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Frequently Asked Questions about Methicillin-resistant *Staphylococcus aureus* (MRSA)

Q: What is MRSA?

A: MRSA (usually pronounced "mur-sah") is a type of bacteria. *Staphylococcus aureus* is a common bacterium on skin, and it is not usually a problem. However, when the *Staphylococcus aureus* bacteria are not susceptible to the antibiotic methicillin (ie, methicillin does not kill the bacteria or stop its growth), it is considered to be MRSA. Bacteria resistant to methicillin are often resistant to other antibiotics as well.

MRSA Backgrounder

FAQs for animal owners

Information for human healthcare providers

Podcast: MRSA and Pets

For many years, MRSA was thought to occur only in humans, until a report of a MRSA infection in a dairy cow was reported in 1972. Now it has become an increasingly urgent problem in veterinary medicine, with MRSA infections reported in horses, dogs, cats, pet birds, cattle and pigs.

Q: How common is MRSA?

A: MRSA is a major pathogen in both nosocomial (infection acquired in a hospital) and community-acquired (the infection comes from a non-hospital source) infections worldwide. According to the Centers for Disease Control and Prevention (CDC), it is one of the most common causes of human skin and soft tissue infections in the United States.

In the United States, MRSA is the 10th leading cause of death in humans, and is the most frequently identified antimicrobial drug-resistant pathogen (a pathogen is a disease-producing organism, such as a virus or bacteria) in hospitals and other healthcare facilities. A report published in 2008 estimated that 1.5% of the US population (~4.1 million people) was colonized with MRSA.

Q: Where do you find MRSA?

A: If MRSA is present, it is commonly carried on the skin or in the nasal passages of healthy people and/or pets. If an infection is present, it can be found almost anywhere—especially where there's a skin wound or sore. A person (or animal) carrying the bacteria on their body but does not exhibit symptoms of disease is considered to be "colonized". Those who do exhibit symptoms are considered "infected".

Q: Are there different types of MRSA?

A: Yes. There are two types of MRSA. Community-acquired MRSA, also called community-

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associated MRSA, is often abbreviated CA-MRSA. These infections occur in otherwise healthy people without a recent history of hospitalization or medical procedures, and are usually associated with skin infection. CA-MRSA in humans is thought to be the major factor in the rise of MRSA infection in animals.

Nosocomial, or hospital-acquired (hospital-associated) MRSA, is abbreviated HA-MRSA. These infections commonly occur in people with weakened immune systems in hospitals and healthcare centers.

Q: How is MRSA transmitted?

A: MRSA is spread by direct physical contact with another person or animal. The bacteria can also be spread when an animal or human comes into contact with objects that are contaminated. These objects include clothing, towels, bedding, bandages, and medical or sports equipment.

Originally, it was thought that the transmission of MRSA between animals and humans was only from human to animal, via contact between the hands of the human to the nostrils of the animal. However, there is increasing evidence indicating that MRSA can be transmitted in both directions, from human to animal (reverse zoonotic) and from animal to human (zoonotic). Once exposed to MRSA, animals can become colonized, and may serve as reservoirs to transmit the infection to other animals, as well as back to their human handlers (reinfection). Until the MRSA has been cleared from the animal (and the animal is therefore "decolonized"), there is a possibility that re-transmission from animal to human and further human-to-human transmission can occur.

Q: What are the risk factors for animals and humans contacting MRSA?

A: Risk factors for CA-MRSA include: crowded living conditions, frequent contact, broken skin, contaminated surfaces and shared items, and poor hygiene.

Risk factors for HA-MRSA include hospitalization, surgery, dialysis, long-term care, and a history of previous MRSA infection.

For both people and animals, efforts need to be made to decontaminate their shared surroundings. Poor living conditions play a major factor in MRSA transmission. These conditions include: crowding, compromised skin, contaminated items or surfaces, and poor hygiene. This area needs to be addressed by both health care workers and veterinary providers.

Q: Are certain people at higher risk for acquiring a CA-MRSA infection?

A: Yes. People at higher risk for MRSA skin infections include:

- Hospital patients
- Incarcerated individuals
- Nursing home residents
- Children in day care
- Athletes
- Military recruits
- People with weakened immune systems (i.e., immunocompromised)

While healthy people with healthy skin are at low risk for getting an MRSA skin infection, it has happened.

Q: Are certain animals at higher risk for acquiring an MRSA skin infection?

A: Yes. As with people, animals with weakened immune systems are more likely to become colonized or infected with MRSA.

The risk factors for animals vary with different species:

- For small animals (dogs, cats, pet birds), risk factors may include:
  - living with immunocompromised people
  - living with human health care workers
  - living with veterinary clinic personnel
  - involvement with therapeutic visits to hospitals, nursing homes, long-term care facilities

- For large animals (horses, cattle, pigs), risk factors may include
  - nasal/facial contact with human handlers
  - transportation/sale of animals (spreading the risk of transmission from exposed animals to non-exposed animals)

It is important to remember to always be careful in avoiding contact with animal feces (stools). This is especially wise when handling pet birds and their cages.

Q: My pet is a therapeutic animal which visits patients (eg, nursing homes or health-care settings), do I have to take special precautions?

A: Yes. Because health-care environments may be at risk for MRSA infection and transmission, there are certain precautions you should take to insure the health of the patient, your animal, and you. There are guidelines for therapeutic animals in animal-assisted interventions (AAIs). The AAI guidelines recommend:

- That you consult your veterinarian as a good source of advice in handling your therapeutic pet
- Good hand hygiene by all who encounter the animal, both before and after touching the animal
- Licking should be prevented, as well as "shaking paws" – even if the animal's paws are clean before they enter the health-care facility, the floors may be contaminated
- Handlers are restricted to bringing one animal during each visit, and must keep the animal on a leash or in a carrier
- Animals should be restricted to interaction only with the patients and their families
- When placing an animal on a bed, a clean towel or absorbent pad should be placed between the pet and the bed linens
- No animals should visit patients in isolation units
- Although therapeutic animals are expected to be clean, bathing an animal prior to each visit is not recommended, unless the animal smells or is soiled.

Q: Can I get MRSA by eating meat or dairy products from an infected/colonized animal?

A: MRSA outbreaks have occurred from food through contamination by infected food handlers, but this is not very common, and can be prevented by proper pasteurization and food handling. To date, there have been no confirmed cases of food-borne MRSA infection from animals.

Q: What are the symptoms of MRSA?

A: Not all humans or animals who encounter MRSA develop symptoms. While research is ongoing, it appears only a small percentage become ill, while most eliminate the organism or become colonized without developing any symptoms.

Humans exhibit symptoms ranging from minor skin conditions (pimples, boils and skin infections) to more severe diseases such as postoperative wound infections. MRSA can also cause pneumonia, meningitis (swelling of the tissues surrounding the brain and spinal cord), blood infections, and heart problems.

The most common animal infections occur at surgery sites or skin wound sites, but infections can occur that range from skin infections to pneumonia.

Q: What should I do if I think I may have an MRSA infection?

A: Contact your healthcare provider as soon as possible and have tests conducted to determine if you have an MRSA infection.

- Cover skin infections with clean bandages
- Wear protective clothing
- Wash hands with soap and water frequently
- Clean your surroundings thoroughly, including any items that may have become contaminated.
- If you or your animal is diagnosed with MRSA, provide this information to all healthcare or veterinary care providers, even after the infection is cleared.
- Inform people you know or live with there is a possibility they and their animals may have been exposed to MRSA. They should check with their healthcare or veterinary care providers.

Q: What should I do if I think one of my animals may have an MRSA infection?

A: Contact your veterinarian as soon as possible and have tests conducted to determine if your animal does have an MRSA infection or if they're an MRSA carrier. Then follow the same rules listed above.

Q: What is the treatment for MRSA?

A: MRSA skin infections in humans should be treated by a healthcare provider.

When animals are colonized with MRSA (usually by testing swabs taken of the nostrils), there are no recognized methods for decolonizing them. Based on clinical cases observed, many experts believe companion animals are generally transient carriers of MRSA, meaning they are colonized for about 2-3 weeks, so decolonization is not necessary. Isolating the animal from the human until the animal is no longer colonized is likely to be effective in preventing reinfection of the human.

In cases of skin infections - the most common type of infection found in animals - an option may be either applying antibiotic cream to the skin infection, treat the animal with other antibiotics, or a combination of both. Your veterinarian will determine the appropriate treatment for your animal based on their exam, the animal's history, and the laboratory results.

Q: If I and/or my animal have had MRSA, and have been successfully treated, are we safe from getting it again?

A: No. It is possible to have a MRSA skin infection come back after it appears to be cured. To prevent this from happening, follow your healthcare provider's and veterinarian's directions while you or your animal has the infection. Follow these prevention steps to prevent further outbreaks:

- Wash your hands thoroughly and frequently with soap and water
- Keep cuts and scrapes clean and covered
- Be careful when tending wounds of other people or animals, especially when changing their bandages.
- Thoroughly clean any possible objects you or your animal may have come into contact

Good hygiene is the essential key to preventing further outbreaks of MRSA.

The American Veterinary Medical Association is coordinating with the American Medical Association (AMA), other veterinary associations, the US Centers for Disease Control and Prevention (CDC), US Department of Agriculture (USDA), and other national and international partners to obtain accurate information, and will provide additional information to health professionals and the public as it becomes available.

Links to more information about MRSA

AVMA

MRSA Backgrounder
MRSA FAQs for Human Healthcare Providers
Podcast: MRSA and Pets

CDC MRSA

Community-Associated MRSA Information for Clinicians
Overview of Healthcare-associated MRSA
Community-Associated MRSA Information for the Public
Methicillin-Resistant Staphylococcus aureus (MRSA) in Schools: FAQs

USDA MRSA

Methicillin- resistant Staphylococcus aureus: A Growing Concern for Animal and Human Health

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