

# **Studying Association of Mastitis with other Periparturient Diseases of Dairy Cows**

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Mastitis is one of the top three major diseases of transition dairy cows, accounting for 8.9% culling rates in Canada for 2015. Mastitis is the result of bacterial invasion of the mammary gland causing an increase in somatic cell count during the postpartum period, and other major clinical symptoms including inflammation and altered milk composition. The objective of our study is to investigate association of mastitis with other diseases of transition dairy cows. Previously, we showed that subclinical mastitis was preceded by a systemic inflammatory state during the dry off period. The source and pathomechanism of this inflammatory state during the dry off period is not known. We intend to analyze blood, urine, and milk of dairy cows before the dry off and during the first few weeks after parturition to search for potential factors that initiate inflammation. Chronic inflammation might make dairy cows more susceptible to other diseases. We will study the occurrence of other periparturient diseases and investigate the interrelationship of subclinical or clinical mastitis with diseases like metritis, ketosis, milk fever, retained placenta, and laminitis. Although dairy cows are treated with antibiotics before drying off some of the bacteria might become resistant and survive the treatment and become dormant in the mammary gland. We will identify and determine the potential dormant bacteria and how infection of the mammary gland before drying off affects mammary gland health after parturition as well as the incidence of other diseases.

Implications: Mastitis is a major disease of transition dairy cows and is associated with high rate of culling. Inflammation of the udder might contribute to cow's immunity and make cows more susceptible to other periparturient diseases. Our study will contribute to interrelationships between mastitis and other periparturient diseases with major implications for development of new preventive strategies in the future.