

Staph bacteria resistant to antibiotics

[Science](#), [Biology](#)



In acute care and long term care, people are vulnerable to new and potent bacterial strains that resist our most powerful antibiotics. The antibiotic penicillin was a great discovery by Alexander Fleming and at the time it was being hailed as a magic bullet. Fleming warned that the drug could foster resistance strains of bacteria if misused and today the warning is accurate and not only for penicillin but other drugs. Methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), and *Streptococcus pneumoniae* are some of the drug resisting organism.

MRSA which is the organism we are going to talk about, is a staph bacteria that is resistant to many antibiotics. The organism normally lives on the skin and predominantly on the hands, but also on the mucous membranes of the nasopharynx, large intestine, and vagina (Sheff 2001) the most frequent site of MRSA colonization is the anterior nares, large quantity of MRSA in the nares of an infected person means there is large quantity in their axilla, perineum and groin. The emergence of infections caused by antibiotic resistant organisms is a growing problem and has now become a major health issue especially in acute and long term care facilities.

Drug resistant organism like MRSA is very dangerous and if not treated quickly, can lead to sepsis and death. It is mostly spread by direct hand contact of healthcare workers but due to the resistance of the organism, it can be contracted many other ways such as surgical incisions, IV sites or catheter sites. You can live with MRSA on the skin and nostrils without much problems, but when it gets inside the body through a scrape or cut on the skin then it can affect your heart, lungs and even inside your bones. It can

cause very large abscesses, collections of pus that are walled off inside muscles (Terry 2010).

Standard precaution needs to be taken when a patient has MRSA. This includes hand hygiene (wearing gloves, washing hands and using hand sanitizers), Mouth, nose, eye protection, gowning and placing patient in isolation room. (CDC 2016) In hospitals, MRSA patients are placed in contact precautions as a measure to prevent the spread of MRSA. Visitors and health care workers caring for people in isolation are required to wear protective garments and must follow strict hand hygiene procedures. Contaminated surfaces and laundry items should be properly disinfected. (Mayo Clinic 2015).

Furthermore, MRSA organism can resist the effects of many common antibiotics, so they are more difficult to treat. Because they are resistant to treatment, they often cause serious complications and the infections can spread which sometimes become life-threatening. (Mayo Clinic 2015) Some potential complications of MRSA include, severe skin infections causing tissue death (necrosis) nervous system infection, connective tissue infection, infection of the membrane that lines the heart, organ failure, bone marrow infection, throat infection, respiratory infection that affects the lungs, joint infections, blood poisoning, sinus infection, inflammation of a vein and formation of a blood clot, Urinary tract infection. (Swierzewski 2008).

For treatment, isolation of the MRSA organism is imperative and knowledge of local epidemiology and susceptibility patterns is essential. Choice of antimicrobial agent, route of administration and duration of therapy should

be individualized and relate to the host setting, clinical presentation, and condition of the patient. (Newland & Kearns 2008) When the patient is stabilized, the source of the MRSA is determined and isolated. Over the past 15 years, several drugs have been approved for the treatment of *S. aureus* infections in adults. These drugs includes linezolid, quinupristin/dalfopristin, daptomycin, telavancin, tigecycline and ceftaroline. For infants, treatment options for babies depending on the site of infection, first-line treatment is with intravenous vancomycin for severe manifestations of MRSA infection. Alternative antibiotic treatment includes clindamycin, linezolid, daptomycin, quinupristin/dalfopristin, rifampin, telavancin or trimethoprim-sulfamethoxazole. (Gostelow, Gonzalez, Smith, & Cohen-Wolkowicz 2014).

In general, MRSA is dangerous when it enters the body via wound or cut and causes an infection, it can also be life threatening but there are various precaution you can take to protect yourself. Working in acute and long term facilities, you will always come in contact with an MRSA infected patient but practicing the facilities policy when in contact with the patient will help reduce your chance of contacting the disease. Even though MRSA is difficult to treat it is not impossible if discovered quickly and treated aggressively.

References:

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