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Research Reports
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When to assist calving and how it impacts metritis

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Around the time of calving (birthing), dairy cows are susceptible to calving difficulties and illness such as uterine infections. About 75% of diseases in dairy cows typically occur within the first three weeks postpartum. Often calving difficulties result in the need for human assistance and increased risk of uterine infections. Proactive management practices during the transition period are necessary to reduce the risk and mitigate the effect of transition diseases, such as dystocia and uterine diseases, in dairy cows.

Increased risk of dystocia, or difficulty calving, occurs due to cows producing relatively larger than normal calves compared with their dams along with other complications (i.e. young primiparous cows and twinning). The negative economic consequences of dystocia are closely related to welfare and productivity.

Uterine disease, such as metritis, can result in reduced milk production, reproductive performance, and life expectancy due to an increased risk of culling during lactation. It is estimated that the annual cost of uterine disease in the U.S. dairy industry is $650 million; however, the annual costs in Canada are unknown, but likely proportional to the issue observed in the U.S.

Further understanding of the calving process and how it impacts uterine health can improve calving management practices to prevent the development of uterine disease. A recent study from our lab investigated the association between factors around the time of calving, duration of labour, and the development of uterine diseases in dairy cattle. In addition, we aimed to estimate a reference time to be used as a guideline for providing calving assistance based on the health outcome of metritis.

A total of 567 Holstein cows, from the UBC Dairy Education and Research Centre, were followed from 3wk before calving until 3wk after. Cameras were used to record calving time and duration and calving assistance was recorded. Metritis was diagnosed based on vaginal discharge and body temperature measured at 6 and 12 days in milk (DIM). Duration of labour was estimated as time from the appearance of the amniotic sac until the calf was expelled.

There was a relationship between metritis and duration of labour for assisted cows, where the probability of metritis was greatest at the shortest and longest durations of labour, while the lowest probability of metritis (28.2%) was found when assistance occurred after approximately 130 min (Figure 1). There was no association of duration of labour with metritis for cows which did not require assistance, but on average, cows which did not require assistance had shorter durations of labour (57.5 ± 2.4 vs. 118.6 ± 5.5 min). Interestingly, subclinical endometritis at 35 DIM nor retained placenta was associated with the duration of labour, although cows calving larger calves were found to be in labour longer.

Providing assistance too early during stage II labour may result in an increased risk of metritis, therefore we estimate that 130 mins after the appearance of the amniotic sac could be used as a reference point for providing calving assistance to reduce the risk of metritis. Although duration of stage II labour and calving score did not have a direct impact on subclinical endometritis, it may be indirectly impacted by

timely intervention through the action of metritis, as subclinical endometritis was found to be increased in cows diagnosed with metritis. Further research is required to determine how progression of labour and timing of intervention impacts the development of uterine diseases.

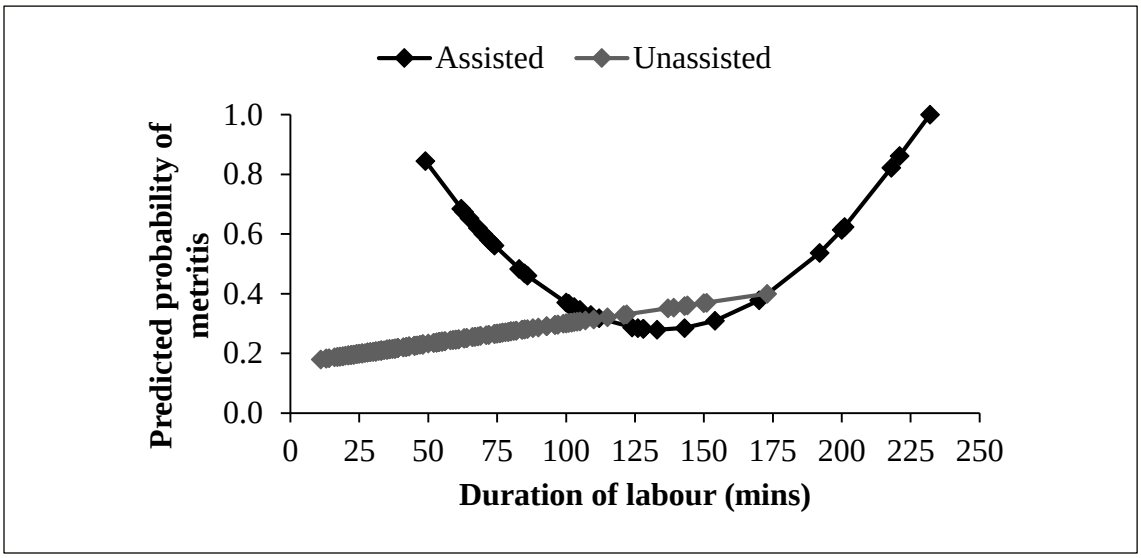

Figure 1. Effect of duration of labour in cows assisted and unassisted at calving on the predicted probability of metritis.

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[1] For further information please Email - ronaldo.cerri@ubc.ca. The results described in this report were based on Bauer et al. 2021. Association between calving factors, duration of labour, and uterine diseases in Holstein dairy cows (submitted to Journal of Dairy Science). This work was partly supported by NSERC and Mitacs.

Research Reports

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