

## DIAGNOSING THE SILENT REPRO THREAT: SUBCLINICAL METRITIS

The economic impact of one form of metritis versus others is hard to decipher since we are still trying to come to a consensus about defining each condition the same way. We can all agree that collectively, all forms of metritis adversely impact reproductive performance and subsequently are very costly to dairy producers. In a recent Farm Report article the confusion regarding lingo and terminology when discussing metritis and subclinical forms of the disease was reviewed. Nearly every veterinarian/researcher/dairy producer you ask will define them differently. As a review, we should adopt the following definitions (Sheldon et al. 2006), which were published in the reproductive journal, *Theriogenology*:

- *Puerperal metritis* – acute systemic illness (fever, loss of appetite & milk production) due to infection of the uterus with bacteria, usually within 10 days after calving.
- *Pyometra* – the accumulation of pus in the body of the uterus in the presence of a persistent corpus luteum and a closed cervix.
- *Clinical endometritis* – characterized by presence of vaginal discharge of >50% pus, 21 days or more after calving, and not accompanied by systemic signs.
- *Subclinical endometritis or metritis (SM)* – inflammation of the lining of the uterus in the absence of pus-filled vaginal discharge. This is the toughest to diagnose since no outward signs are exhibited; no fever or vaginal discharge. The gold standard for its diagnosis is uterine cytology to determine presence of *polymorphonuclear* (PMN) cells, which are immune cells that act as a line of defense when inflammation occurs. If there are greater than 8% PMN cells found, the animal would be considered to have SM. Unfortunately, this method does not provide an on-farm diagnosis that immediately can be treated and requires the cytological evaluation in the laboratory.

During the spring of 2010, Advanced Dairy Management student, Leanna Scholten, conducted a research project that evaluated different methods for diagnosing SM in Miner Institute's herd with the hope that an on-farm method or a combination of these methods might be used to accurately diagnose SM when compared to the cytological determination. A total of 29 animals between 21- 40 days in milk were examined and found to have no signs of clinical endometritis: no vaginal discharge containing > 50% pus as determined by vaginoscopy and vaginal palpation. These animals were then evaluated for SM by using the following methods:

- Vaginal discharge assessment by vaginal speculum or vaginal palpation – presence of any pus < 50% of discharge would indicate presence of SM.
- Rectal palpation – cervical size assessed and palpation of fluid: An animal with a cervix >1.5 inches in diameter and/or has fluid present in a uterine horn may have SM. Size of the cervix may vary due to the number of calves a cow has delivered, however; the cervix of a healthy

animal will usually return to a size <1.5 inches after uterine involution.

- Uterine lavage – an infusion pipette was used to deliver 20 cc of phosphate-buffered saline into the uterus. After uterus was massaged transrectally for 5-10 seconds, 2 cc of fluid were aspirated using a syringe attached to the end of the infusion pipette. Fluid was then smeared onto a slide and stained using a modified Wright Giemsa stain, then evaluated for cytology using a microscope to determine presence of PMNs.
- Cytobrush – an embryo transfer gun was modified to attach a cytobrush. The cytobrush was able to be retracted inside the ET gun when being passed through the cervix. Once inside the uterus, the cytobrush was extended beyond the ET gun and brushed gently against the uterine wall approximately ¼ turn, retracted back into the gun and removed from the cow. The brush was smeared across a microscope slide and stained to determine presence of PMN cells.

In this study, 6 out of the 29 animals were diagnosed with SM as determined by the cytobrush technique. The visual assessment of vaginal discharge from using a speculum or vaginal palpation accurately diagnosed 2 of the 6 cases and inaccurately concluded false positives for 3 cows. Half of the SM cases were accurately detected using the rectal palpation assessment; however, 8 cows were considered false positives. We determined from this study that none of the methods we evaluated, nor combinations of these methods, was a reliable on-farm diagnostic tool for assessing SM. The cytobrush was the most useful technique for assessing SM; however, it is difficult to recommend this tool as a routine method for screening cows for SM since the cost/benefit ratio is unknown. To my knowledge, cytobrushes designed for use in dairy cattle are not commercially available. From a research standpoint, I think the cytobrush will provide a useful tool for assessing uterine health as more transition cow studies are conducted.

*(Edited from an article by Katie Ballard, Miner Institute; Presented in Dairy Herd Network – October 2011)*



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*Merry Christmas!*

### **Nutrition Affects Welfare & Performance**

Nutrition plays a significant role in raising quality dairy calves and heifers! While the intricacies of calf and heifer nutrition have been the focus of countless research studies, the subject is, first and foremost, a welfare issue. The Dairy Calf & Heifer Association has developed an excellent guideline to help maximize your calf and heifer program in their published GOLD STANDARDS III, which provides information for pre-weaned calves regarding feeding procedures, water delivery, grain feeding and weaning guidelines.

Here are some nutrition basics that will aid in your calves' and heifers' well-being, growth and immune system development. For more specific recommendations and guidelines, I will be happy to assist your efforts.

- Feed a quality milk replacer to pre-weaned calves, which contains adequate nutrition to promote health and growth, and feed this consistently.
- Provide calves with clean, accessible, free-choice water starting no later than one (1) week of age.
- Offer a palatable, clean calf starter, beginning at one (1) week of age, such as the excellent Renaissance GET MILK! line of calf starters/growers.
- Wean calves when they consume enough starter grain - and have adequate rumen development to digest it - to meet size/growth goals.
- Improve (or increase) space allotted for each calf around weaning time to minimize stress.
- Feed post-weaned heifers a quality grower to gain at least 1.7-2.0 lbs/day.
- Keep feed fresh and delivered consistently to keep intake levels steady.

*(Edited from an article by DCHA - Fall 2011)*



**DAIRYINFO**

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# December 2011...

**Diagnosing the Silent Repro Threat: Subclinical Metritis**

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**Nutrition Affects Welfare & Performance**



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