

# Staphylococcosis

## What is Staphylococcosis?

Staphylococcosis is caused by *Staphylococcus aureus*. *Staphylococcus aureus* is a well-known commensal and pathogen of a large number of animal species, including humans. A wide variety of infections can be caused by *S. aureus*, from superficial skin and soft tissue infections to life-threatening septicaemia. *S. aureus* represents a serious public health burden in both hospital and community settings, as well as an economic and animal welfare problem in dairy farming. In this article, I focus on livestock-associated *S. aureus*, and define livestock as pigs, cattle, and poultry. Interest in livestock-associated *S. aureus* was renewed with the discovery of the methicillin-resistant *S. aureus* (MRSA) sequence type (ST)398 in pigs, and then in veal calves and poultry. However, *S. aureus* was already a major problem in dairy cows, where it causes mastitis, and infections in chickens have also caused problems.

## Where is Staphylococcosis found?

Pigs are often carriers, and are only rarely infected. In chickens, several disease manifestations have been described, such as comb necrosis, bacterial chondronecrosis, which is a cause of leg weakness/lameness, and septicaemia. These diseases may affect a significant proportion of a flock. Staphylococcal mastitis is a major problem in dairy industry, affecting animal health and causing economic losses of up to \$350 per cow per year. Although antibiotic treatment is an option for individual animals, it is unfavorable because of costs and the potential risk of the development of antibiotic resistance, and is unsuitable for addressing the problem of long-term persistence of pathogenic *S. aureus* in udder tissue. In addition, increased awareness of the use of antibiotics in husbandry and animal welfare is further contributing to the urgent need to address bovine mastitis in a different way. Vaccination would be a logical option.

## How do animals get infected with Staphylococcosis?

MRSA infections have been reported in horses, dogs, cats, pigs, cattle, sheep, rabbits, chickens and a parrot. The spread of MRSA between animals is primarily by direct contact (e.g., wounds or lesions) or by fomites, objects in the animals' environment that have been contaminated by an infected animal (e.g., buckets, brushes, halters). Aerosol transmission may also be possible. Most animals with MRSA show no signs of illness. When illness or disease occurs skin or wound infections are most commonly seen. Pneumonia or respiratory infection, arthritis or joint infections may also, but are less frequent.

## How do people get infected with Staphylococcosis?

People most commonly get MRSA infections from other infected people. This occurs by either direct contact (e.g., hands, contact with lesions) or by fomites (e.g. contaminated objects such as towels). Transmission between people and animals is uncommon. When it occurs it usually involves close direct contact with an infected animal. Disease caused by MRSA primarily involve skin infections. Skin lesions may look like a pimple or boil and can be red, swollen, painful or have pus or other drainage. MRSA can also cause pneumonia or systemic disease. Rarely, intestinal illness may occur.

## What are the signs and symptoms of Staphylococcosis?

Most infections caused by *S. aureus* are skin and soft tissue infections such as abscesses or cellulitis. Abscess

- Pocket of infection that forms at the site of injury.
- Usually filled with pus.
- Area surrounding the abscess is usually red, painful and swollen and the skin surrounding the abscess can feel warm to the touch.

#### Cellulitis

- An infection of the underlying layers of the skin.
- Usually results from a scrape or cut in the skin which allows bacteria to enter, although no injury may be apparent.
- Cellulitis can occur anywhere in the body, but most often occurs on the legs or arms.
- Symptoms include redness, swelling, and pain at the site of infection.
- *S. aureus* can also cause serious infections such as pneumonia (infection of the lungs) or bacteremia (bloodstream infection).
  - Symptoms of these infections include: difficulty breathing, malaise, fever, or chills.

If you suspect you may have an infection with *S. aureus* contact your health care provider.

#### Duration of illness

- Some people can be colonized with *S. aureus* and never get an infection.
  - For those people who do get an infection, the time from exposure to development of disease can be from days to years.
- Many common skin infections caused by *S. aureus* will heal without medical treatment.
  - However, some skin infections will require incision and drainage of the infected site and some infections may require antibiotics.
- Most skin infections will heal within a few weeks.
  - More serious skin infections can take longer to heal if treatment is delayed or if ineffective treatment is given.
- Some serious *S. aureus* infections (such as pneumonia or bloodstream infections) typically require hospitalization and treatment with intravenous antibiotics.

#### **How do you prevent transmission of Staphylococcosis?**

Clean your hands (keep your hands clean)

- Clean your hands frequently with soap and warm water or an alcohol-based hand rub.

Take care of infections

- Pus or drainage from wounds is very infectious.
- Learn how take care of a *Staphylococcus aureus* infection, including how to properly change the bandages.

Keep your linens and clothes clean

- Launder soiled towels, bedding, and clothes.
- Use water and detergent and thoroughly dry.

Do not share personal care items

- Do not share razors, towels, or similar items with others