

*epi*TRENDS

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Methicillin Resistant *Staphylococcus aureus* (MRSA)

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Within a few years after antibiotics were introduced, some bacteria began demonstrating resistance to those drugs. Increasing variety and volume of antibiotic use has predictably resulted in emergence of a widening array of antibiotic resistant organisms. Among these are *Staphylococcus aureus* (staph) with resistance to penicillin-type antibiotics (organisms known as methicillin resistant *S. aureus* or MRSA.)

Cutaneous
abscess caused
by MRSA

Photo courtesy of
Centers for
Disease Control
and Prevention
(CDC)



A third of the population may have staph colonization of body areas such as nose, armpits, vagina or rectum, with less than one percent estimated to have MRSA colonization. Staph can be spread from person to person through skin contact or from sharing contaminated items such as towels or razors.

Most staph infections are mild, occurring as boils, abscesses, infection of the hair follicles, or other soft tissue infection often starting with a break in the skin. Some infections are mistaken for a spider bite. Many mild infections can be treated simply by draining the infection. Staph also causes serious infections of the bloodstream, lungs, or surgical wounds that require antibiotic treatment. MRSA can be treated with other common antibiotics, although different MRSA strains may have different antibiotic sensitivities.

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*epi*TRENDS
P.O. Box 47812
Olympia, WA 98504-7812

Mary C. Selecky
Secretary
Maxine Hayes, MD, MPH
State Health Officer

Marcia J. Goldoft, MD, MPH
Scientific Editor
Deborah Todd, RN, MPH
Managing Editor

Risks for MRSA Infections

Medical and exposure risks for MRSA infections include:

- History of MRSA infection or colonization
- History in the past year of healthcare contact (hospitalization, long-term care facility, dialysis, surgery, permanent catheters or devices through the skin)
- Recent and/or frequent antibiotic use
- Close contact with someone known to be infected or colonized with MRSA
- Recurrent skin disease
- Injection drug use
- Crowded living conditions (e.g., homeless shelters)
- Incarceration
- Sports participants who have skin-to-skin contact, skin damage, shared clothing or equipment

Most invasive MRSA infections are healthcare-associated which means they occur among people currently or recently in a healthcare facility including hospitals, dialysis centers, and nursing homes. These cases typically have medical risk factors for MRSA. Community-associated infections occur in previously healthy individuals without medical risk factors.

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Healthcare- versus Community-Associated MRSA

In the past there was generally a difference between MRSA strains causing healthcare-associated MRSA and community-associated MRSA. Healthcare-associated strains were varied, showed multiple patterns of antibiotic resistance, and affected patients with existing medical conditions.

Community-associated strains were more uniform and more likely to affect healthy persons. Recently, the distinction has lessened as MRSA strains became more common in both healthcare and community settings.

A recent article in JAMA (October 17, 2007) reported results of surveillance for MRSA in nine U.S. sites during 2004 and 2005. Reports were classified as either healthcare-associated or community-associated. The 2005 standardized incidence rate of invasive MRSA was 31.8/100,000 population. The majority of reports (85 percent) were healthcare-associated, although over half of those infections had onset in the community. Infection rates were higher among persons 65 years and older. About a fifth of cases were fatal.

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Control Measures for MRSA

Patients with any skin infection including MRSA and their close contacts should be educated to prevent transmission. Fluids from staph infections and materials contaminated with fluids are both highly infectious. Patients should inform any healthcare providers they see of the infection.

Control measures for persons with any skin infection include:

- Cover wounds and lesions with clean, dry bandages.
- Wash hands with soap and warm water or alcohol-based hand rub after touching infected skin and bandages. Put disposable waste (e.g., dressings, bandages) in a trash bag, seal, and discard in the regular garbage.
- Advise family members and other close contacts to wash their hands frequently with soap and warm water, particularly after touching the infected area or any contaminated materials.
- Consider using clean, disposable, non-sterile gloves to change bandages.
- Do not share personal items (e.g., towels, washcloths, razors, clothing, or sports equipment that may be contaminated.)
- Consider using clean, disposable, non-sterile gloves to change bandages.
- Do not participate in contact sports with exposed infections.
- Do not share personal items (e.g., towels, washcloths, razors, clothing, or sports equipment that may be contaminated).
- Disinfect contaminated materials that cannot be machine washed with a solution of one tablespoon of household bleach mixed in one quart of water (must be prepared fresh each day) or with a store-bought household disinfectant.
- Wash contaminated linens and clothes with hot water and laundry detergent. Drying clothes in a hot dryer, rather than air-drying, may further help kill bacteria.

General control measures for MRSA are similar to those for any skin infection. It is important to wash hands, particularly after touching a wound. MRSA colonize the nose, so also wash hands after touching the nose or nasal secretions.

Transmission of MRSA occurs primarily through person-to-person contact. It is not necessary to close facilities such as schools or offices for environmental disinfection when a case of MRSA is diagnosed or suspected. Regular use of EPA-approved detergent based disinfectants are effective at removing MRSA from environmental surfaces, while covering infections with dressings and clothes will reduce the likelihood that surfaces will become contaminated.

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Guidance Documents

It is important for healthcare providers to remember that not all skin or soft tissue infections are MRSA or even staph, and not all antibiotic resistant organisms are staph. When antibiotics are needed to treat skin and soft tissue infections, healthcare providers should choose antibiotics likely to cover the range of possible infections. A variety of guidance documents are available for preventing and treating MRSA and related infections.

Department of Health provides:

“Living with MRSA”

http://www3.doh.wa.gov/here/materials/PDFs/12_MRSApage_E07L.pdf

“Interim guidelines for community-acquired infection in outpatient setting:”

<http://www.doh.wa.gov/topics/Antibiotics/Documents/MRSAinterimGuidelines.pdf>

Tacoma-Pierce County Department of Health has extensive information for prevention and control of MRSA infections in various settings including toolkits for outpatient clinics/offices, childcare centers, middle and high schools, athletic departments of middle and high schools, and elementary schools:

<http://www.tpchd.org/page.php?id=12>

The Centers for Disease Control and Prevention (CDC) website includes general information as well as recommendations for healthcare settings:

Strategies for clinical management:

http://www.cdc.gov/ncidod/dhqp/pdf/ar/CAMRSA_ExpMtgStrategies.pdf

Community-associated MRSA:

http://www.cdc.gov/ncidod/dhqp/ar_mrsa_ca.html

Healthcare-associated MRSA:

http://www.cdc.gov/ncidod/dhqp/ar_mrsa.html

MRSA data and statistics:

http://www.cdc.gov/ncidod/dhqp/ar_mrsa_surveillanceFS.html