

University of Prince Edward Island

Faculty of Veterinary Medicine
Summary of Dissertation

Submitted in Partial Fulfilment
of the Requirements for the

DEGREE OF MASTER OF VETERINARY SCIENCE

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The push-pull blood collection method using peripheral intravenous catheters is a reliable method for serial blood sampling in hospitalized dogs: a prospective study of 70 dogs

Serial venipuncture is common practice in hospitalized veterinary patients for monitoring of key blood indices. These patients also are routinely receiving intravenous fluid therapy as part of their treatment protocol. Serial venipuncture can be associated with pain, stress and morbidity. Historically, peripheral intravenous catheters have been demonstrated to be effective for blood collection with reliable results at the time of catheter placement. However, this method of blood collection has not previously been evaluated for reliability in hospitalized patients receiving intravenous fluids and medications.

Dr. Welch completed a prospective study evaluating the reliability in hematology and biochemistry indices collected from peripheral intravenous catheters using a previously validated push-pull protocol. This study demonstrated that a push-pull method of blood collection is a reliable method of blood collection with results comparable to traditional venipuncture samples. When comparing venipuncture samples to blood samples collected with the push-pull method, results at both the time of catheter placement and after a minimum of 24 hours of intravenous fluids and medications were clinically equivalent. Additionally, when evaluating variability between these sampling methods, differences fell within acceptable ranges established by the American Society for Veterinary Clinical Pathology, which were designed for intra-assay variability

Publications

Idiopathic cervical abscesses in dogs follow seasonal trends and geographic risk factors, predominantly affecting young, large breeds: a case-control study of 67 dogs in New England
Bryan T. Welch, Raphael Vanderstichel, Rebecca Quinn, Lauren Toleson. Journal of the American Veterinary Medical Association, August 2024. Volume 262(10).

Hyperglycemic Hyperosmolar Syndrome Case Example
American Society for Veterinary Clinical Pathology Case Discussion Session. 2024. Matthew Yeung, Noel Clancey, Cornelia Gilroy, Sandra McConkey, Bryan T. Welch.

Decompressive craniectomy surgery in a dog with intracranial extradural hematoma following blunt force trauma
Ciaran C. O'Carroll, Bryan T. Welch, Meagan A. Walker, Adam T. Ogilvie, Lorrie Gaschen, Katie L. Hoddinott. Canadian Veterinary Journal, May 2024. Volume 65(5). Pg 437.

Cricopharyngeal and thyropharyngeal myectomy for surgical management of cricopharyngeal achalasia in a 6-month-old coton de Tulear dog
Bryan T. Welch, Adam T. Ogilvie, Ian Porter, Emilia Bourassi. Canadian Veterinary Journal, July 2023. Volume 64(1). Pg 633.

Ionized hypercalcemia in cats with azotemic chronic kidney disease (2012-2018) (article review)
Bryan T. Welch, Sheri Ross. Clinician's Brief "in the literature" reviews. October, 2022.

Peritoneal-pericardial Diaphragmatic Hernia in a 6-year-old Male Intact Pug Dog
Bryan T. Welch. Canadian Veterinary Journal, January 2021. Volume 62 (1). Pg 69.

Presentations

Exocrine pancreatic insufficiency in dogs and cats. RACE approved by Massachusetts VMA for 2 CE hours. Presented February 4th, 2025. Mezza Luna Restaurant. Buzzards Bay, MA.

Biographical Data

Born in Worcester, MA USA

Awards

Exemplary Service in the Atlantic Veterinary College Veterinary Teaching Hospital Emergency Service Award (2023, 2024)

Natasha Memorial Tuition Scholarship (2023)

Alice Peake Bissett Residency in Companion Animal Scholarship (2022)

VECCS Award for Proficiency in Emergency and Critical Care (2020)

Elanco Award for Proficiency in Parasitology (2020)

CDMV Award for Proficiency in Small Animal Surgery (2019)