

# A composition study of a targeted sampling of Ixodidae family ticks and their pathogen status throughout the Flint Hills region of Kansas

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## Introduction

Bovine anaplasmosis is an economically significant disease of cattle concerning the producers and veterinary practitioners of the state of Kansas as well as the rest of the United States. Its transmission by iatrogenic vectors has been well classified. The role of persistently infected ticks in the transmission of *Anaplasma marginale* is also well known, but their role as biological magnifiers and their ability to harbor the bacteria in novel ecological areas warrant further examination. The objective of this study was to quantify the distribution and infection status of Ixodidae ticks throughout the rangeland of the Flint Hills region of Kansas.

## Materials and Methods

This sampling was performed during the months of May through August of 2016. Twenty-three collection sites were selected by producer permission with no randomization. The Flint Hills area was defined by the Western Ecology Division of the Environmental Protection Agency. Sites with

close proximity to the target region were also surveyed. Collection areas were productive grazing pastures, with and without grazing during the collection period. Questing ticks of all species and life-stages were collected.

## Results

In total, 5013 ticks were collected, including ticks of 2 genera and 3 species. The most frequently observed species was *Amblyomma americanum*, 93.7% of the total; *Dermacentor variabilis* and *Amblyomma maculatum* comprised 5.1% and 1.2%, respectively.

Tick analysis for pathogen association and frequency is on-going.

## Significance

Classifying the distribution and infection status of competent biological vectors of anaplasmosis will be instrumental in further epidemiology of the current and future presence of the disease in Kansas.

# Retrospective study of retroperitoneal abscess in cattle

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## Introduction

A retroperitoneal abscess is a collection of suppurative fluid between the peritoneum, the transverse and internal oblique muscles. It was reported in cattle following laparotomy. The objectives of this retrospective cases-series study are to describe the clinical signs, clinical pathological findings, treatment options and outcome.

## Materials and Methods

Medical records from the VMTH of the Université de Montréal between January 1995 and January 2017 were reviewed. To be included, the retroperitoneal abscess had

to have a diameter greater than 30 cm and at least 3.5 cm deep from the skin surface diagnosed by ultrasonography or rectal examination. Short term prognosis was defined as being discharged from hospital. Long term prognosis was evaluated for animals with more than 6-month life production by consulting the Canadian Dairy Network database.

## Results

Thirty-six medical records respected our inclusion criteria. They were Holstein females from 2.2- to 7-years-old (mean 4.1 SE 1.26). In 27 cases, the abscess was palpated per rectum (82%). Ultrasonography confirmed the presence of an abscess in all cases. Thirty-two cattle (89%) underwent flank

laparotomy prior to presentation, 4 did not have surgery. Duration of clinical signs upon presentation was 31.6 days (SE 13.7, range, 10 to 71). Upon arrival, retroperitoneal abscess was associated with fever ( $>102.7^{\circ}\text{F}$ ;  $>39.3^{\circ}\text{C}$ ) in 12/36 (33%), tachycardia ( $>80$  bpm) in 9/36 (25%), and tachypnea ( $>40$  breaths/min) in 6/34 (9%) of animals. Dehydration was present in 36.3% (13/36) of the animals. Bacteriological culture was performed in 80.5% (29/36) and was positive in 72.5% (21/29). The most common bacteria isolated was *Truoperella pyogenes* (27.5%) followed by mixed bacterial growth, with the presence of the *T. pyogenes* (20.6%). HCT was decreased in 58%; neutrophilia was present in 30/35; fibrinogen was increased in 65% (23/35) with a mean of 6 g/L (SE 1.5, range 2-11); total proteins were increased in all animals (mean 65.6 g/L; SE 6.2, range 52.7-79.8) with low albumin in 80% (mean 23 g/L; S.E 4.85, range 14.3-33.8); and increased globulins in 37% (mean 42.6 g/L; SE: 5.8; range 22.5-58.5). Hypocalcaemia was present in 77% and hypokalemia in 42%. Thirty-one animals had surgical drainage (86%). One animal had its abscess drained prior to admission. The volume of collected fluid was estimated between 10 and 40 liters. Lavage of the abscess cavity was performed in 26 animals (81%) with tap water and povidone-iodine solution during an average of 10.5 d (SE 8.1, range 0 to 32). All animals received parenteral antibiotics (mean duration, 16.3 days, SE 7.2, range 1 to 42 days); 4 of them were treated

with antibiotics only. Duration of hospitalization was 13.5 days (SE 8.13, range 1 to 46 days). Thirty-three animals (92%, 33/36) were discharged from the hospital. Three animals (8%, 33/36 cases) were euthanized during hospitalization. Long-term prognosis was available for 16 animals (48.5%, 16/33). Nine (56%) completed at least 1 lactation after hospital's discharge, 7 (44%) did not complete a lactation after being discharged.

### Significance

The majority of the affected animals underwent right flank surgery, but the nature of this study cannot identify specific details of the procedure leading to this infection. Chronic, low-grade fever following a laparotomy was found on most animals. Abscess formation and distension is a slow process explaining the long duration before referral. Ultrasound examination confirmed our suspicion and was helpful to determine the drainage site. Because the most common bacteria was *T. pyogenes*,  $\beta$ -lactams are suggested as antibiotic treatment. The long period of hospitalization was required to lavage the large cavity until significant contraction was observed. Based on the short and long-term prognosis, we conclude that treatment can be successful following surgical drainage.

## Extended withdrawal time (EWDT) of drugs to prevent residues in food following extra label use

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### Introduction

Safety of food originated from animals is an emerging global health problem, and ensuring food safety is a challenge for the producers and governments who deal with protecting the food supply chain from contamination with hazardous microbes, chemicals and/or drugs. In the United States (US), the Food Animal Residue Avoidance Databank (FARAD) program is a unique consortium of scientific experts who help maintain a proper balance among animal health, food safety, and regulatory policies. Veterinarians must often use drugs in an extra-label manner to treat food animals due to limited availability of Food and Drug Administration (FDA) approved drugs. Extra-label drug use (ELDU) is allowable under the

Animal Medicinal Drug Use Clarification Act (AMDUCA). Following ELDU, and before products derived from the treated animal can be sold and marketed, an extended withdrawal time (EWDT) needs to be established, based on appropriate scientific data. The objective of this paper is to discuss the scientific basis for determination of EWDT of drugs used in food animals using kinetic modeling approach.

### Materials and Methods

An extended withdrawal time for extra-label use of FDA approved drugs is calculated using half-life multiplier method (Gehring et al, 2004). The FDA approved label information including species, matrix, dose, route, frequency of