Factors associated with morbidity, mortality, and growth of dairy heifer calves up to 3 months of age

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Calfhood diseases and mortality have substantial impacts on many dairy operations. The objective of this observational study was to investigate risk factors associated with enzootic calf diarrhea (scours), bovine respiratory disease (BRD), mortality, and growth in young dairy heifers. A total of 2,874 heifer calves from 19 commercial dairy farms in Minnesota, USA and Ontario, Canada were enrolled at 1 to 7 d of age and followed for 3 months. The incidence of failure of passive transfer (FPT) was 11 and 32%, using cut-points of serum total protein of 5.2 and 5.7 g/dl, respectively. Over 23% of calves were treated for scours and risk factors were herd incidence of scours, season of birth, receiving a colostrum replacement product, not being fed colostrum by bottle, and weight at enrollment. Almost 22% of calves were treated for BRD and risk factors included FPT, herd incidence of BRD, season of birth, navel dipping, and being treated for diseases other than diarrhea or dullness. Supplemental antibody products were associated with a reduced incidence. Mortality risk was 3.5% and was increased by herd-level incidence of BRD, and calf-level treatment for BRD and other diseases. The mean average daily gain was 0.95 kg/day and was influenced by twinning status, FTP, and treatment for diarrhea or dullness. This study identified several important factors associated with morbidity, mortality, and reduced growth. It reinforces the interconnectedness of multiple diseases and the importance of good colostrum management. This study also highlights the significant effects of calfhood disease, adding further evidence that improving calf health can improve growth and survival.