



MOUNT SINAI
SCHOOL OF
MEDICINE

MOUNT SINAI – IRVING J. SELIKOFF CENTER FOR OCCUPATIONAL & ENVIRONMENTAL MEDICINE

MRSA FACTS FOR HOSPITAL WORKERS

What are Staph, MRSA, and MDROs?

Staph is a simple way of referring to *Staphylococcus aureus*, a bacteria that is commonly carried on the skin and in the nose of healthy people. Staph is one of the most common causes of skin infections in the United States. MRSA or Methicillin-Resistant *Staphylococcus Aureus* is a type of staph that is resistant to most antibiotics typically used for this infection, including penicillin, amoxicillin, oxacillin, and others. Like other Multi-Drug-Resistant Organisms or MDROs it is not more likely to cause an infection, however. Rather, its' importance is due to the fact that it is more difficult to treat with typical antibiotics (thus often delaying appropriate treatment), and that often those who contract the infection (particularly in the hospital setting) are already immuno-compromised in some way (thus more susceptible to the infection). Different strains of MRSA may be sensitive to a very limited number of antibiotics.

What is the difference between colonization and infection?

When a person carries the bacteria, but does not have an infection, he or she is said to be colonized (also known as an asymptomatic carrier). The most commonly colonized site is the nostrils. Approximately 25% to 30 % of the population is colonized in the nose with staph, and approximately 1% is colonized with MRSA. According to a 2007 survey conducted by the Association for Professionals in Infection Control and Epidemiology, approximately 5% of patients in healthcare facilities are colonized with MRSA. Those colonized will likely remain so unless or until they are treated with antibiotics, or the source of the colonization (such as a chronic wound) is completely healed.

What is the difference between community and healthcare associated MRSA?

Healthcare-associated MRSA (or HA-MRSA) infections are infections acquired by people who have recently been hospitalized or had a medical procedure. Staph or MRSA infections occur most frequently among persons in healthcare facilities who have weakened immune systems, such as those in the ICU, on steroids or with chronic diseases such as diabetes. HA-MRSAs include infections of chronic wounds, surgical wounds, the bloodstream (bacteremia/sepsis) and pneumonia.

Community-associated MRSA (CA-MRSA) infections are acquired by persons who have not been recently (within the past year) hospitalized or had a medical procedure (such as dialysis, surgery or catheter). Staph or MRSA infections in the community are usually manifested as skin infections, such as pimples and boils, and may occur in otherwise healthy people. Populations living in close quarters, health-club members, and military personnel are at risk. Healthcare-associated MRSA infections are much more common than are CA-MRSA infections, though the incidence of CA-MRSA infections is increasing. Historically, the strains of MRSA that cause hospital-acquired infections were unique from those that caused community-associated infections. However, more cross-infectivity is now being seen, so such distinctions cannot always be made.

How is MRSA transmitted?

A person can get Staph by contact with his or her own nasal bacteria, by contact with an infected person's nose, or by contact with a carrier who is colonized with no symptoms. Hands are the most important means of transmitting infection. Objects such as clothing, equipment, and furniture can also be involved in transmission. Airborne spread is possible, but rare. The newborn, the elderly; and people with openings in their skin, with chronic illness, with compromised immunity, or who live in crowded or unhygienic conditions are more likely to get Staph or MRSA.

Who should be tested for MRSA and how?

Any suspicion of infection should lead to culture of the potential sources of the infection (such as urine, sputum, wounds, blood, catheter tips). Culture results will identify the bacteria in question and should include antibiotic susceptibility profiles to identify resistant strains, including MRSA. If a wound or body site has been documented to be infected or colonized with MRSA in the past, cultures of the nose, throat, sputum (respiratory) and all current wounds should be performed at subsequent admissions, even in the absence of signs of infection, to determine if colonization is still present. Culture results usually take 24 to 48 hours. There are rapid antigen tests that can be completed in a few hours, but they are more expensive. Some U.S. healthcare facilities, and many in Canada and Europe, screen all patients or at least those determined to be high-risk for MRSA, upon admission. This practice known as active surveillance is performed to reduce the number of HA-MRSA cases.

Asymptomatic patients are tested by taking nasal swabs. A 2007 law in New Jersey, for example, requires all general hospitals in that state to screen all patients upon admission to an intensive care unit. Patients also must be tested when transferred or discharged from the unit. Testing is to be expanded to the rest of the hospital with the exception of the psychiatric unit.

Normally it is not recommended to test healthcare employees, even during cluster investigations. The exception is the rare occasion when there is a persistent cluster of infections in one unit and then only after all other efforts to identify the source and educate the staff have failed to resolve the issue. Then all employees who had contact with the patient will likely be contacted to request that they be tested.

Who, in a healthcare facility, should be treated and how?

People with staph infections should be treated, as well as colonized patients and employees who have been identified as likely sources of transmission (not all colonized patients need to be treated). Treatment of both infection and colonization involves antibiotics selected based on testing the individual to determine which drug is most effective for their particular strain of MRSA. In addition to antibiotics, any abscess must be drained.

What steps help control any spread of MRSA?

The following are some of the steps recommended by public health agencies to control the spread of MRSA:

- **Educate healthcare staff to reserve special antibiotics** (such as vancomycin) for use with MDROs; appropriate antibiotic use will be determined by culture results and antibiotic susceptibility profile. However, often in the case of severe infections, broad antibiotic coverage – including the use of vancomycin – should begin while culture results are pending. Once results are known, then antibiotics can be focused based on susceptibilities.
- **Educate caregivers and housekeeping staff on preventing and controlling MRSA infections**, including not only regular but also volunteer, per diem, pool and float staff.

- **Enforce hand washing, glove use, and sanitary technique** for touching clean and potentially contaminated areas (before, during, and after contact with patients).
- **Change sites of IV needle infusions** every 48 hours and establish a monitoring system for the examination of central venous lines. In this way, the central line site will be inspected to ensure there are no signs of infection. Evaluate the necessity of the central line daily so that it can be removed at the earliest possible time. Remember that central lines at different sites can in practice be left in for different periods of time before the risk of infection increases.
- **Monitor hospital-acquired infections** by using standard laboratory methods to identify antimicrobial resistance, assuring good communication between the lab and infection control staff, and tracking MDROs, if feasible by units, and especially in high-risk areas. Provide feedback on the changes in the amount of MDROs in the facility to administrators and staff. Hospital nurseries may require enhanced surveillance.
- **Ensure adequate staffing**, of both bedside nurses and infection control professionals to prevent all hospital acquired infections. The Centers for Disease Control guidelines state that if there is adequate nursing staff it is more likely that hand hygiene and other precautions will be applied correctly and consistently.
- **Establish procedures for safe transport of MRSA patients** (two person transfers are recommended in case patient intervention is required during transport).
- **Use Contact Isolation Precautions for:** *Patients with draining pus or sputum that are suspected or known to contain MRSA; Newborns known or suspected of having staph infections (Nurseries have unique policies for screening, treatment, and preventing MRSA. Refer to your hospital's policy or your State Department of Health recommendations); Patients found to be colonized with MRSA- until they are off antibiotics and culture negative; Patients being admitted who were previously positive for MRSA, until test results are known.*
- **Place patients on Contact Precautions in private rooms** or, in extenuating circumstances, with other patients who have MRSA. Patients whose site of colonization or infection can be contained and who can observe good hand hygiene practices can enter common areas and participate in group activities; **Identify such patients** by signs or other means so that patient care and non-patient care staff know what to do before entering a room.
- **Sinks or antibacterial soap/lotion dispensers should be available near the door** so employees do not have to touch anything on their way out after washing their hands.
- **Contact Isolation Precautions include using gloves and gowns** BEFORE entering the room and changing them immediately if they get contaminated with wound drainage. Surgical masks or face shields may also be worn if you may get fluid in your face. Dispose of these items before leaving the room and wash your hands with an approved antiseptic. Although CDC does not recommend anything beyond standard precautions for patients with MRSA pneumonia, common practice is generally to follow contact isolation precautions for these patients as well.
- **Discontinue precautions** when the patient is off antibiotics and culture-negative, according to the hospital's protocol.
- **Dedicate non-critical medical items** (such as blood pressure cuffs, thermometers, stethoscopes) to use on individual patients known to be infected or colonized with MRSA and keep these items in the patient's room. Do not bring them out into common areas where they can contaminate the surroundings. Any non-disposable items should be disinfected before use with other patients.

- **Cleaning:** Prioritize the cleaning of rooms where patients are on Contact Precautions. Clean and disinfect surfaces and equipment that may be contaminated with MRSA, including those in close proximity to the patient (bed rails, over bed tables, equipment) and frequently touched surfaces in the patient care environment (doorknobs, drawer handles, phones, surfaces in and around toilets, light switches, toilet handles, faucet handles, soap dispensers, charts and carts). A single combination detergent and disinfectant (registered by the U.S. Environmental Protection Agency for disinfecting hospitals and approved by your facility) should be used and left in place for the required time to sanitize the area. This can differ from 2 or 3 minutes to 10 minutes, depending on the product, and must be strictly enforced. Cleaning should be closely monitored by supervisory personnel. If there is evidence of ongoing transmission from an environmental source, objects may be cultured. Walls, blinds and window curtains need to be cleaned if they are visibly soiled.
- **Employees with MRSA infections** should follow the same procedures as they would for any infection. MRSA, by itself, should not be a reason for restricting work, unless the employee is found to be the source of an outbreak. Infected employees who are working should cover their wound and follow the normal precautions (gloves, hand washing, etc). **Employees with minor lesions** should cover them. Policies for **employees in nurseries**, who are colonized, infected or have minor lesions, are more stringent than for other employees. (Check with your State Department of Health and the resources at the end of this fact sheet regarding these policies.)
- **Employees who are known asymptomatic carriers** can continue to work, unless they are suspected to be the source of an outbreak. Colonized employees who cannot be decolonized, and are known to still be transmitting bacteria to patients, should be re-assigned.
- Unless contaminated laundry is segregated, **laundry workers should treat all laundry as potentially infectious** and should wear gloves, splash-proof clothing, and a face shield or a surgical mask with glasses.

What does the law require of employers?

A few states have introduced or passed legislation specifically regarding MRSA surveillance, such as the New Jersey MRSA Prevention Act which now requires that state’s healthcare facilities to develop MRSA prevention policies to include patient screening, contact precautions, proper hygiene and worker education. Employers are required to get input from frontline caregivers. Speak to your union to find out how the union might have input into this policy. There is no similar law in New York or Connecticut.

Resources

Centers for Disease Control, Management of Multidrug-Resistant Organisms In Healthcare Settings, 2006.

CDC CA-Associated MRSA Info for Clinicians, 2/2005.

CDC Guidelines for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, 2007.

<http://www.health.state.ny.us/professionals/diseases/reporting/communicable/infection/index.htm>.

(8/2008)

Hudson Valley Clinical Center

**St. John’s Riverside Hospital
Yonkers, NY 10701
914.964.4737**

Manhattan Clinical Center

**Mount Sinai Medical Center
New York, NY 10029
212.241.5555**

Queens Clinical Center

**Mount Sinai Hospital of Queens
Astoria, NY 11102
718.278.2736**