on contact precautions should wear a gown and gloves for all interactions that may involve contact with the patient or potentially contaminated areas in the patient's environment.
- E. Donning Personal Protective Equipment (PPE) upon room entry and discarding before exiting the patient room is necessary to contain pathogens. Gowns, gloves, and surgical masks are for single use only.
- F. Transporting:
- Limit movement from room except for essential purposes only.
 - When possible, tests/procedures should be scheduled for the end of the day or during "quiet" time periods.
 - Assist patient to wash hands prior to leaving room.
 - Provide patient with clean gown and cover with clean sheet/ blanket when being transported out of the room.
 - Patients with respiratory symptoms should be encouraged to wear a mask when being transported out of the room.
 - Ensure that precautions are maintained to minimize the risk of transmission of microorganisms to other patients and contamination of environmental surfaces and equipment.
 - Receiving departments are to be informed of appropriate isolation precautions for patient being transported.

G. Patient Care Equipment - Patient care items, bedside equipment, and frequently touched surfaces are cleaned daily.

- Dedication of non-critical care equipment and items should be designated to the specific patient.
- Commonly used equipment or items used in isolation precaution rooms are to be adequately cleaned and disinfected before use on another patient.

H. Any contaminated clothing or personal items should be bagged and sent home. If appropriate, laundering instructions should be provided.

I. Suction - A closed suction system is used for intubated patients.

J. Dietary - Dishes are to be removed from the dietary cover trays when serving food. Tray should remain outside of room. Dishes can then be placed back inside cover trays for transport in open dietary cart system.

VI. **DISCONTINUATION OF ISOLATION PRECAUTIONS**

It is prudent to assume that multi-drug resistant organism (MRSA) carriers are colonized permanently and they should be managed accordingly with contact isolation precautions.

- The MRSA infected patient should remain on contact isolation precautions until three (3) negative cultures have been obtained from the original site(s) at least 24 hours apart, the first being a minimum of one (1) week after discontinuance of antimicrobial therapy.

- Patients with MRSA bacteremia secondary to line sepsis do not need further culturing, once the site has healed and there is improvement in clinical condition.
- Contact isolation precautions of other multi-drug resistant organisms can be discontinued by physician's order or after an evaluation of the patient's condition by infection control.
- Isolation precautions signs should be left in place until the Environmental Services department of the healthcare facility has terminally cleaned the room. All non-disposable equipment is to be cleaned thoroughly with the facility-approved disinfectant. Environmental Services personnel should then remove the isolation precautions sign and return it to the nursing desk.
- Patients who are removed from isolation precaution but remain in the same room should have their room terminally cleaned, and should be bathed, and provided clean linen and gowns. A clean identification band should be placed on the patient's arm, if indicated.

VII. TERMINAL CLEANING OF MULTI-DRUG RESISTANT ORGANISM ORGANISMS

- All room and furniture surfaces must be cleaned and disinfected because multi-drug resistant organisms can survive for extended time periods on environmental surfaces.

- Cleaning should be completed per the Environmental Services policy and procedure utilizing facility-approved disinfectants.
- Privacy curtains should be removed and cleaned if any contamination is suspected.
- Environmental Services personnel must wear appropriate PPE.

VIII . HOME INSTRUCTION - COLONIZED OR INFECTED

- Regular cleaning of surfaces contaminated by secretions or touched by hands with a commercial disinfectant
- Contaminated clothing/linen can be laundered with regular detergent in hot water and followed by a hot dryer.
- Family members should be educated to perform handwashing with an antimicrobial soap for a minimum of 10 seconds after direct contact with the patient or any items the patient has touched, after using the toilet, before preparing food, and before eating.

IX. DISCHARGE

- Before transfer from the healthcare facility, the staff should notify the accepting facility of the multi-drug resistant organism culture, and document accordingly.
- Patients colonized with multi-drug resistant organisms while hospitalized may be discharged home or to another facility, even if they remain culture positive once their clinical condition improves.

X. SURVEILLANCE

- Infection control should document nosocomial or community-acquired cases of multi-drug resistant organisms to establish a baseline or endemic rate for the healthcare facility.
- Multi-drug resistant organism culture and susceptibility data should be reviewed by the laboratory, Infection Control and/or the Nursing Department.
- When continued nosocomial transmission occurs, or when an outbreak is identified, additional surveillance techniques should be employed by the Infection Control Coordinator.
- Healthcare workers may be cultured when epidemiological data implicates them as a possible source of dissemination of multi-drug resistant organisms or when nosocomial transmission persists despite adherence to isolation precautions. This should be done in cooperation with the Employee Health Department of the facility.

Staff education should be provided regarding epidemiology and isolation precautions related to multi-drug resistant organisms. Updated information should be provided as needed and through the healthcare facility's annual review.

Patient Teaching

- Patients should tell their health care providers about their history of MRSA. This includes rescue squads, therapists, doctor's offices, and home health care providers.

If the patient should need surgery, the surgeon should be advised of the patient's MRSA status.

- During the patient's stay at the hospital he/she will be placed on contact precautions - this means that everyone coming in to the room will need to wear gloves and possibly a gown as well. Hands must be cleansed after taking off the gloves.
- Follow up cultures may be done if someone with a history of MRSA is admitted to the hospital to determine if the person is still a carrier of the germ.
- At home, use disinfectants on contaminated surfaces. Follow manufacturer's directions for best results.
- At home, clothes may be washed with other family members, unless soiled with body fluids.
- If heavily soiled with body fluids then wash separately in hot water, detergent and bleach.
- MRSA patients may go out in public, but should observe good hygiene practices at all times.
- Keep cuts and abrasions clean and covered until healed.
- Avoid direct contact with the blood and body fluids of others.
- If you have respiratory symptoms, avoid sharing dishes, glasses or eating utensils.
- Use hot soapy water to wash dishes or use disposable dishes.
- Avoid sharing towels or athletic equipment whenever possible

Resources:

Forest, A & McDonald, C. (2004). Antimicrobials and resistance. APIC Text, Chapter 62.

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