



**Wisconsin Veterinary
Diagnostic Laboratory**
UNIVERSITY OF WISCONSIN-MADISON

Coagulase Negative *Staphylococci*

Background

Coagulase-negative *Staphylococci* (CNS) are normally found at the level of the teat, nasal mucosa, as well as on the hands of milking personnel. The CNS group is made up of over 50 bacteria and are most frequently isolated from infected glands. This group includes *S. chromogenes*, *S. hyicus*, *S. simulans*, and *S. epidermidis*. *S. xylosus*, *S. saprophyticus*, *S. sciuri*, and *S. cohnii* are Novobiocin-resistant *Staphylococci* and found as free-living in the environment. These bacteria are considered environmental causes of mastitis. Due to their high prevalence, CNS infections are usually subclinical, but can result in a 2-3 times increase in SCC within the infected quarter. The amount of increase in SCC is reflective of the *Staphylococcus* species causing the infection.

Source and Transmission

CNS are found in the environment and are opportunistic bacteria that can cause infection when teats and equipment are not properly disinfected. First lactation cattle are at higher risk of infection than older multiparous lactation cattle.

- Attainment: < 1,000 CFU/mL in BTM

Disease

Low levels of CNS bacteria can represent normal flora, whereas high levels indicate poor udder preparation/teat sanitation, and/or environmental contamination of equipment. Most CNS infections are subclinical and the clinical cases are normally mild and transient. SCCs will elevate to no more than 500,000 cells/ml and rarely impact milk production. However, there are some species of CNS that can be more pathogenic and cause a decrease in milk production. Since CNS are part of the normal teat flora, isolating these organisms does not necessarily mean that there is a mastitis infection. Clinical symptoms and SCCs should be considered when interpreting CNS positive cultures.

Treatment

Subclinical infections of CNS do not have to be treated because they are usually mild and do not have many economic ramifications for dairy producers. Often the affected cow will spontaneously cure herself and the infection will be resolved without treatment. It is recommended to treat clinical cases, especially if the infection is persistent. CNS are sensitive to most antibiotics and treatment duration for CNS is generally short.

Prevention and Control

To prevent CNS mastitis proper pre- and post-milking teat disinfectant protocols should be used. Contamination can be reduced by milking clean, dry teats. Dry cow therapy can also be an effective control method and can eliminate about 90% of CNS infections.

References

Managing Mastitis, the Pathogen Series. Coagulase Negative Staphylococci

Coagulase Negative Staphylococci (CNS) Mastitis Pathogen Factsheet

Coagulase-negative Staphylococci Infections, Laboratory Handbook on Bovine Mastitis. National Mastitis Council, Inc. Revised 1999.