**Staphylococcus aureus**

*Staph aureus* is a Gram-positive bacteria, and remains one of the most significant contagious mastitis pathogens. Although within herd prevalence varies from 5 – 50%, many herds in the US have implemented successful control measures for *Staph aureus*. Biochemical tests used to distinguish *Staph aureus* from other Gram-positive cocci are the catalase test (positive) and coagulase test (positive).

**Source / Transmission**

*Staph aureus* is a commensal organism found commonly on skin surfaces, mucosa, and in the environment. Chapped or broken skin is more likely to be heavily colonized, and this may be a source of infection if poor hygiene is a factor in the milking parlor, particularly if milking gloves are not used. First calf heifers can calve in with *Staph aureus* mastitis, suggesting some mode environmental transmission. Biting flies have been implicated as a potential source of transmission. However, the primary mode of transmission is cow-to-cow during milking, when milk from an infected cow comes in contact with the teat end of an uninfected cow.

**Infection**

*Staph aureus* tends to invade deeply into udder tissues, forming micro-abscesses that are impenetrable by intramammary antimicrobials. Many infections are chronic and subclinical, with recurring mild or moderate clinical episodes. The characteristic SCC pattern is waxing and waning, however chronically infected cows will have an increased SCC and decreased milk production. Due to abscess formation and tissue damage, chronically infected cows will often have hard, dry quarters. Some strains of *Staph aureus* produce a vasoconstrictive alpha toxin, which results in severe, acute and gangrenous mastitis.

**Treatment**

Due to deep tissue invasion and some penicillin resistance, treatment of *Staph aureus* cases is most often unsuccessful. Cure rates are likely to be less than 30%. Cows with the best chance of treatment success are younger, have only one quarter affected, and have a lower SCC at the time of infection and also historically (less likely to be chronic). To minimize ineffective use of antibiotics, these cow factors should strongly be considered before attempting treatment. If treatment is attempted, extended duration therapy may be warranted. Additionally, there may be improved success with dry cow therapy. Cows with a poor chance of cure should be identified, segregated, milked last, and culled as soon as economically feasible.

**Control**

Identifying and eliminating infected cows, either through strategic treatment or culling, is the most effective means of controlling *Staph aureus*. Use of herd records to identify cows with chronically high SCC or recurrent clinical episodes is necessary to target cows for testing. In herds with a suspected high prevalence, whole herd testing may be recommended. Due to cyclical shedding patterns, a single test per animal may not be sufficient to find all infected animals. PCR has a higher sensitivity than traditional culture, however, only aseptically collected quarter milk samples should be used for this diagnostic method.

Excellent pre- and post-milking teat sanitation, excellent milking hygiene, wearing gloves, single-use towels, and properly functioning milking equipment are critical to reduce the risk of transmission in the milking parlor. Regular bulk tank culture is a useful screening tool, as well as culturing clinical mastitis cases, particularly those that do not respond to therapy. Biosecurity is important for herds purchasing new animals. All purchased animals should be tested for contagious pathogens and quarantined while awaiting test results.

**References**


Farnsworth et al. Staphylococcus aureus Mastitis Control in Dairy Herds, revised 2011. [http://qualitycounts.umn.edu/Factsheets/index.htm](http://qualitycounts.umn.edu/Factsheets/index.htm)