What can I do to protect myself, my staff, and my patients?

Transmission of MRSA can be minimized or avoided by taking a few simple precautions and following specific biosecurity measures:

- Wash your hands with warm running water and soap for at least 15 seconds after contact with any patient.
- Wear protective gloves when handling patients diagnosed with or suspected of having MRSA. Discard the gloves immediately after the examination to avoid the possibility of contaminating your work environment or spreading the infection to other patients.
- Clean and disinfect stethoscopes, thermometers, leashes, muzzles, water and food dishes, and other multi-use supplies and equipment before using them for another animal.
- Keep cuts and scrapes clean and cover them with bandages, especially when handling animals. Isolate any suspected MRSA carriers from other animals in the hospital. Ensure that all hospital staff takes extra precautions when handling MRSA cases and before handling other cases.

Talk with your health care provider if you have any questions or concerns about yourself or your staff.

If you or your staff have any additional questions regarding MRSA, please contact us or visit the web sites listed below:

The Ohio State University
College of Veterinary Medicine
127D Veterinary Medical Academic Building (VMAB)
1900 Coffey Rd.
Columbus, OH 43210
(614) 292-9453

www.cdc.gov/ncidod/diseases/submenus/sub_mrsa.htm

www.bsava.com/resources/mrsa

www.defra.gov.uk/animalh/diseases/zoonoses/mrsaqa.htm

www.thebellamossfoundation.com/

Content reviewed and approved by the College Infectious Disease Committee

About the College of Veterinary Medicine

The Ohio State University College of Veterinary Medicine is ranked fifth in the nation among veterinary schools, according to the *2008 U.S. News & World Report's* "Best Graduate Schools." The college includes more than 1,000 faculty, staff, and students in the Departments of Veterinary Biosciences, Veterinary Clinical Sciences, and Veterinary Preventive Medicine. The Veterinary Teaching Hospital is a comprehensive referral center and is among the largest in the world, with more than 35,000 large and small animal patients each year. In addition, the college operates a nationally recognized large-animal ambulatory practice and teaching unit in Marysville, Ohio, and a Food Animal Health Research Program in Wooster at the Ohio Agricultural Research and Development Center. More information about the College of Veterinary Medicine can be found at **vet.osu.edu**.

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UMC 07515

The Ohio State University
Veterinary Public Health Program

Facts for veterinarians about

Methicillin-Resistant *Staphylococcus aureus* (MRSA)

College of Veterinary Medicine
Veterinary Teaching Hospital

The CDC estimates that approximately one percent of humans can carry MRSA.

Recent studies show that MRSA accounts for as many as 50 to 70 percent of the *Staphylococcus aureus* infections in humans.

What is MRSA?

MRSA, or Methicillin-Resistant *Staphylococcus aureus*, is a newly emerging bacterial pathogen. The CDC estimates that approximately one percent of people may carry MRSA.

MRSA is resistant to all beta-lactam antimicrobials used to treat common staph infections (including penicillin and amoxicillin). This pathogen is also beginning to acquire resistance to many other antimicrobials, including fluoroquinolones and aminoglycosides.

In humans, MRSA strains are classified as either hospital-acquired (HA-MRSA) or community acquired (CA-MRSA) depending on the source of infection.

How is MRSA transmitted?

MRSA is transmitted through direct contact with an individual who is colonized with the bacteria, or contact with fomites in contaminated environments. Nasal passages, throat, and the skin surface are the most common areas colonized by MRSA. Contact does not necessarily result in infection; other factors contribute to infection, such as underlying illness, a compromised skin surface, and length of time of contact.

Why should I be concerned?

MRSA is a zoonotic pathogen. Studies have shown that it is possible for MRSA to move from humans to animals and from animals to humans. MRSA infections have been reported in many domestic animal species such as dogs, horses, and cats, producing in many cases subclinical infections (colonization). MRSA is also common in some environments, from which a person or an animal can acquire the infection.

When a person or animal is healthy, and under normal conditions, MRSA causes no significant illness. However, if a person or animal is immunocompromised (cancer, recent surgery, steroid therapy), has skin damage, or has undergone an invasive medical procedure, MRSA can cause illness ranging from skin and superficial soft tissue infections to severe disease including bacteremia, pneumonia, urinary tract infections, or infection of a surgical site. Some infections may be life threatening.

It is important to correctly identify MRSA cases and to properly inform your clients and staff about the risks associated with MRSA. Laboratory testing should confirm that the bacteria causing an infection are *Staphylococcus aureus*, and that the strain is specifically resistant to methicillin. If you have any concerns, you should contact the diagnostic laboratory for clarification.

When should I suspect a MRSA infection in a patient?

MRSA infection should be suspected in a dog when any of the following conditions are not responding to routine empirical antimicrobial therapy and diagnostic testing indicates infection with *Staphylococcus aureus*:

- Pyoderma
- Otitis externa
- Recurring urinary tract infections
- Post-surgical wound infections
- Persistent surgical implant or catheter-site infections

Similarly, in horses, a MRSA infection should be suspected when any of the following conditions are not responding to routine empirical antimicrobial therapy and diagnostic testing indicates infection with *Staphylococcus aureus*:

- Post-surgical wound infection
- Persistent drainage or surgical implant infections

What should I do if I suspect MRSA infection in a patient?

If MRSA infection is suspected, it is essential to perform a bacterial culture and susceptibility. MRSA is resistant to all beta-lactam antimicrobials *in vivo*, irrespective of the results of the *in vitro* susceptibility testing. Some strains of MRSA show resistance to all antimicrobials on routine susceptibility testing; in these special cases, it is necessary to request extended antimicrobial panels for *in vitro* susceptibility testing to identify appropriate antibiotics.