

Leptospirosis Seroprevalence and Titer Concentration in Equine

M. Baxley, A. Himmelsbaugh, M. Taylor, K. Netz, and S. Porr

Introduction

Vaccines can help prevent and protect animals from diseases. Most vaccines are given annually, but this may not be needed if immunity lasts longer than a year. Leptospirosis, a bacterial disease, can cause multiple health issues in horses, including blindness and abortion. There is a vaccine available for Leptospirosis pomona, which is the serovar associated with most clinical cases in North America, but there is limited research on precisely how the immune system in horses responds to the vaccine. Vaccine response can be measured by serum antibody (titer) concentration.

Objective and Hypothesis

The objective of this project was to evaluate the immune response of horses to the L. pomona vaccine. It was hypothesized that most horses would have a negative titer at baseline and titers would increase after vaccination and booster.



Figure 1. Vaccinating for leptospirosis

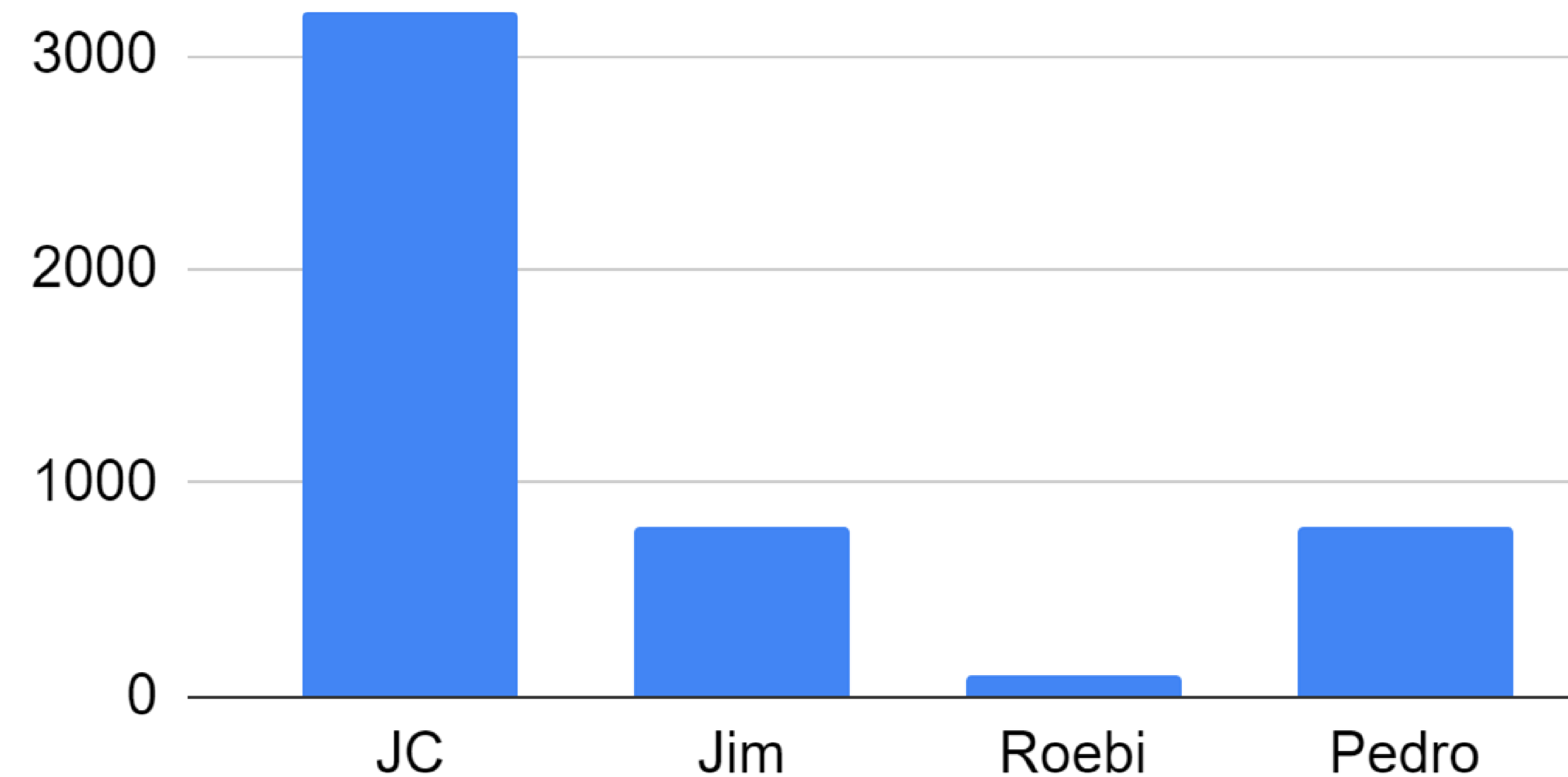


Figure 2. Horses positive for L. pomona at baseline

Methods

Animals

- 37 riding horses aged 4-26 yrs
- TRT, n=20; CON, n=17
- Housed in stalls or pastures
- Previously unvaccinated, no record of uveitis or abortion

Procedures

- d0, serum baseline antibodies evaluated
- d7, TRT horses vaccinated
- d21, serum antibodies evaluated
- d28, TRT horses boosted
- d35, serum antibodies evaluated
- Serum analyzed within 48 hrs or frozen until analysis

Acknowledgements

Thanks to Kentucky Lake Equine Hospital, and Dr. Jacquelin Boggs, Zoetis, for their expertise; Breathitt Veterinary Center and Murray State faculty and students for helping with the project; and the Office of Research and Creative activity for funding support..

Results

- No horses showed signs of illness after vaccination or booster
- Only 4 horses (10.8%) showed positive titer on d0 (Fig 2)
- 100% of TRT horses showed an increase in titer after first vaccination
- After booster, 30% increased, 25% did not change, and 45% decreased (Fig 3)

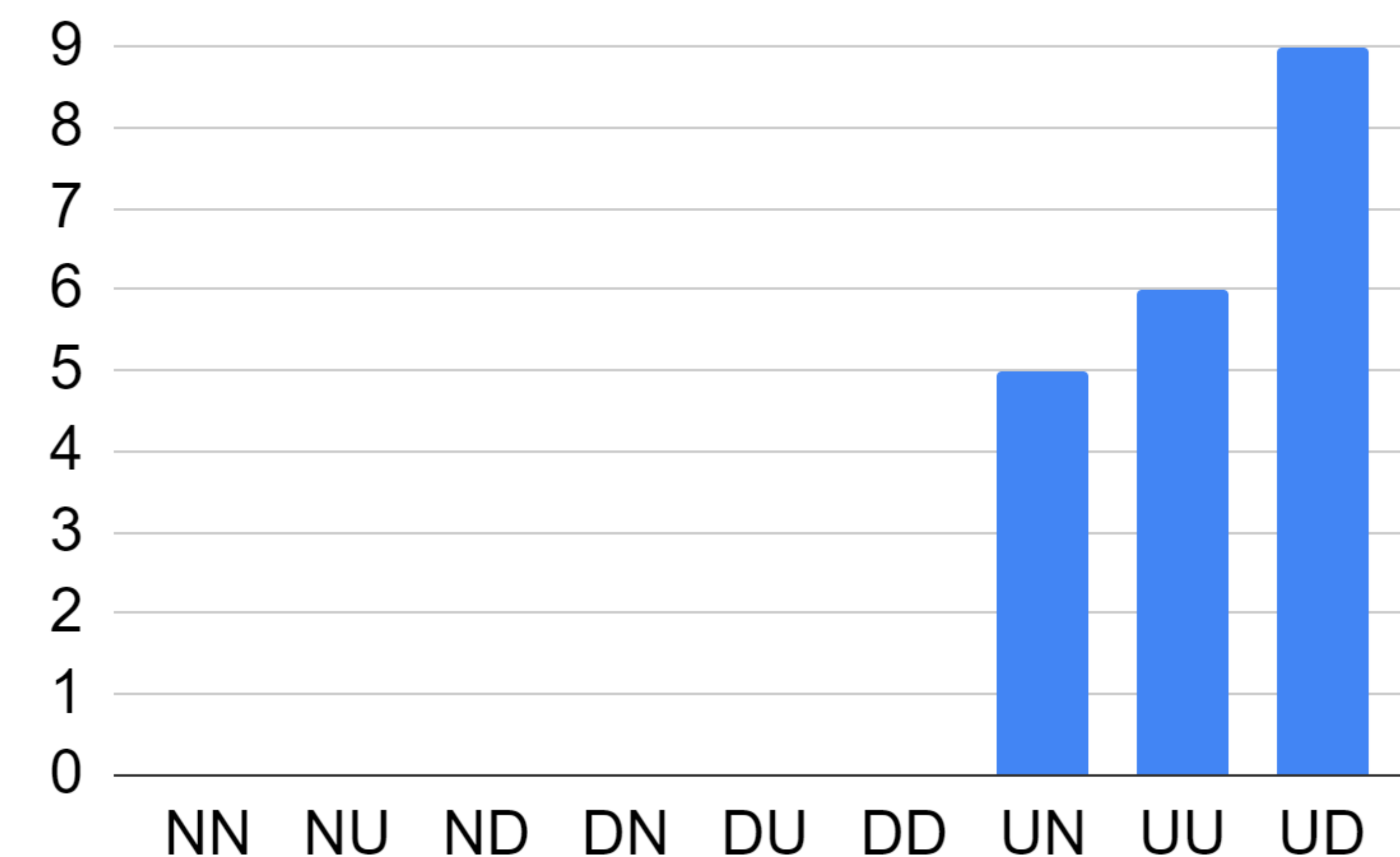


Figure 3. Pomona TRT Group Change

Implications

Only 10% of horses showed evidence of having been previously exposed to L. pomona. Increased titer in response to vaccination was expected, but the range of response was highly varied. Responses to booster were also unexpected, as some titers actually decreased. More research needs to be conducted to determine the import of these changes.