

# CLINICAL UPDATE

A Publication Compiled by the Clinical Pharmacy Team of



**Health Solutions**

PHARMACY BENEFITS MANAGEMENT

## **METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA)**

### **Background**

MRSA is a bacterial infection caused by staphylococcus aureus that has become resistant to the beta-lactam antibiotics. The unnecessary treatment of colds and viruses with antibiotics can cause bacteria to mutate and become resistant. Antibiotics in food and water supplies can also contribute to the increase in drug resistances. One-third of the population has normal staphylococcus bacteria that inhabit their skin and nose. These people are considered carriers and may have no symptoms, but can still transport the bacteria to others. Staphylococcus bacteria are generally harmless to healthy people, but people with impaired immune systems can develop infections that become resistant to standard therapies. MRSA can be transmitted through direct skin-to-skin contact with someone who is a carrier or through contact with their infected items.

**Types of MRSA:** MRSA can be classified into one of two categories.

- **Healthcare Acquired MRSA (HA-MRSA):** This infection can develop in patients who have been hospitalized, are living in a long term care facility or have had a medical procedure such as surgery or catheter insertion.
- **Community Acquired MRSA (CA-MRSA):** This infection occurs in community dwelling patients who have not been exposed to conditions associated with HA-MRSA. Risk factors for developing CA-MRSA are young age, participation in contact sports, sharing of towels or athletic equipment, weakened immune system, living in crowded or unsanitary conditions, or close contact with healthcare workers.

### **Signs and symptoms**

MRSA infections generally present as small red bumps that look similar to pimples, boils, or insect bites. They may be swollen, filled with pus or drainage and can quickly turn into painful deep abscesses. They most commonly occur on areas of the body where skin is visible and areas covered with hair (e.g. back of neck, groin, buttocks, armpits, and beard area on men). Minor skin problems, cuts, and scrapes, and wounds can easily become infected.

### **Treatments**

CA-MRSA often results in abscess formation that can be resolved through drainage of the site and/or antibiotic medications. CA-MRSA and HA-MRSA are resistant to beta-lactam antibiotics, which are the traditional treatments of staphylococcus infections. CA-MRSA has a broader spectrum of antimicrobial susceptibility. HA-MRSA has a more limited range of susceptibility and is therefore more difficult to treat. The table below outlines recommended adult treatment regimens for MRSA infections.

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<b>HA-MRSA</b>	
Vancomycin	1 gram or 15mg/kg IV every 12 hours
Linezolid	600 mg IV every 12 hours
<b>CA-MRSA</b>	
Trimethoprim/Sulfamethoxazole 160/800mg	One to two tablets PO every 8-12 hrs for 10 days
Doxycycline	100 mg PO twice daily for 10 days
Minocycline	100 mg PO every 12 hours for 10 days
Clindamycin	300-450 mg PO every 6 hours for 10 days
Linezolid (reserve for severe cases)	600 mg PO every 12 hours for 10-14 days
<b>Recurring CA-MRSA (use in combination with above)</b>	
Rifampin	300mg q12h x 5 days
Bacitracin ointment	Apply intranasally and under fingernails BID for 5 days
Mupirocin ointment	Apply intranasally and under fingernails BID for 5 days

## Counseling Points

- *Tips for preventing Community Acquired MRSA*
  - Wash hands frequently with hot water for at least 15 seconds and dry with a disposable towel. A hand sanitizer can be used if soap and water are unavailable.
  - Avoid sharing personal items such as towels, sheets, razors, clothing, and athletic equipment.
  - Wash linens in hot water with bleach, and dry on high heat.
  - Wash gym and athletic equipment after each use.
  - Maintain overall good hygiene and clean frequently touched surfaces.
  - Keep all wounds covered and clean with sterile, dry bandages until healed.
  - If you are prescribed an antibiotic, be sure to finish the entire course of therapy to decrease the risk of resistance.
- *Tips for preventing Healthcare Acquired MRSA*
  - Isolate patients who have MRSA and have healthcare workers and guests wear protective garments while in contact with the patient.
  - Wash hands frequently to prevent transmission of MRSA.
  - All hospital staff should wash their hands or use an alcohol-based hand sanitizer before touching a patient.
  - Make sure that IVs and catheters are placed and removed under sterile conditions to help prevent contamination.