

Dealing effectively with contagious (cow associated) mastitis

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Mastitis is caused by a bacterial infection in one or more quarters. In most cases, the bacteria enters the quarter through the teat canal. However, not all mastitis causing bacteria are the same. Some are classified as environmental mastitis bacteria and some are considered to be contagious (or cow associated). The udder of cows with subclinical infections serves as the primary reservoir for contagious pathogens and transmission occurs when teats of healthy cows are exposed to bacteria present in milk that originated from infected udders (usually of other cows). Subclinical infections are where the quarter is infected but the udder and milk appear normal on visual examination. The main characteristics of contagious mastitis revolve around where the bacteria reside – in this case the bacteria which can infect a quarter, or cow, originate from an already infected quarter or teat and udder skin.

The bacteria often tend to be a class of “bugs” known as Gram positive (eg *Staph. aureus*, *Streptococcus spp*) and the resulting infection can occur in a clinical or sub-clinical state. The most common contagious mastitis bacteria seen on US dairy farms are *Staph. aureus* and *Mycoplasma bovis*. However, any bacteria that can cause chronic subclinical mastitis and shed a large number of colonies in milk can spread in a contagious manner. So, contagious transmission can also occur when cows that are chronically infected with infections caused by bacteria such as Streptococci or Klebsiella. The key to reducing new infections caused by contagious bacteria is to identify infected cows and reduce the chance that milk from their udders will come in contact with teats of healthy cows.

Staph. aureus is one of the most common causes of contagious mastitis and can be found in bulk tank of the many US farms, but on most Wisconsin farms, mastitis caused by *S. aureus* is less common than infections caused by environmental mastitis bacteria. *Staph. aureus* should be considered as a possible cause of mastitis for herds that routinely have bulk tank somatic cell counts greater than about 350,000 cells/mL. Herds that purchase replacement heifers or lactating cows without screening the animals, or source herds, often have a greater prevalence of *S. aureus* mastitis as compared to closed herds, illustrating the importance of biosecurity in control of contagious mastitis. The percentage of chronically infected cows within a herd is an important risk factor for development of new infections because when a herd has many infected cows, there is a greater possibility of exposure to the contagious bacteria. Thus, culling of infected cows is an effective tool to reduce the risk of spreading *Staph aureus* to other cows. When culling is not economically feasible infected cows should be identified, segregated and milked last.

Contagious mastitis can be effectively controlled mostly through the implementation of sound milking management practices, proper milking machine function and effective post milking teat disinfection. For at least 50 years, these well known principles have been defined in the 5-point mastitis control plan. The 5-point plan is based on consistent implementation of: 1) Post-milking teat dipping; Point 2) Comprehensive use of intramammary antibiotic therapy at the end of every lactation; Point 3) Appropriate

treatments of clinical cases; Point 4) Proper maintenance and functioning of milking equipment; and Point 5) Appropriate culling of chronically infected cows.

Treatment of new Staph clinical cases with intramammary treatments is rarely successful at eliminating the infection from the quarter. The greatest cure rates occur when newly infected first lactation heifers are identified and rapidly treated, however, even in this instance, cure rates seldom exceed 50%. Older cows with Staph aureus are rarely cured and should be culled. Thus, the primary principle of reducing exposure to pathogens that can be transmitted in a contagious manner is to reduce the possibility of contact with milk that came from subclinically infected cows.