Title: Prevalence of bacteremia in dairy cattle with acute puerperal metritis

Investigators: Amelia Woolums, DVM, PhD, DACVIM, DACVM (large animal medicine)  
Brent Credille, DVM (large animal medicine)  
David Hurley, PhD (population health)  
Michael Overton, DVM, MPVM (population health)

Study description:  
This pilot study investigates the relationship between bacteremia (bacteria in the bloodstream) and metritis (inflammation of the uterus) in dairy cattle. Cattle affected by metritis experience decreased milk production, poor future reproductive performance, and an increased risk of premature culling and death; resulting in significant economic losses in the dairy industry. It is likely that some cattle that develop metritis also have bacteremia but this is not known for sure. If some cattle with metritis do develop bacteremia, they are likely to become more sick than cattle that do not develop bacteremia. If veterinarians know for sure that some cows with metritis develop bacteremia, and if they can identify these cattle soon after the disease begins, they may be able to institute treatments that will decrease the negative impacts of these conditions on cow welfare and productivity.

Forty cattle that have recently calved will be enrolled (20 affected with metritis; 20 clinically normal animals at similar stage of production). In addition to a physical exam, blood and uterine fluid from both groups will be collected, cultured, and resulting bacterial growth compared. These procedures will be repeated 48 hours later. The costs of the exam, blood and uterine fluid collection and analysis will be paid for by the study.

We will also develop a disease severity scoring system to help veterinarians in a field situation determine which animals are at greatest risk of becoming bacteremic and thus might require more aggressive supportive care.

Duration of study:  
Samples will be collected from cattle for a period of 48 hours after enrollment into the study. Information related to the cow’s health, reproductive status, and milk production will be collected for the entire lactation. The study is ongoing and is expected to be completed in a year.

Potential benefits to veterinary medicine:  
This information will allow us to determine whether cows with metritis develop bacteremia and, if they do, which pathogens are most frequently isolated from the bloodstream of bacteremic animals. The antimicrobial sensitivities of the bacteria isolated will also be determined, which will assist us in further refining treatment protocols for acute puerperal metritis. Ultimately this research will help improve the welfare and, productive lifespan of dairy cattle.