

# Difference Between HA-MRSA and CA-MRSA

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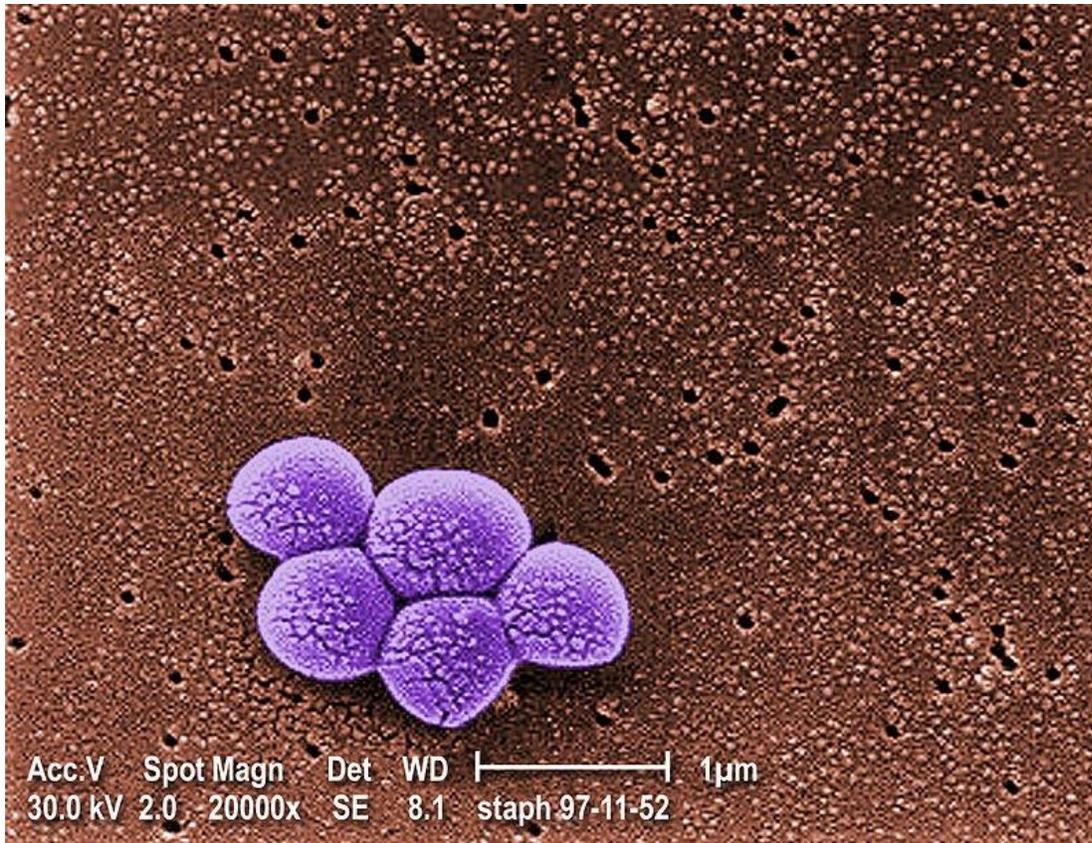
## Key Difference - HA-MRSA vs CA-MRSA

The *methicillin resistant Staphylococcus aureus* (MRSA) is genetically different from other strains of *Staphylococcus aureus*. It is a gram positive bacterium. It is also responsible for various severe diseases in humans. MRSA is developed through a [horizontal gene transfer](#) to the normal *Staphylococcus aureus* [bacteria](#). They are naturally resistant to Beta lactum antibiotics. The *methicillin resistant Staphylococcus aureus* strain is normally resistant to broad spectrum [antibiotics](#) such as methicillin, oxycillin and cephalosporins. It is a very distinct class of bacterial strain. MRSA has several distinguished groups such as HA-MRSA (hospital acquired or healthcare acquired), CA-MRSA (community acquired) and LA-MRSA (live stock associated) that are based on the place where the strain is generally occupying. The **key difference** between HA-MRSA and CA-MRSA is the infection it causes. **The infection by HA-MRSA is health care acquired while the [infection](#) by CA-MRSA is community acquired.**

## What is HA-MRSA?

The health care associated *methicillin resistant Staphylococcus aureus* (HA-MRSA) is potentially a deadly strain which is resistant to multiple [drugs](#). These superbugs have been arising over the years through hospital environments. It is a major public problem in United Kingdom and United States. Most of the patients in the hospital environments are associated with healthcare associated *Staphylococcus aureus*, but do not carry the [symptoms](#). People who are hospitalized are normally immune compromised. They are susceptible to healthcare associated *Staphylococcus aureus* infection.

The transmission occurs when health care workers' hands touch these HA-MRSA carriers. If it is treated by a doctor, the HA-MRSA infection just stays for 10 days though the effects may vary from person to person. Inability to wash the hands can foster the spreading of bacteria. The patients in invasive procedures and immune compromised status are infected by HA-MRSA. The open wounds, catheters and breathing tubes are also causing transmission of this strain. This strain can cause skin infections, bone infections, joint infections, sepsis and pneumonia. The symptoms include, red swollen skin areas, [abscess](#), boil or pus filled lesions, fever and warmth in infected area.



**Figure 01: MRSA**

[Blood](#) cultures, urine cultures, skin cultures and sputum cultures can be used to diagnose the bacteria. The first choice of treatment is always antibiotics though this strain of *Staphylococcus aureus* is resistant to methicillin. The treatment is performed with following antibiotics; clindamycin, linezolid, tetracycline, trimethoprim, sulfamethoxazole or vancomycin. The entire prescription should be completed in order to overcome the further complications. More serious cases need hospitalization. The treatment for serious cases may include intravenous fluid injection, medications and kidney dialysis.

## What is CA-MRSA?

The community associated *methicillin resistant Staphylococcus aureus* (CA-MRSA) is commonly found in community rather than in hospitals. It often causes symptoms in healthy individuals. Young healthy people and children are generally affected by this strain of *Staphylococcus aureus*. It can easily spread to others who are in close contact with CA-MRSA carriers or people who reside in the same household. It usually causes skin infections. And these skin infections may rise again after initial treatment. CA-MRSA does not cause serious infections like [pneumonia](#) and [septicemia](#). It can also be acquired by having contact with

the items such as towels, wound dressings, contaminated areas like door handles and taps contaminated by person who already has CA-MRSA infection.

The symptoms may include redness, [swelling](#), pain, heat, and the presence of pus. The infections of CA-MRSA sometimes look like an insect bite. In life threatening conditions of CA-MRSA, the following symptoms are can be observed; generally feeling unwell, high fever, shortness of breath, shivering. The infection can be detected through the [blood](#), [urine](#), body fluid or sample swab taken from the wound. The antibiotics like TMP-SMX, clindamycin, doxycyclin and minocyclin are general antibiotics to treat infections with CA-MRSA.



**Figure 02: MRSA Symptoms**

The CA-MRSA infections can be prevented by washing hands regularly, especially after touching wounds, by covering skin infections or wounds all the time, maintaining good personal hygiene, washing bed linen and towels regularly and keeping home environment clean.

## **What are the Similarities Between HA-MRSA and CA-MRSA?**

- Both are methicillin resistant *Staphylococcus aureus* strain types.
- Both are causing infections in humans.

- Both are resistant to beta lactum antibiotics.
- Both are genetically diverse from their original ancestor *Staphylococcus aureus*.

## What is the Difference Between HA-MRSA and CA-MRSA?

HA-MRSA vs CA-MRSA	
HA-MRSA is a type of methycillin resistant <i>Staphylococcus aureus</i> that causes infections which are health care acquired..	CA-MRSA a type of methycillin resistant <i>Staphylococcus aureus</i> that causes infections which are community acquired.
Risk Groups	
Immune compromised patients like diabetics, dialysis patients and patients in ICU and elders are more affected by HA-MRSA (patients in hospitals).	Children, young adults, athletes, prisoners, soldiers and ethnic populations are more affected by CA-MRSA.
Scc mec Mobile Genetic Element Type	
HA-MRSA has type I, II, III Scc mec genetic element.	CA-MRSA has type IV Scc mec genetic element.
Symptoms	
HA-MRSA causes more severe complications like septicemia and pneumonia.	CA-MRSA causes only mild infections like skin infections.
PVL Gene Toxin	
In HA-MRSA, PVL gene toxin is rarely found.	In CA-MRSA, PVL gene toxin is commonly found.
Antibiotic Resistant Pattern	

HA-MRSA is a multi drug resistant.	CA-MRSA is susceptible to many antibiotics except to beta lactum antibiotics.
<b>Areas Commonly Affected</b>	
HA-MRSA affects blood, lung, and surgical sites.	CA-MRSA affects skin and soft tissues.

## Summary - HA-MRSA vs CA-MRSA

MRSA (*methicillin resistant Staphylococcus aureus*) is developed through horizontal gene transfer to the normal *Staphylococcus aureus* bacteria. They are gram positive in nature. They are naturally resistant to Beta lactum antibiotics and to broad spectrum antibiotics such as methicillin, oxycillin and cephalosporins. It is a very distinct class of bacterial strain. HA-MRSA (hospital acquired or health care acquired) and CA-MRSA (community acquired) are two types of MRSA based on the place where the strain is generally occupying. The infection by HA-MRSA is health care acquired. On the other hand, the infection by CA-MRSA is community acquired. This is the difference between HA-MRSA and CA-MRSA.

### Reference:

1.FACP, Sandra Gonzalez Gompf MD. “What Is MRSA Infection? Pictures, Symptoms, Treatment & Causes.” MedicineNet. [Available here](#)

### Image Courtesy:

- 1.'MRSA SEM 9994 lores'By Janice Carr (Public Domain) via [Commons Wikimedia](#)
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