



Healthy Practices.  
Healthier Pets.

# What you should know about Methicillin-Resistant *Staphylococcus aureus* (MRSA)



## 1. What is MRSA?

The term *MRSA* refers to strains of the gram-positive bacterium *Staphylococcus aureus* that have developed resistance to the antibiotic methicillin, other beta-lactam antibiotics (including penicillins, cephalosporins and carbapenems), and possibly a number of alternate antibiotics. Other *Staphylococcus* species, including *S. intermedius* and *S. pseudintermedius*, have also developed resistance to beta-lactams and other antibiotics and are referred to as MRSI and MRSP, respectively.

## 2. Why is MRSA important to humans?

MRSA, the most important cause of hospital-associated (nosocomial) infections, can result in skin and soft tissue infections and (rarely) necrotizing fasciitis or necrotizing pneumonia. MRSA is a zoonotic disease that is spreading widely in most developed countries. While only a small percentage (<3%) of people carry MRSA at any point in time and the vast majority of colonized individuals do not typically develop any MRSA-associated health concerns, MRSA carriers are at higher risk of clinical infection in certain situations (e.g., when undergoing surgery). In addition, MRSA carriers can transmit the bacteria to other people or animals.

## 3. Where is MRSA carried?

The nose is the primary site for MRSA colonization, but the bacteria can also be found on the perineum, rectum, or elsewhere on the skin.

## 4. Are veterinarians and veterinary support staff at higher risk for MRSA?

Yes. Various studies have reported high rates of MRSA colonization in veterinary personnel, especially those who work with horses and pigs. Data on MRSA colonization is currently limited for small animal veterinarians and the prevalence of MRSA in small animals is low (0-3%); however, MRSA should be considered an important emerging nosocomial and zoonotic disease.

## 5. What are the clinical signs of MRSA?

MRSA infections are just like any other *S. aureus* infection. Skin and soft tissue infections are most common, particularly in individuals that are not otherwise compromised (e.g., immunosuppressed). MRSA skin infections are sometimes misdiagnosed as spider bites due to the similarity between MRSA skin infections and dermal necrosis caused by the bite of the brown recluse spider. Various opportunistic MRSA infections can develop in small animal patients, including infections involving the skin and soft tissues, surgical incisions, and surgical implants.

## 6. When should MRSA be suspected?

MRSA should be considered in any infection but particularly those that do not respond to empirical treatment with beta-lactam antimicrobials, in cases of nosocomial infections, pets that visit human healthcare facilities, pets whose owners work in the human healthcare field, or when another member of the household has been diagnosed with MRSA.

## 7. What do I do with MRSA-positive patients?

Patients that are either infected or colonized with MRSA should be considered infectious. The patient should be isolated from other patients, and isolation protocols should be instituted, including the use of gloves and dedicated outerwear (e.g., lab coats). When managing MRSA-positive wounds, all materials that came into direct contact with the open wound should be placed in a bag and disposed of appropriately. Non-disposable items need to be cleaned and sanitized appropriately. Wounds should be covered with a barrier dressing whenever possible. It is important to recognize that the majority of animals with MRSA infections are successfully treated and that virtually all canine and feline carriers will eliminate MRSA colonization naturally.

## 8. What is proper hand hygiene and why is it so important?

MRSA is easily carried on the skin and spread to inanimate objects. Hand hygiene is likely the most important infection-control tool. Proper hand hygiene involves washing hands between patients, after handling any biological specimen, after sneezing or coughing into your hand, after using the restroom, and immediately prior to placing anything in your mouth.

It is important that correct hand washing technique is employed. Wet your hands with clean running water, apply soap, and rub the soap into lather. Continue to rub your hands together for 30 to 60 seconds; then rinse your hands under clean running water and dry thoroughly with a disposable paper towel. Care should be taken to avoid contaminating your now hygienic hands when turning off the tap.

Alcohol-based hand sanitizers are an effective replacement for handwashing, but care should be taken to rub your hands continually until the product is dry. Even if gloves are worn while handling an MRSA-positive patient, hand hygiene must be performed immediately after glove removal.

## 9. What should I do if I am exposed to MRSA?


If you believe that you have been exposed to MRSA, the most important thing is to practice high levels of hygiene and to discuss your concerns with your physician, especially if you develop lesions consistent with MRSA. Because veterinary personnel are thought to be at higher risk for MRSA than the general population, it is important that your physician is aware that you work in the veterinary field. If you believe you contracted MRSA on the job, report it to your employer immediately and seek advice about worker's compensation benefits.

## 10. If I am positive, how do I prevent spreading MRSA?

MRSA is most commonly passed through direct contact by respiratory secretions, usually via contaminated hands. With meticulous hygiene practices, MRSA-positive staff members pose little risk to patients or other personnel.

There is currently no evidence to indicate that MRSA-positive individuals should be prevented from working in a veterinary clinic. Colonized individuals are encouraged to be cognizant of appropriate hygiene and general infection control practices. Restricting colonized staff from performing certain procedures (e.g., handling wounds or surgical sites) may be considered, but is not always necessary. All infected sites on MRSA-positive individuals should be covered by an appropriate barrier and the use of meticulous hygiene practices cannot be overemphasized.

MRSA-positive individuals are encouraged to discuss their concerns with their physician.



For more information,  
visit the Centers for  
Disease Control MRSA  
website at  
[www.cdc.gov/ncidod/  
dhqp/ar\\_MRSA.html](http://www.cdc.gov/ncidod/dhqp/ar_MRSA.html)