

# Research Summaries 4

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## Comparison of Transmission of *Anaplasma marginale* Infection using Needle-free and Standard Needle Injection

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### Introduction

Iatrogenic transmission of *Anaplasma marginale*, associated with livestock management procedures, is a concern for veterinarians and producers worldwide. The purpose of this study was to compare transmission of *A. marginale* infection from an infected steer to uninfected steers following needle-free versus conventional needle injection.

### Materials and Methods

Twenty-six Holstein steers were purchased and confirmed negative for *A. marginale* infection by cELISA and a new ribosomal RNA RT-PCR. One animal was splenectomized and inoculated with a Virginia isolate of *A. marginale* to serve as a parasitemic carrier animal. The remaining twenty-five steers were blocked by bodyweight and randomly assigned to one of 3 groups: Group A (needle-free injection, n=10), Group B (needle injection, n=10), and Group C (no injection, n=5). A 2ml intramuscular injection of sterile saline was alternated between the parasitemic calf and respective non-

parasitemic calves in Group A utilizing the Felton Needle-free Injection System (Intervet Inc. of Intervet International). Similarly, calves in Group B were injected following the parasitemic calf using a conventional 16 gauge, 1" needle. The remaining five calves in Group C served as non-injected controls.

### Results

Preliminary results at 35 days post injection indicate that 5/10 calves in Group B tested positive for *A. marginale* by both cELISA and PCR assays, while all animals in Groups A and C tested negative on one or both diagnostic assays.

### Significance

Preliminary findings suggest needle-free injection has a lower likelihood of iatrogenic transmission of *A. marginale* than conventional needle injection. These results have important implications for implementing biosecurity programs in production systems.