

# A Study of Spontaneous Equine Abortions and Stillbirths Submitted to the VMDL of University of Missouri



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## RESEARCH OBJECTIVES

- To review the main causes of spontaneous equine abortions and stillbirths submitted to the Veterinary Medical Diagnostic Laboratory of University of Missouri (MU VMDL) between 2005 and 2014.
- To elucidate a possible cause for abortions and stillbirths originally categorized as having an unknown etiology.

## BACKGROUND

- Abortion is defined as fetal loss before 300 days of gestation, and delivery of a dead foal after 300 days is denoted as a stillbirth.
- Equine abortions and stillbirths have a significant economic impact.
- The causes of abortions and stillbirths in horses are often hard to be confirmed.
- Knowledge of potential etiologies of abortions and stillbirths is a prerequisite for effective prevention and reproductive management.

## Common infectious etiologies

### Bacterial

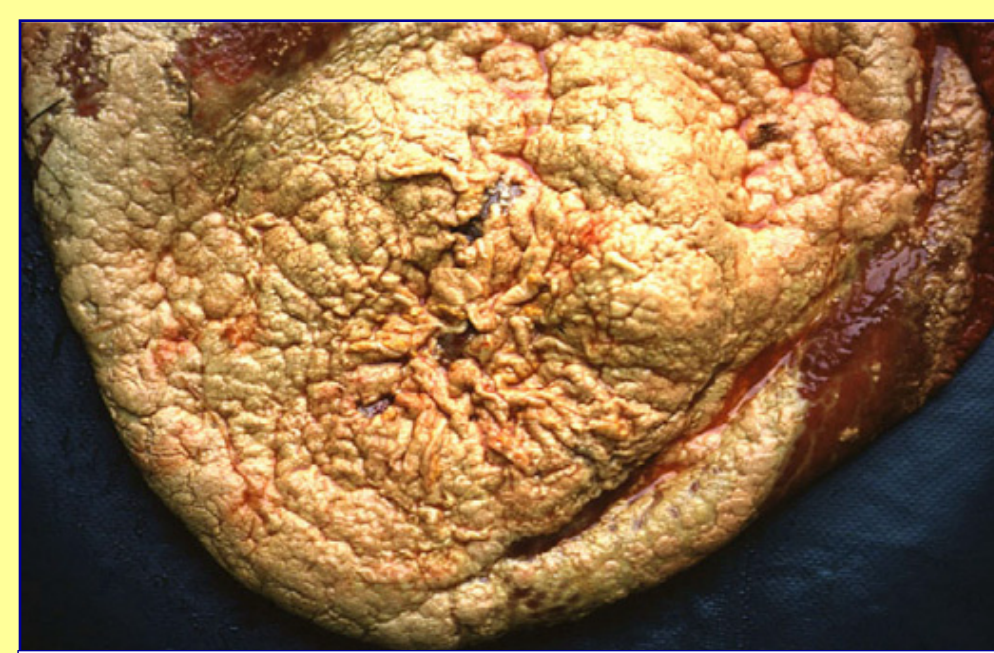
- Escherichia coli*
- Streptococcus zooepidemicus*
- Leptospira* spp.
- Streptococcus equisimilis*
- Salmonella* spp.
- Enterobacter agglomerans*
- Klebsiella pneumoniae*
- Pseudomonas aeruginosa*

### Viral

- Equine herpesvirus (EHV-1 & EHV-4)
- Equine arteritis virus

### Fungal

- Aspergillus* spp.
- Mucor* spp.



Ascending bacterial placentitis

## Common non-infectious etiologies

- Umbilical cord torsion
- Twins
- Trauma
- Fescue toxicosis
- Body pregnancy
- Placental insufficiency
- Congenital anomalies
- Premature placental separation



Aborted twins

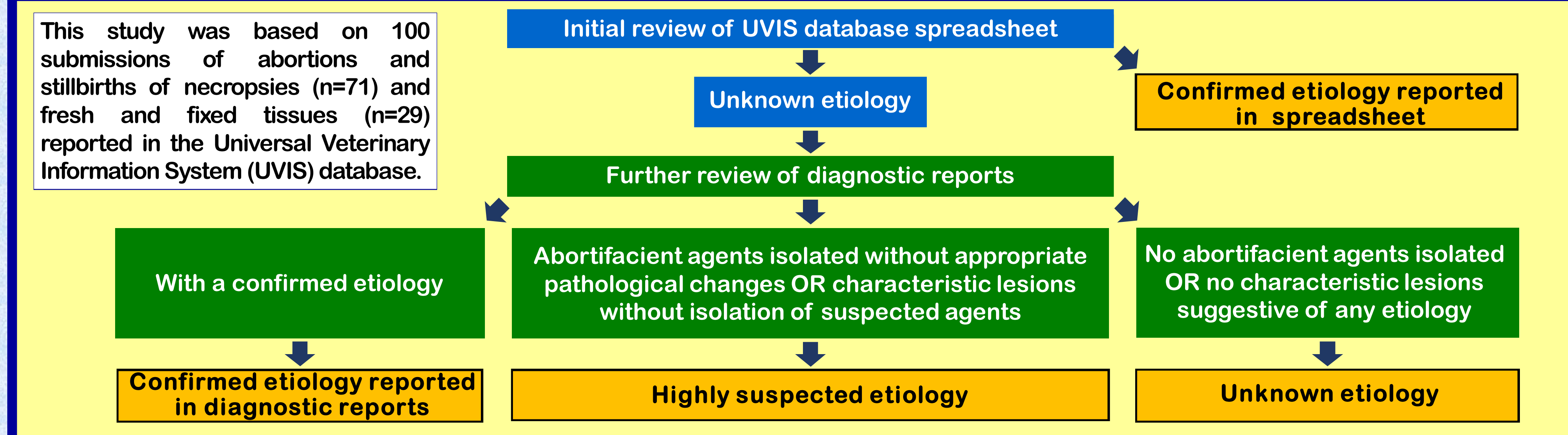
## Acknowledgements

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## MATERIALS AND METHODS

### Summary of steps to review diagnostic results



## RESULTS

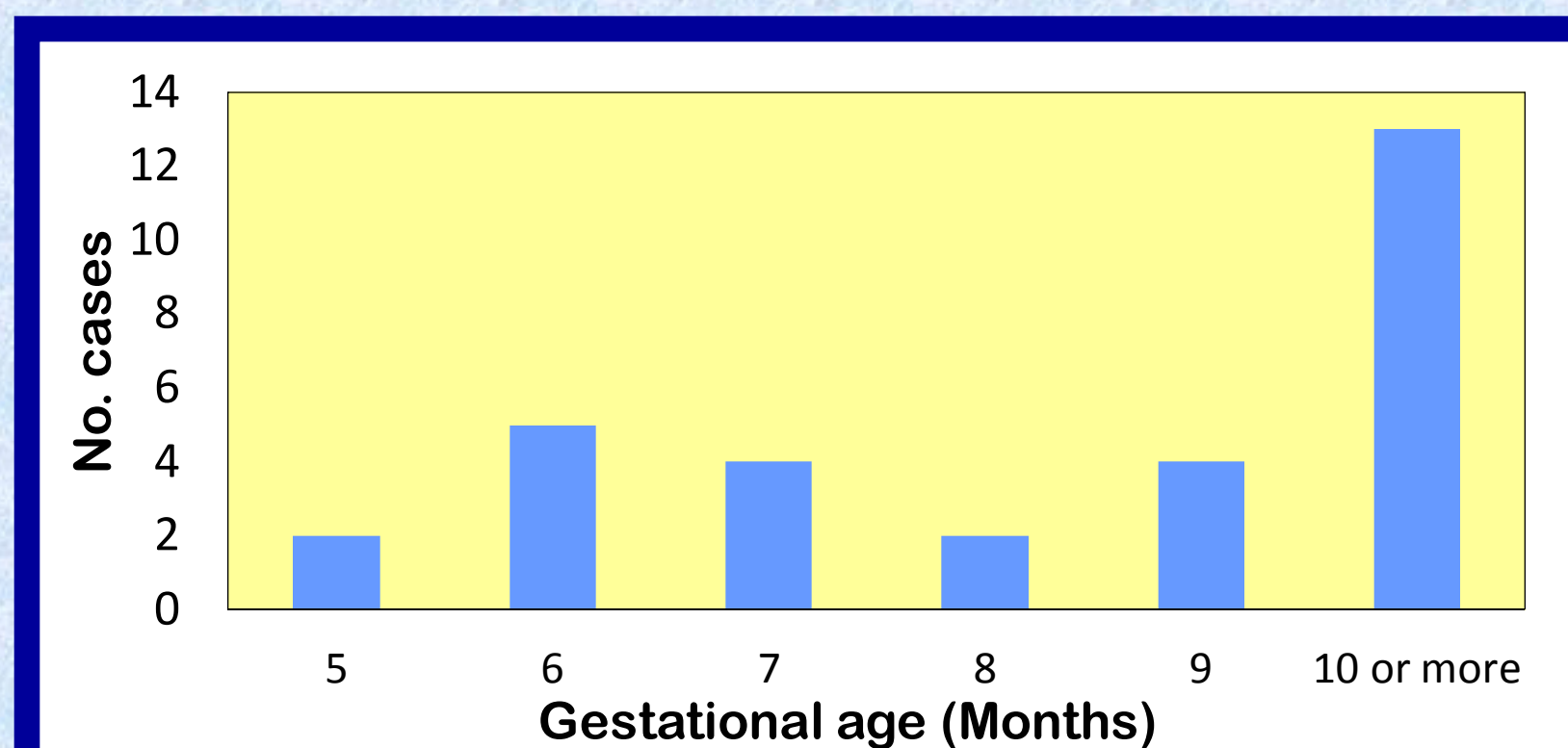


Figure 1: Gestational age was only provided in 31 aborted fetuses and stillborn foals.

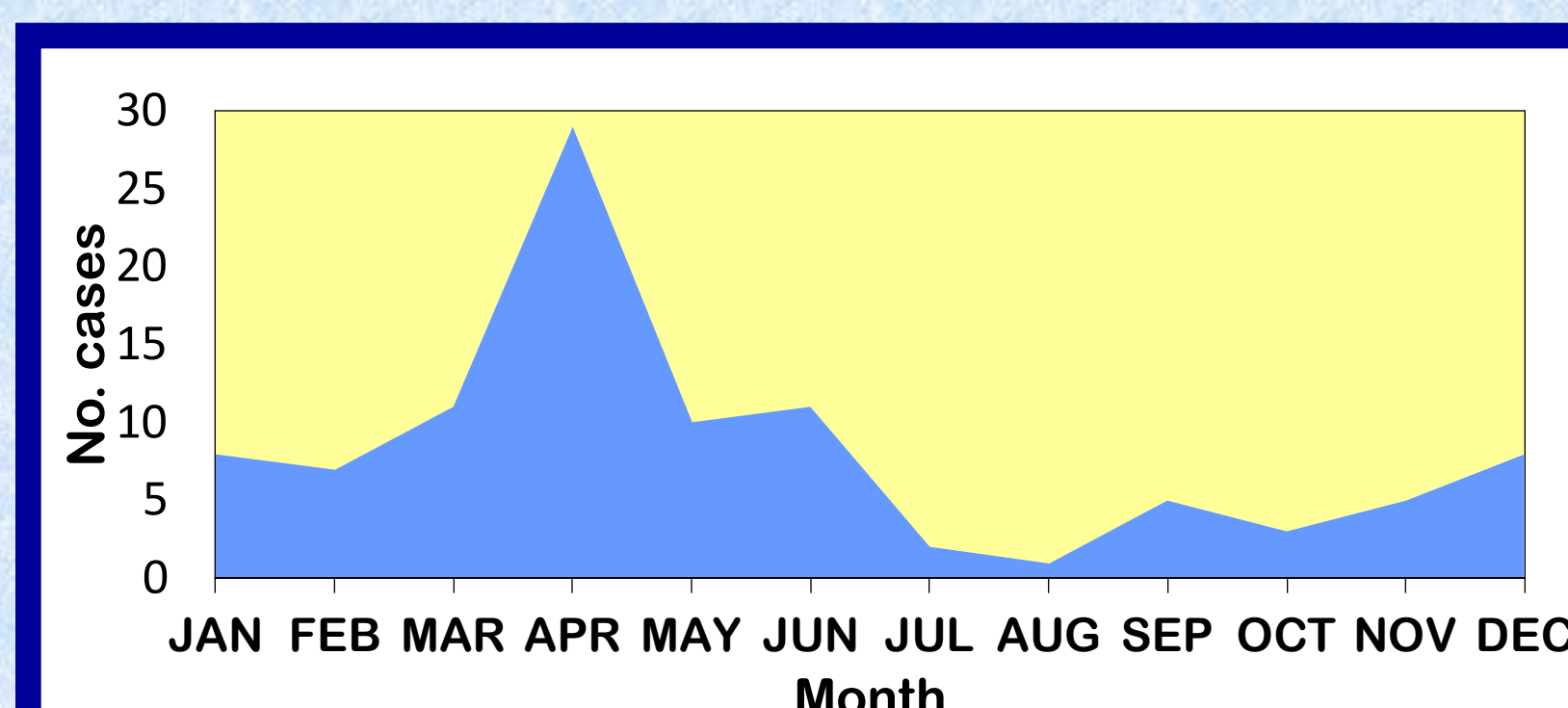


Figure 2: Month of equine abortions and stillbirths received between 2005 and 2014.

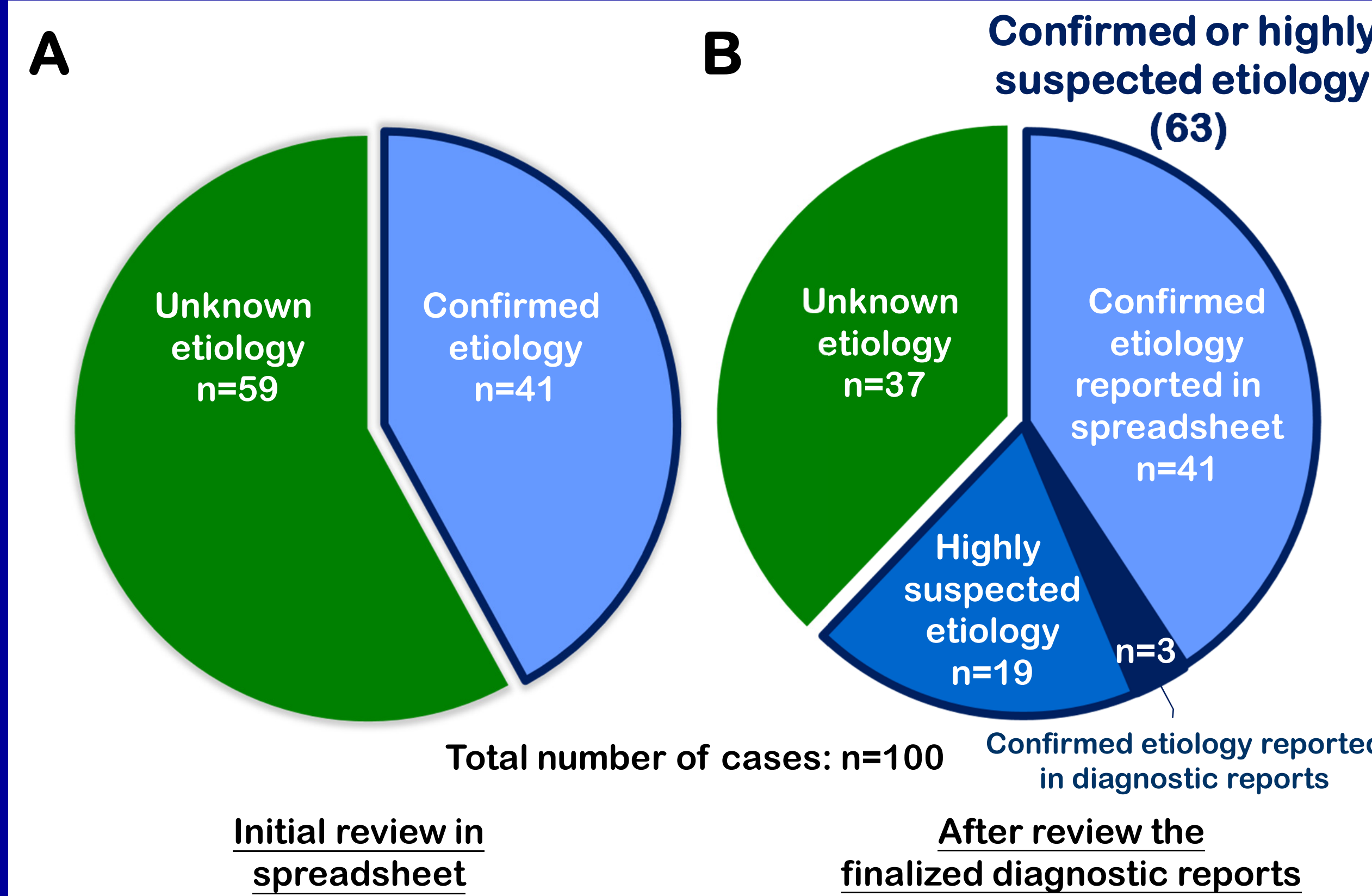


Figure 3: Upon initial review of the UVIS spreadsheet, a confirmed etiology was reported only in 41 cases (A). After review of the finalized diagnostic reports, 63 cases were identified with a confirmed or highly suspected etiology (B).

## CONCLUSIONS

### Summary of definitive and highly suspected etiologies

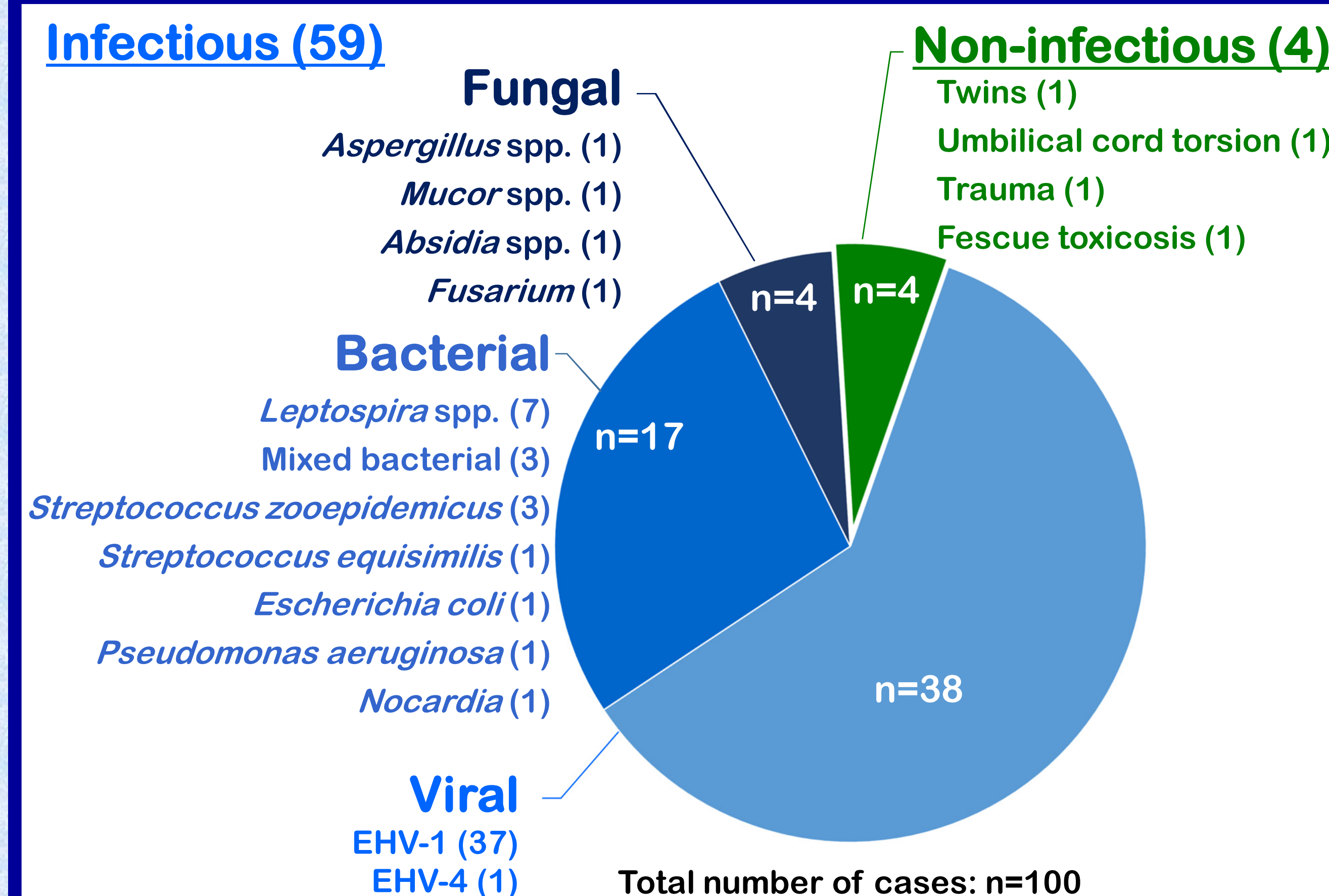


Figure 4: The infectious causes were the most diagnosed etiologies. Only 4 non-infectious abortions were reported. However, most abortions associated with twins would not be submitted for necropsy, and no etiology was suggested in the remaining 37 cases.

## TAKE-HOME POINTS

- Careful review of UVIS database elucidated a confirmed or highly suspected cause of abortions and stillbirths in an additional 22% of the cases reviewed.
- Infectious etiologies were most often reported as the causes of the spontaneous equine abortions and stillbirths submitted to the MU VMDL.
- HOWEVER, twins, the cause of most non-infectious spontaneous equine abortions and stillbirths will be underrepresented in a review of diagnostic laboratory submissions.



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