

## **Effect of delayed calf-dam separation on *Cryptosporidium* infection in dairy calves.**

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Cryptosporidiosis is a globally important diarrhoeal disease in both animals and people. Livestock, particularly young calves, are vulnerable to cryptosporidiosis and have been identified as a major source of environmental *Cryptosporidium* transmission. Calf vulnerability can also have a major impact on the cattle industry through the costs of diagnosis and treatment, production losses, poor future performance, and mortality. Cattle are commonly infected with four species of *Cryptosporidium*, with the zoonotic *Cryptosporidium parvum* often associated with clinical disease in calves. The effect of altered calf management, notably delayed calf removal from the dam, on *Cryptosporidium* infections has, however, not been investigated.

We collected faecal samples from individual cattle over several weeks to determine whether delayed calf removal affects infection timing in three experimental groups: 1) Control group - dam and calf separated on the day of birth with no further contact, 2) Full-time group - dam and calf together 100% of the time until weaning at eight-weeks, 3) Part-time group - dam and calf together 50% of the time, until weaning at eight-weeks. We used nested PCR amplification and further sequencing on extracted faecal DNA collected from both calf and dam samples. Infection with *Cryptosporidium* spp. was identified in all three groups at different levels, with a higher incidence in the control group. Improving our knowledge on *Cryptosporidium* transmission is essential to mitigate disease risk and to support a One Health approach to human and animal cryptosporidiosis.