Cornell University
Animal Health Diagnostic Center

Staph aureus - QMPS Herd Infection Control Protocol Introduction (reviewed April 2017)

Staph aureus are the organisms responsible for causing the most common type of contagious mastitis in dairy cattle. The majority of diseased quarters are subclinically infected however these quarters may suffer from recurrent bouts of clinical mastitis. Udders of infected cattle are the most common source for new infections; however environmental sources do exist. These bacteria are also found on the skin of most cows and in the environment. Mastitis caused by Staph aureus is likely to result in abscess formation within the milk producing tissues of the udder, significantly reducing milk production and greatly reducing the likelihood of treatment cure. Some strains of Staph aureus have the ability to produce enzymes (β-Lactamase) that will inactive many of the available antibiotic therapies for mastitis. Some laboratories can test Staph aureus isolates for the presence of this enzyme. Milk production losses caused by chronic inflammation and abcessation are substantial and prolonged. First lactation cows and cows that recently calved are at greater risk for new IMI when housed among infected cows. It may be appropriate for fresh heifers to be segregated from older cows for at least 2 weeks after calving to reduce risks for infecting heifers or to create permanent heifer milking groups. Research has shown that flies can transmit infection from infected cows to non-infected cows during grazing season.

As with all contagious forms of mastitis these bacteria are spread from cow to cow primarily during milking by contaminated milking equipment, milkers' hands, common towels and other items used during milking. Staph aureus commonly produces chronic infections that will persist from one lactation to another despite dry cow therapy. New infections in 1st lactation animals may respond to antibiotic therapy but often older animals (3rd lactation or greater) are infected for life. Cows that do not respond to treatment should be segregated from the uninfected portion of the herd and eventually culled. Principles of herd control program Management decisions are more easily made and better directed if Test Day cell count data are available. Application of a precise and consistent milking procedure designed to minimize contagious transmission must be in place before herd control systems are initiated.

- Strict control of segregation of infected cows. Segregation may be limited to milking time only or, in larger herds, may include the establishment of permanent Staph aureus milking groups.
- All milkers should wear gloves while milking. Gloved hands are more effectively cleaned and sanitized than bare hands. Milkers should rinse, sanitize and dry gloved hands often during milking, especially whenever they become contaminated with milk.
- Use of a single-use towel to clean and dry teats
- Use of post milking teat disinfectants of known efficacy against Staph aureus

- Establishment of a milking sequence to reduce infection risk.

  Recommended milking order includes:

  1. Milking healthy 1st lactation animals first.
  2. Healthy older lactation cows next.
  3. Remaining cows including fresh cows and heifers, high cell count animals then those of unknown infection status.
  4. Known Staph aureus infected cows are milked last or with a milking unit dedicated for use on Staph aureus infected animals only.
- Based on precise diagnostic procedures and sampling schedules. The most important control procedure is consistent and precise sampling to identify Staph aureus IMI with segregation to limit transmission.
- Discuss treatment options and duration with your veterinarian.
- Farms wishing to reduce the prevalence of staph aureus infection should develop a prevention and control strategy with their herd veterinarian.

Cows with 3 negative culture results may be returned to the general population.