

Shedding of *Mycobacterium avium* subsp. *paratuberculosis* (MAP) by Dairy Calves

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MAP, the bacterium causing Johne's disease, is believed to be transmitted predominantly from cows to calves, and control methods focus specifically on blocking this transmission route. In an infection trial conducted at the University of Calgary, nearly all experimentally infected calves shed MAP in their feces. The aim of this study was to confirm these findings in the field. If naturally infected calves shed MAP bacteria, they pose a severe risk to their pen mates and JD control measures will have to be adjusted. The objectives of this project were: 1) estimate the proportion of MAP-shedding calves on MAP-infected farms; and 2) estimate the proportion of MAP-contaminated calf housing facilities.

Materials and Methods: Fecal samples of all young stock (n= 2,460) from newborn until 24 months, environmental samples of all group housing pens (n= 104), and dust samples of all barn airspaces (n= 29) were collected on 17 known MAP-infected dairy farms in Alberta. Samples were analyzed for the presence of MAP bacteria using PCR (a method that detects genetic material of bacteria) and culture methods.

Results: At this point, results from 11 farms are available. The overall proportion of MAP-positive calves was 1.8%, with positive calves found on 9 of the 11 farms. 13% of 77 environmental samples from 5 of the 11 farms were positive. No dust samples were positive. Complete results will be presented at the conference.

Conclusions: At most MAP-infected dairy farms, young stock shed MAP in their feces, resulting in a high proportion of pens that are MAP-contaminated. Therefore, MAP bacteria can easily be transmitted not only from cow to calf, but also from calf to calf.

Implications: We need to rethink our current MAP control strategy by implementation of best calf hygiene management practices on dairy farms. This would not only help to control MAP, but also help to control many other fecal orally transmitted diseases like *Salmonella*, *E. coli*, Rota/Corona and *Cryptosporidium*.