Paraprofessionals in Veterinary Diagnostics
Marc Schwabenlander, Parapathologist
What’s To Come

• Paraprofessionals in other medical fields
• “Paraprofessionals” in vet medicine
• The UMN VDL experience/model
• Current and potential educational opportunities
The Other Medical Fields

• Paramedics
• Nurse Practitioners
• Physician Assistants
• Dental Therapist
Current Non-Veterinarians

- Certified Veterinary Technician (CVT)
  - Associate’s or Bachelor’s Degree
  - Certification by the Veterinary Technician National Examination
  - Certification in specialties: dermatology, dentistry, anesthesia, internal medicine, emergency and critical care, equine nursing, zoological medicine, surgery, behavior, clinical practice, nutrition, and clinical pathology.
  - Professional Society: National Association of Veterinary Technicians in America
Current Non-Veterinarians

– Lab Animal Technician/Technologist
  • Certification by American Association of Laboratory Animal Science (AALAS)
  • Master’s Degree - Management
Current Non-Veterinarians

– Veterinary Forensics
  • Master’s Degree
  • Criminal justice professionals, shelter medicine operations, animal control officers, forensic investigators
Current Non-Veterinarians

- Biomedical Sciences
  - Online Master's Degree
  - University of Missouri
  - Emphasis in Veterinary Medicine and Surgery
  - Geared toward CVTs
Pathobiology and Diagnostic Investigation Master's

- Michigan State University
- Thesis/non-thesis in comparative pathology
- Integrated into the residency and veterinary programs/curriculum
- Specialty focus areas
  - microbiology and immunology
  - neurobiology and anatomy
  - pathobiology
  - toxicology
The UMN VDL Experience
The UMN VDL Experience
The UMN VDL Experience
Development of the Parapathologist

– Need
  • Funding
  • Faculty Staffing
  • Workload

– Opportunity
  • Training in place
  • Right staff
Training in action
Evidence of the Primary Afferent Tracts Undergoing Neurodegeneration in Horses With Equine Degenerative Myeloencephalopathy Based on Calretinin Immunohistochemical Localization

C. J. Finno¹, S. J. Valberg¹, J. Shivers², E. D’Almeida³, and A. G. Armien¹,²

Novel bunyavirus in domestic and captive farmed animals, Minnesota, USA.

Collaborative Research

Advancing Fish Kill Investigation Protocols in Minnesota

Sarah Massey1, Sarah Knowles1, Marc Schwebenbender2, Nicholas Phelps3

BACKGROUND
- Fish kills, including mass mortalities of at least 50 fish with similar symptoms,
- Relates to anchovy in wild fish populations, resulting in public and fish health concerns.
- In Minnesota, about 450 fish kill events reported between 2002 and 2011.
- Over 100 outbreaks per year.
- Over 90% of fish kill events identified:
  1. Infectious disease
  2. Diarrhetic shellfish poisoning
  3. Underreporting
- Minnesota Department of Agriculture and diagnostic investigations
- National Cooperative Fishery Research Units
- Minnesota Department of Natural Resources
- Minnesota Department of Health

'-Fish History Focused history in determining fish kill investigation is warranted.
- 1. Conducting fish kill investigation protocol (Fig. 1)
- 2. Conducting comprehensive investigations
- 3. Underreporting
- 4. Minnesota Department of Agriculture and diagnostic investigations
- 5. National Cooperative Fishery Research Units
- 6. Minnesota Department of Natural Resources
- 7. Minnesota Department of Health

- Evaluation of a Rapid Immunoassay Test for Bovine Pathogens in Feces

Marc D. Schwebenbender1, Albert Rovira2

University of Minnesota, College of Veterinary Medicine, Laboratory Animal Medicine, 1385 University Ave SE, St Paul, MN 55103-1194
University of Minnesota, College of Veterinary Medicine, Laboratory Animal Medicine, 1385 University Ave SE, St Paul, MN 55103-1194

INTRODUCTION
- The presence of enteric pathogens in feces can be a major contributor to disease in livestock.
- The challenge is to develop a rapid, accurate, and affordable test for the detection of these pathogens.
- The objective of this study was to evaluate a rapid immunochromatographic antigen test for the detection of bovine pathogens in feces.

RESULTS
- The rapid immunochromatographic antigen test for bovine pathogens in feces was found to be sensitive, specific, and reproducible.
- The test was able to detect a wide range of enteric pathogens, including Salmonella, E. coli, and Campylobacter.

ACKNOWLEDGMENTS
- The authors would like to thank the University of Wisconsin-Madison, the University of Minnesota, and the Minnesota Department of Health for their support.

REFERENCES
- American Society for Microbiology, 2018.
- Association for the Advancement of Medical Instrumentation, 2017.

Sources and Manufacturers
- Zoetis
- Thermo Fisher Scientific

University of Minnesota
Driven to Discover™
Overall Role and Benefits

- Partnership with pathologists
  - Extension of the pathologist’s vocation and approach to client care
  - Allows pathologists to better use their time and talents
- Cost-effective way of producing high-level results
Potential Education Programs

• Modeled around human medicine
• Official graduate-level education, training, and certification program
• Education based around DVM programs
• Certifying exams and continuing ed.
What are your labs doing?

Marc Schwabenlander

schwa239@umn.edu

612-625-0255