



# MRSA Fact Sheet

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## What is the definition of MRSA?

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a strain of *Staphylococcus aureus* (*S. aureus*) bacteria that is resistant to beta-lactam antibiotics such as methicillin, amoxicillin, penicillin, nafcillin, and oxacillin. Strains of both *S. aureus* and MRSA can produce toxins; however, the methicillin resistant strains differ by only a small number of genes which enables them to survive exposure to these antibiotics.

As the use of antibiotics rose, *S. aureus* mutated and in the early 1960s became resistant to treatment by an entire class of antibiotics. Methicillin was one of the first antibiotics where microbial resistance was noted. The acronym MRSA is still being used today even though methicillin is rarely used and many strains of *S. aureus* are effectively multi-drug resistant.

Today, perhaps 30% of all people are asymptomatic carriers of some strain of *S. aureus* with 1% being classified as MRSA. Infections with MRSA typically occur in individuals with compromised immune systems and attack soft tissue, especially where wounds are present.<sup>4</sup>

## What is the difference between CA-MRSA and HA-MRSA?

When MRSA first became prevalent, it mostly infected people who were hospitalized, presumably due to their compromised immune system. Over time, MRSA infections spread to people without recent contact to a health care setting. The terms Community-Associated MRSA and Hospital-Associated MRSA were coined to differentiate between the locations of infection acquisition. The current definitions are:

HA-MRSA – a MRSA infection acquired during a stay in or immediately after discharge from a hospital or other health care setting.<sup>4</sup>

CA-MRSA – an infection with MRSA in a person who does not have any prior history of health care exposure such as hospitalization, surgery or a permanent intravenous lines or other indwelling devices or hemodialysis.<sup>1</sup>

**In other words, the difference between CA- and HA-MRSA is purely based on the location of acquisition of the infection, not on a genetic or phenotypic difference between bacteria.** Differing strains can be acquired in any location.<sup>4</sup>

## Are disinfectants effective against the different strains of MRSA?

While not every genotypic strain of *S. aureus* has been tested (nor could they be), when antibiotic-susceptible and antibiotic-resistant bacteria were tested, the investigators were unable to demonstrate a correlation between antibiotic resistance and resistance to disinfectants.<sup>6</sup> The strains that have been tested have shown a similar susceptibility to disinfectants.<sup>2</sup> Because disinfectants destroy microorganisms by disrupting multiple cellular processes, they are immune to the effects of resistance seen against antibiotics which typically target single cellular processes.<sup>5</sup>

The CDC has published a recent document in which a panel recommends the use of an EPA-registered disinfectant with a claim against *S. aureus* to prevent the spread of community-associated MRSA.<sup>3</sup> Additionally, the EPA has not published any information stating that products registered with claims against MRSA are ineffective against CA-MRSA or HA-MRSA.

## What steps should be taken to clean an environment?

In a hospital or health care setting, the CDC publication Management of Multi Drug Resistant Organisms should be followed.

In a school or home setting, the CDC publication Community-Associated MRSA Information for the Public should be followed.

The use of a disinfectant registered by the EPA as efficacious against MRSA is recommended. These products are listed in List H. EPA's Registered

Disinfectant labels are registered with the U.S. Environmental Protection Agency and as such define the organisms against which the disinfectants are effective. It is a violation of federal law to make or imply claims for the product which are not incorporated in the label text. For this reason we cannot specifically state that these products are effective against strains of organisms for which the parent organisms are listed.

The 3M products that are registered for use against MRSA include:

**3M™ Bathroom Disinfectant Cleaner Concentrate (TnF #4)** EPA REG # 6836-309-10350

**3M™ Quat Disinfectant Cleaner Concentrate (TnF #5 and CBII)** EPA Reg # 6836-78-10350

**3M™ Non-Acid Disinfectant Bathroom Cleaner Concentrate (TnF # 15)** EPA Reg # 1839-166-10350

**3M™ Neutral Quat Disinfectant Cleaner Concentrate (TnF # 23)** EPA Reg # 47371-129-10350

**3M™ HB Quat Disinfectant Cleaner Concentrate (TnF # 25)** EPA Reg # 61178-5-10350

**3M™ TB Quat Disinfectant Ready-to Use Cleaner** EPA Reg # 1839-83-10350

- 1) Community Associated Methicillin Resistant *Staphylococcus aureus* (CA MRSA), Guidelines for Clinical Management and Control of Transmission, PPH 42160, October 2005, Wisconsin Division of Public Health. Available at [http://dhfs.wisconsin.gov/communicable/resources/pdffiles/CAMRSAGuide\\_1105.pdf](http://dhfs.wisconsin.gov/communicable/resources/pdffiles/CAMRSAGuide_1105.pdf)
- 2) Weber DJ, Rutala RA, Use of Germicides in the Home and Healthcare Setting: Is There a Relationship Between Germicide Use and Antibiotic Resistance? *Infection Control and Hospital Epidemiology*: 2006, 2710
- 3) Gorwitz RJ, Jernigan DB, Powers JH, Jernigan JA, and Participants in the CDC-Convened Experts' Meeting on Management of MRSA in the Community. Strategies for clinical management of MRSA in the community: Summary of an experts' meeting convened by the Centers for Disease Control and Prevention. 2006. Available at [http://www.cdc.gov/ncidod/dhqp/ar\\_mrsa\\_ca.html](http://www.cdc.gov/ncidod/dhqp/ar_mrsa_ca.html).
- 4) Klevens, et. al. Invasive Methicillin-Resistant *Staphylococcus aureus* infections in the United States. *JAMA* 298(15): 1763-1771.
- 5) Block, SS. Disinfection, Sterilization, and Preservation. 5<sup>th</sup> ed. Lippincott Williams and Wilkins, 2001.
- 6) Rutala WA, Stiegel MM, Weber DJ, Sarubbi FA, Susceptibility of Antibiotic-Susceptible and Antibiotic-Resistant Hospital Bacteria to Disinfectants. *Infect Control Hosp Epidemiol* 1997;18:417-421

Prepared by Judi Peterson and Andrew Waller

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