

Investigating the Seroprevalence of Equine Arteritis Virus Among Standardbred Racehorses on Prince Edward Island

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Abstract

Equine viral arteritis (EVA) is a disease caused by equine arteritis virus (EAV). A 2023 outbreak on Prince Edward Island (PEI) led to 7 PCR-confirmed deaths and many affected breeding stock. Surveillance has since then been targeted towards mares and stallions used for breeding with few resources dedicated to the racehorses. The aim of this study is to investigate the extent of EAV spread within the racehorse population housed at racetracks on PEI. It is hypothesized that the seroprevalence of EAV will be low (< 20%), but that the horses which are seropositive will have been on or from larger farms that also house seropositive animals.

Objectives

1. Determine the seroprevalence of EAV among standardbred racehorses housed at racetracks on PEI
2. Understand the extent of the spread of EAV throughout the PEI standardbred population
3. Continue spreading awareness for proper biosecurity to avoid another outbreak

Materials & Methods

- Voluntary participation by owners who stable horses across 3 different racetracks (Charlottetown Driving Park (CDP), Summerside, O'Leary) with enrollment and sample collection taking place between June 12, 2025 – June 30, 2025
- Owner survey to obtain patient history
- Blood samples obtained from each horse for serum neutralization testing
- Dacron nasal swabs for horses displaying clinical signs (fever, edema, urticaria, ocular discharge, lethargy, upper respiratory signs)
- Track-IT database to observe horse travel both in and out of province
- Study approved by UPEI Animal Care Committee

Results

- 159 horses were tested, with 133 from CDP (84%), 14 from Summerside (9%), and 12 from O'Leary (7%)
 - 1 horse had active clinical signs of EAV and had a nasal swab performed with negative results
- 40 out of 159 horses tested (25%) had EAV antibodies and all were stabled at CDP
- 7 individuals were brought in from outside of PEI, 9 were from PEI farms with an unknown or <45% positivity rate, and 24 were from PEI farms with a >45% positivity rate
- 32 out of the 40 positive (80%) were 2-year-olds born in 2023 during the height of the PEI EAV outbreak
 - 25 dams were able to be tracked and 17 of the 25 were bred to confirmed EAV-shedding stallions within a month of foaling in 2023

Total EAV -SN Positive Horses

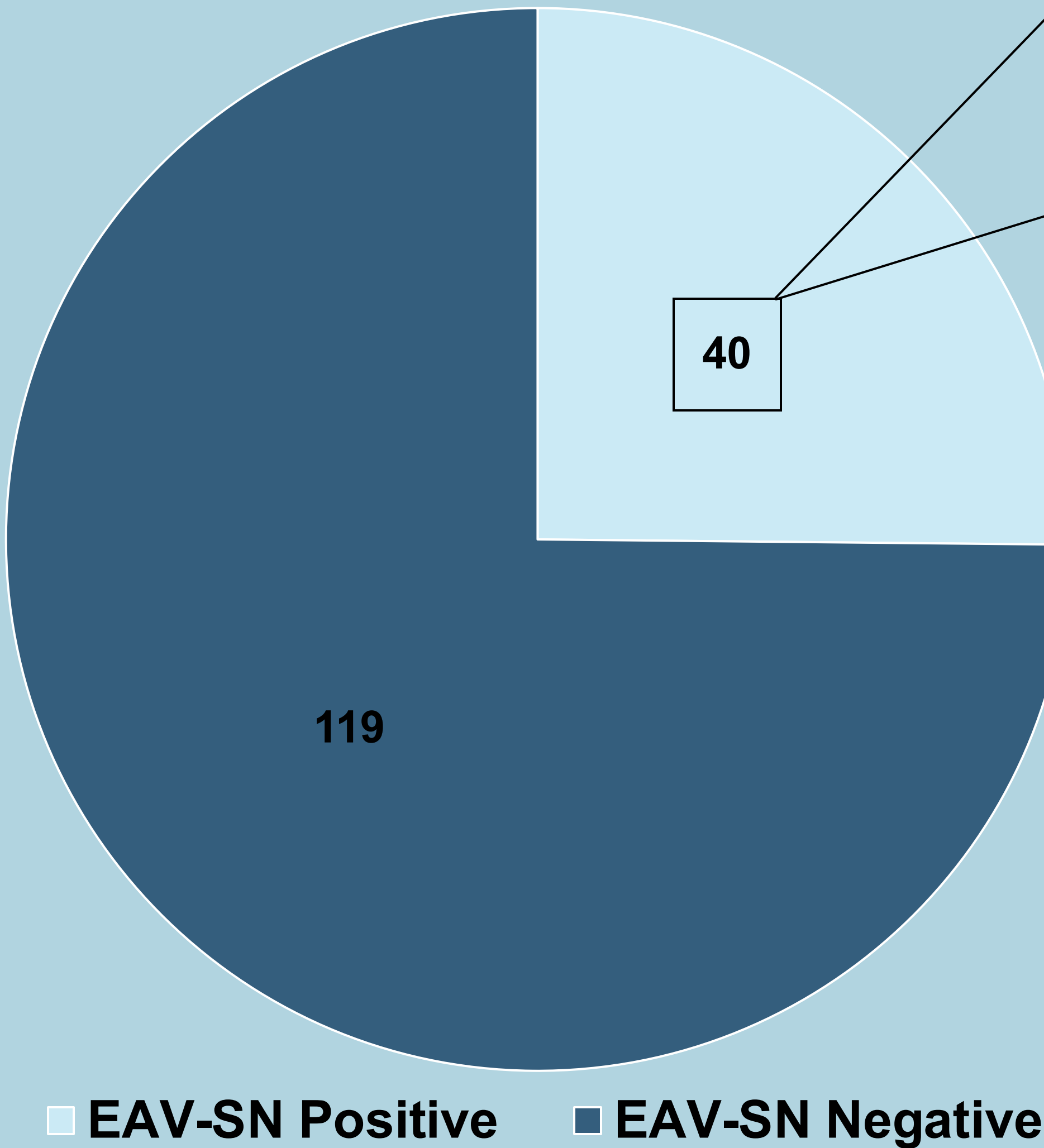


Figure 1. A pie chart providing visualization for the number of horses which were EAV-SN positive out of the total horses tested

Demographics of EAV -SN Positive Horses

- From PEI farm with <45% positivity rate
- Not from PEI
- From PEI farm with >45% positivity rate

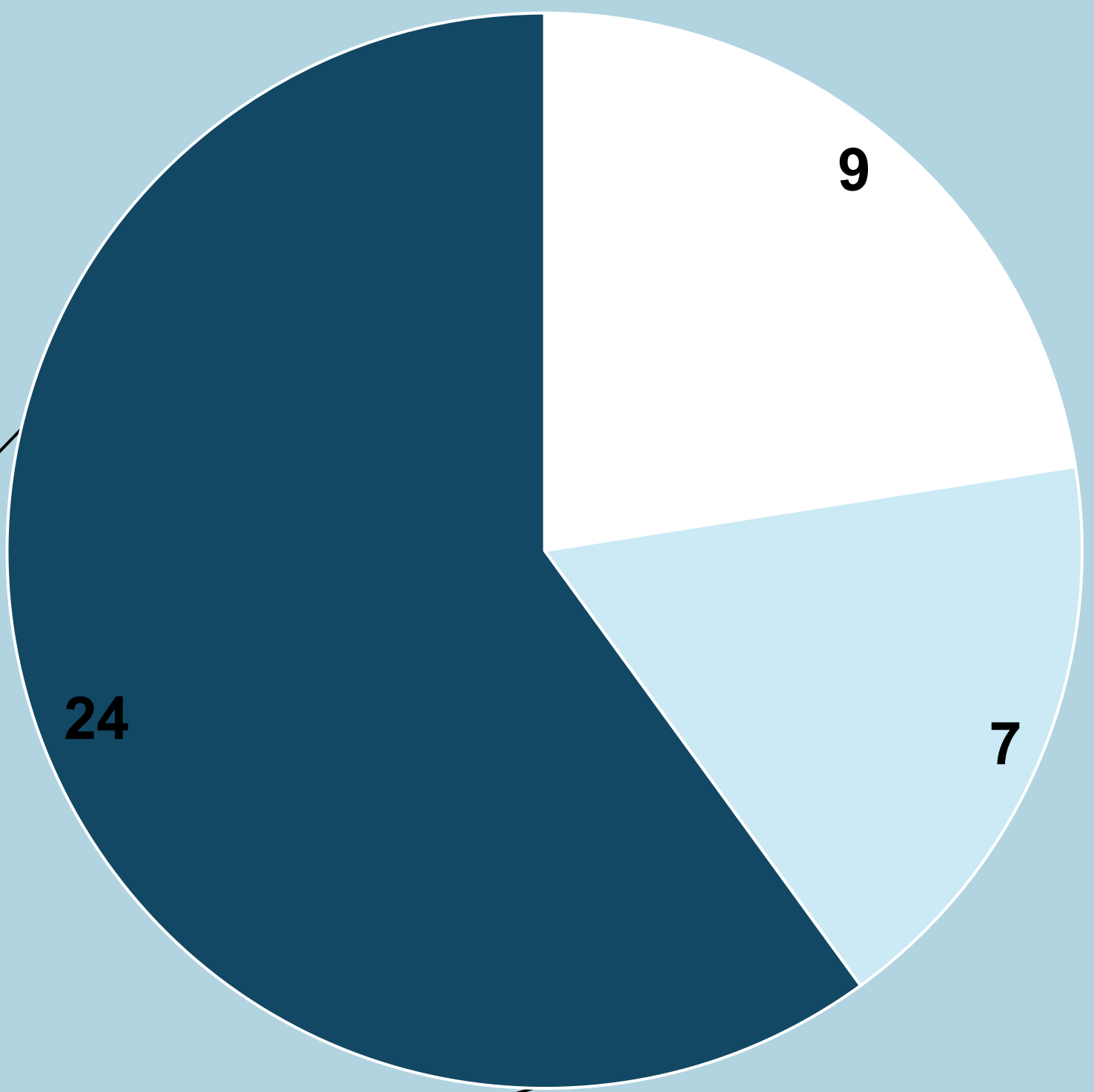
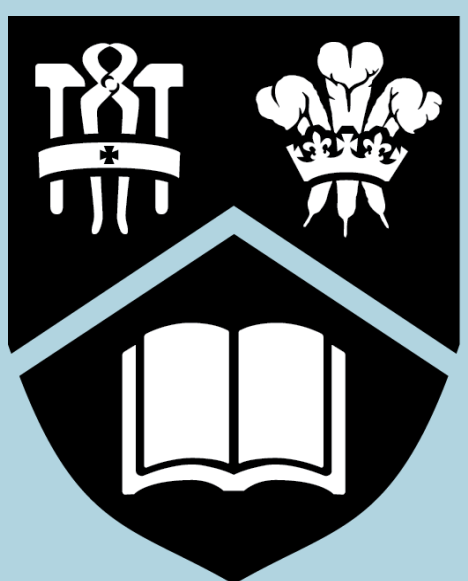


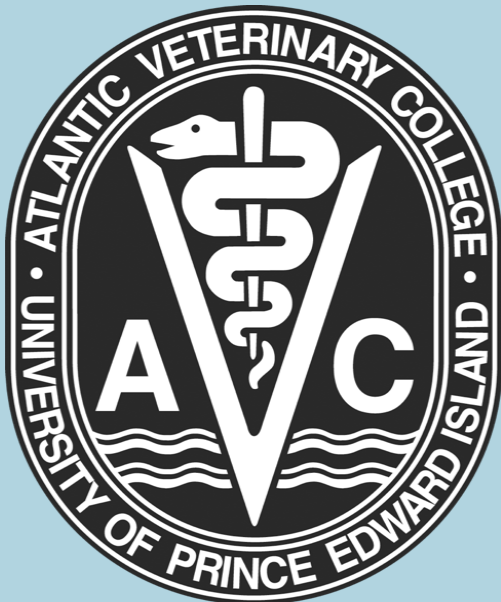
Figure 2. A pie of pie chart providing visualization for the demographic breakdown of the horses which were EAV-SN positive

Conclusions

- Demographics of the EAV-SN positive horses suggest no active circulation of EAV throughout the racetracks or large sales
- PEI racehorses are more likely to be exposed at breeding farms, whether from their dams as foals or from being stabled at these properties during breaks from racing as adults
- All seropositive horses were likely found at CDP partly due to its large size and more constant movement in and out of the facility, and partly due to most samples being collected there
- A higher seroprevalence than hypothesized indicates potential for EAV to become endemic among PEI standardbreds if carrier stallions persist within the population, but without continued exposure or vaccination it is possible that antibody levels will decrease and the population will become naïve again



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