

# Investigating the Origin of the 2023 Equine Arteritis Virus Outbreak on Prince Edward Island

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## Abstract

The aim of this study was to determine the origin of the EAV outbreak which swept through the Standardbred population and caused both loss of life and great financial loss. Historically, EAV is introduced to a population through a new carrier stallion being brought to the impacted region and so it is hypothesized that the virus was brought to PEI through a newly imported carrier stallion who shed the virus to other horses throughout the 2023 breeding season.<sup>1</sup>

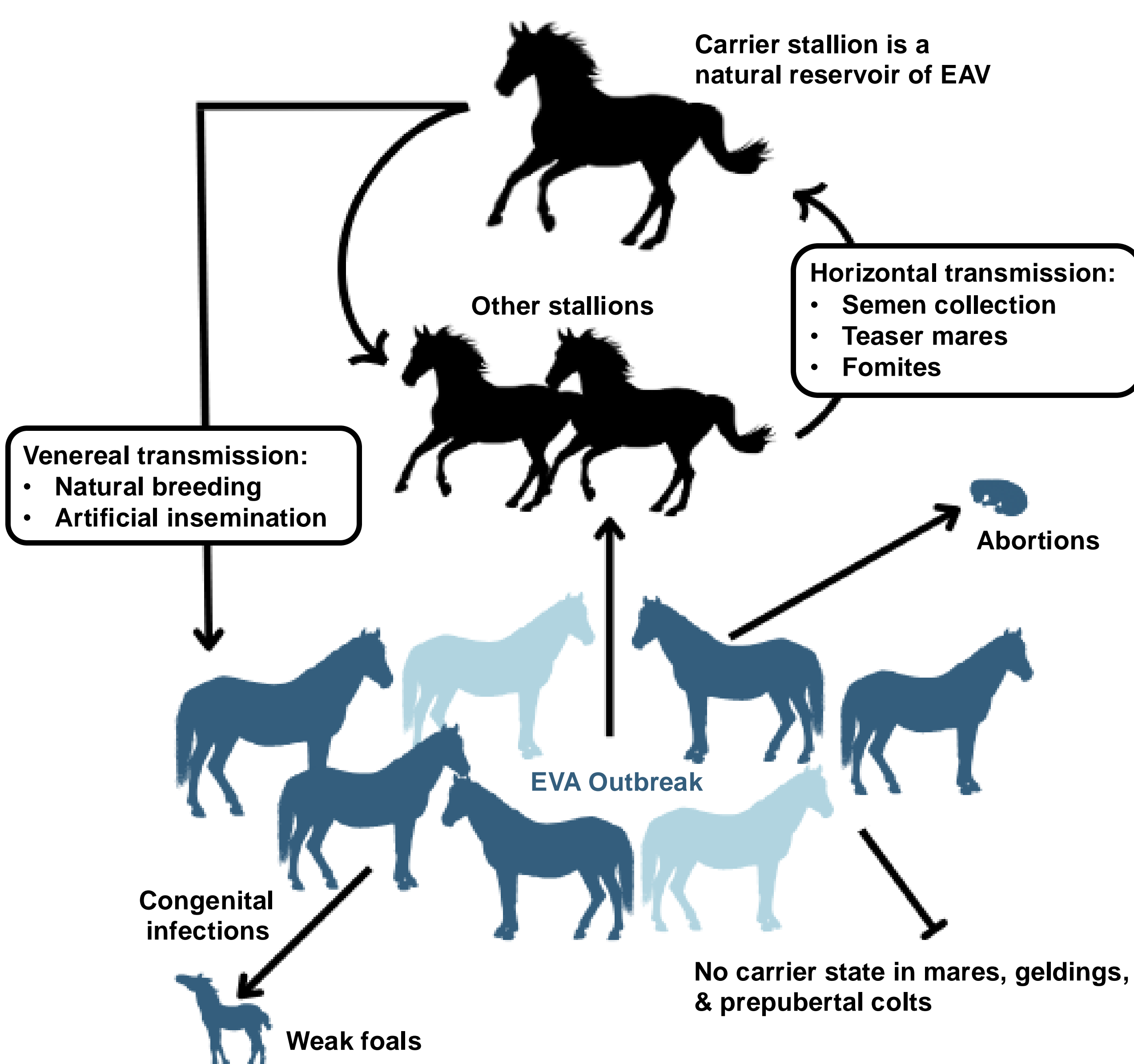
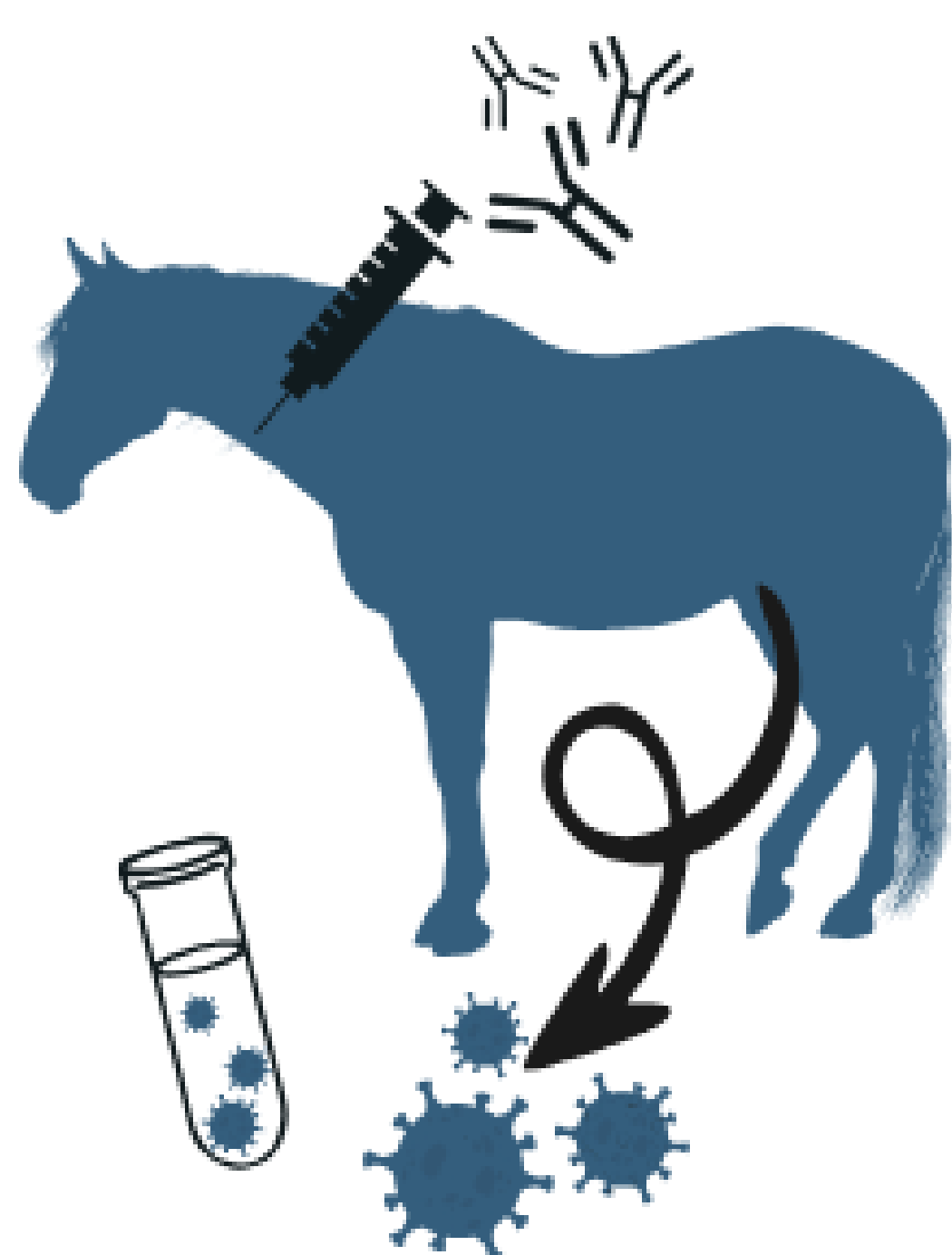


Figure 1. Diagram depicting various modes of transmission for the equine arteritis virus (EAV) which causes equine viral arteritis (EVA). Information provided by Balasuriya (2014).<sup>2</sup>

## Materials & Methods

1. Blood is collected by referring vets
2. Serum neutralization testing confirms presence of EAV antibodies in blood
3. Stallion's semen is collected
4. RT-PCR determines if virus is present in semen
5. Track-IT software is used to trace the movement & breeding of stallions, therefore also the movement of the virus



## Results I

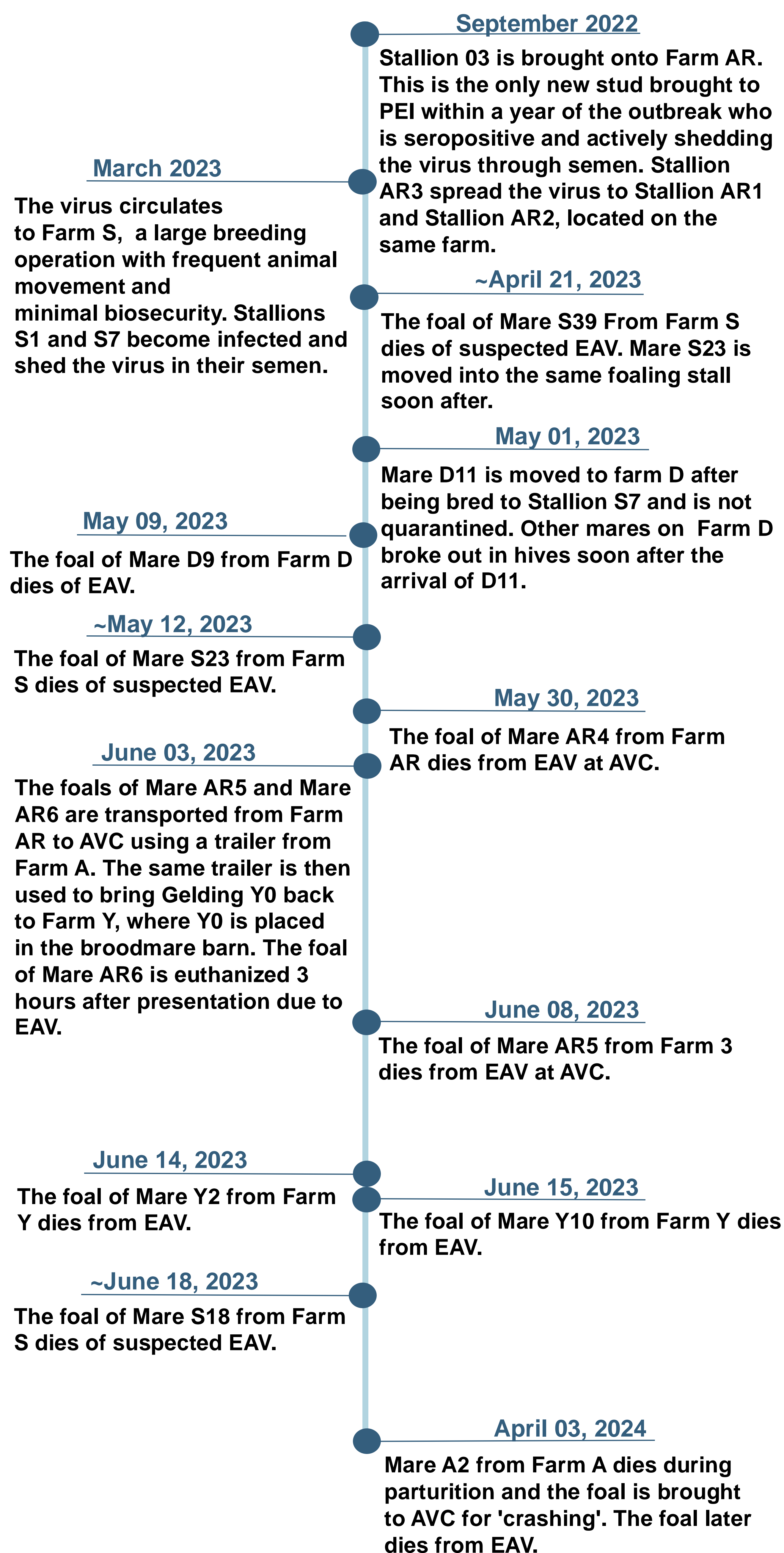


Figure 2. Timeline of events which occurred from September 2022 through April 2024 which led to the outbreak and the 10 deaths which are either confirmed or suspected to be a result of EAV

## Results II

- 5 of 20 PEI stallions were confirmed to be shedding EAV in their semen via RT-PCR
- 2 out of 4 trotting stallions tested positive for EAV
- 186 mares were bred by the 5 stallions

## Conclusion

- Evidence points to Stallion AR3 from Farm AR as the most probable candidate for bringing EAV onto PEI
- Missing or incomplete breeding and movement records along with a lack of cooperation from some stallion owners makes it impossible to determine the origin and spread of the outbreak with complete certainty
- Improper biosecurity protocols and farm management contributed to the spread of the virus and some of the neonatal deaths
- A combination of increased awareness of EAV, implementation of biosecurity protocols, and the vaccine or naturally gained immunity will ideally prevent such an outbreak from reoccurring<sup>3</sup>

## References

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