University of Prince Edward Island

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Summary of Dissertation

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The epidemiology of canine *Staphylococcus pseudintermedius* in Atlantic Canada

The purpose of this thesis was to describe the epidemiology and AMR patterns of *S. pseudintermedius*, with an emphasis on methicillin-resistant *S. pseudintermedius* (MRSP), isolated from clinical canine specimens submitted to a regional veterinary diagnostic laboratory in Atlantic Canada over an eleven-year period (2008 – 2018). The aims were to: explore the temporal distribution of clinical *S. pseudintermedius* and MRSP isolated from dogs (Chapter 2); describe patient characteristics and the geographical distribution of canine *S. pseudintermedius* and MRSP across Atlantic Canada (Chapter 2); identify risk factors associated with isolating MRSP from *S. pseudintermedius* isolates (Chapter 3); investigate differences in AMR profiles between MRSP and MSSP isolates (Chapter 2); and determine AMR trends in MRSP and MSSP isolates over the study period (Chapter 3).

Between 2008 and 2018, 13.9% of canine *S. pseudintermedius* isolates (n = 3530) were MRSP, the proportion of MRSP increased over the study duration ($P < 0.001$). Breed size ($P = 0.031$), culture sample site ($P < 0.001$), patient's province of residence ($P = 0.002$), and year of sample submission ($P < 0.001$) were identified as significant risk factors associated with a *S. pseudintermedius* isolate being MRSP. Over the study period, MRSP isolates demonstrated a change in resistance to enrofloxacin ($P = 0.036$) and decreased resistance to trimethoprim-sulfamethoxazole ($P < 0.001$). Increased resistance was observed in MSSP isolates to enrofloxacin ($P < 0.001$), chloramphenicol ($P < 0.001$), and trimethoprim-sulfamethoxazole ($P = 0.023$), as well as a decrease in resistance to the penicillins ($P < 0.001$).

These results confirm that over the past decade, MRSP has emerged as an important canine pathogen in Atlantic Canada. *S. pseudintermedius* isolated from dogs in this region have become increasingly resistant to several antimicrobials commonly recommended for use by veterinarians, emphasizing the importance of effective infection control practices and antimicrobial stewardship programs.