Advanced Equine Cardiology: Delving into the Heart of the Matter
October 27-29, 2022
Penn Vet's New Bolton Center | Kennett Square, PA

DAY 1 October 27, 2022		
Time (Eastern Time)	**Topic**	**Presenter(s)**
7:30-8:00 am Lobby	**Registration**	
8:00-8:15 am Woerner amphitheater	**Welcome and Introductions**	*Dr. Virginia Reef*
8:15-10:15 am Woerner amphitheater	**Interactive Presentation: Cardiac Case Discussion** 4 cases (30 minutes each). Cardiac cases will be presented for discussion with the participants. Participants should evaluate these cases prior to the case discussion. • Recognize the significance of the cardiac abnormality detected and what management/treatments is/are indicated. • Recognize valve pathology resulting in valvular regurgitation. • Identify the arrhythmias present.	*Dr. Annelies Decloedt* *Dr. Mary Durando* *Dr. Celia Marr* *Dr. Cris Navas De Solis*
10:15-10:30 am Lobby	**Break**	
10:30-11:30 am Woerner Amphitheater	**Lecture: Measurement Techniques: M-mode, 2D and Doppler** • Apply the proper techniques for 2D and M-mode images to be measured, with proper image quality, caliper placement and timing. • Be familiar with the indications for Doppler, with basic interpretation.	*Dr. Mary Durando*
11:30 am-12:00 pm Woerner amphitheater	**Tissue Doppler Imaging** • Apply proper techniques when performing pulsed wave and color tissue Doppler imaging for measuring atrial and ventricular myocardial velocities in horses. • Recognize (potential) clinical applications of tissue Doppler imaging in equine cardiology.	*Dr. Annelies Decloedt*
12:00-1:00 pm Alumni Hall	**Lunch**	

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DAY 1 (continued) October 27, 2022		
Time (Eastern Time)	**Topic**	**Presenter(s)**
1:00-6:00 pm Scott &Treadmill building	**Echocardiography Labs –** 1.25 hour per station; rotate through 4 of 6 stations Horses with a variety of cardiac abnormalities will be echoed with assistance from the instructors. Stations will focus on right parasternal imaging planes and measurements, left parasternal imaging planes and measurements, color flow and continuous wave Doppler evaluation of jets and shunts, color, and pulsed wave tissue Doppler imaging, and obtaining images for speckle tracking. • Obtain the standard right and left parasternal views for 2D and M-mode echocardiography. • Apply color flow Doppler echocardiography appropriately to find regurgitant jets and shunts. • Apply tissue Doppler to the atrial and ventricular myocardium for evaluation of myocardial contractility and obtain appropriate images for speckle tracking.	*Dr. Annelies Decloedt* *Dr. Mary Durando* *Dr. Celia Marr* *Dr. Cris Navas de Solis* *Dr. Virginia Reef* *Dr. Joann Slack*
6:00 – 7:00 pm Allam House	**Welcome Reception**	

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DAY 2 October 28, 2022		
Time (Eastern Time)	**Topic**	**Presenter(s)**
8:00-10:00 am Scott & Treadmill building	**Echocardiography Lab (continued) –** 1 hour per station; rotate through remaining 2 stations	*All*
10:00-10:30 am Lobby	**Break**	
10:30-11:20 am Woerner amphitheater	**Lecture: Atrial Arrhythmias and Atrial Fibrillation: Diagnosis and Treatment** • Recognize indications for cardioversion of AT and AF. • Understand how to use quinidine sulfate most effectively for AF cardioversion • Learn about TVEC and ablation.	*Dr. Virginia Reef*
11:20-11:50 am Woerner amphitheater	**Lecture: Pharmacology of Cardiac Drugs** • Explain the drugs useful for correction of atrial and ventricular arrhythmias. • Identify the cases where the use of an ace inhibitor would be indicated. • Recognize how to use cardiac drugs in a horse with congestive heart failure.	*Dr. Cris Navas de Solis*
11:50 am-12:10 pm Woerner amphitheater	**Lecture: Congenital Cardiac Disease: A Systematic Approach** • Develop a systematic echocardiographic approach to the diagnosis of congenital cardiac disease. • Identify the echocardiographic views where the membranous VSD and outflow VSD are located. • Describe the abnormalities associated with a VSD that affect prognosis.	*Dr. Virginia Reef*
12:10-1:00 pm Alumni Hall	**Lunch**	
1:00-1:20 pm Woerner amphitheater	**Lecture: Speckle Tracking** • Explain the principles of speckle-tracking echocardiographic (STE) imaging. • Appreciate how the STE exam is performed. • Be familiar with how STE has been applied in equine cardiology. • Appreciate how STE compliments other echocardiographic technologies in providing a comprehensive cardiac evaluation in equine patients.	*Dr. Celia Marr*
1:20-2:20 pm Woerner amphitheater	**Lecture: The Conundrums of Assessing Exercising Arrhythmias** • Develop a systematic approach to the evaluation of exercising ECGs. • Identify the different timing and morphology of exercising arrhythmias.	*Dr. JoAnn Slack*
2:20-2:45 pm Lobby	**Break**	

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DAY 2 (continued) Friday, October 28, 2022		
Time (Eastern Time)	**Topic**	**Presenter(s)**
2:45-6:15 pm	**Interactive Labs** – 1 hour per station; rotate through 3 of 6 stations 1. **Evaluating Exercising ECGs – Slack – Widener conference room** • Recognize the challenges of reading exercising ECGs • Learn how to recognize and characterize premature complexes, tachyarrhythmias and pauses. 2. **Interpretation of Doppler including TDI – Decloedt – Moelis conference room** • Recognize the principles of color Doppler and how to use it. • Explain the difference between PW , CW, & TDI and when to use these. 3. **Integration of Sports Medicine & Cardiology: Case Based – Reef – Alumni Hall** • Recognize the implications of AR, MR and TR on performance. • Explain safety implications of arrhythmias. 4. **Interpretation of Resting ECGs – Navas de Solis – Woerner amphitheater** • Identify types of atrioventricular block (AVB). • Identify APCs and differentiate from marked sinus arrhythmia • Recognize the challenges of differentiating AT, atrial flutter, & AF. • Identify VPCs, multiform ventricular arrhythmias and R on T. • Differentiate idioventricular rhythm from ventricular tachycardia. 5. **M-mode and 2-D Measurements – Durando – Cardio or large exam room** • Obtain accurate measurements of the LV M-mode bisecting the LV, just below the mitral valve. • Obtain accurate 2D measurements of the LA diameter and area. • Obtain accurate 2Dmeasurements of the AR and PA 6. **Speckle Tracking – Marr – Cardio office Echo Pac work station** • Understand how speckle tracking is performed • Become familiar with how speckle tracking is used • Appreciate how speckle tracking complements the echocardiographic examination	

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DAY 3 October 29, 2022		
Time (Eastern Time)	**Topic**	**Presenter(s)**
8:00-11:30 am	**Interactive Labs (continued)** – 1 hour per station; rotate through remaining 3 stations 1. Evaluating Exercising ECGs – Widener conference room 2. Interpretation of Doppler including TDI – Moelis conference room 3. Integration of Sports Medicine & Cardiology: Case Based – Alumni Hall 4. Interpretation of Resting ECGs – Woerner amphitheater 5. M-mode and 2-D Measurements – Cardio or large exam room 6. Speckle tracking – Cardio office Echo Pac work station	*Dr. Joann Slack* *Dr. Annelies Decloedt* *Dr. Virginia Reef* *Dr. Cris Navas de Solis* *Dr. Mary Durando* *Dr. Celia Marr*
11:30 am-12:15 pm	**Lunch**	
12:15-12:45 pm Woerner Amphitheater	**Lecture: Bradyarrhythmias: Diagnosis and Treatment** • Identify potentially pathologic patterns of second degree AV block. • Differentiate third degree AV block from atrial tachycardia with second degree AV block. • Recognize when pacing is indicated.	*Dr. JoAnn Slack*
12:45-1:15 pm Woerner amphitheater	**Lecture: Evaluation of Right Heart Function** • Be familiar with how to evaluate right atrial and right ventricular size and function. • Recognize (potential) clinical applications of right heart function.	Dr. Annelies Decloedt
1:15-1:45 pm Woerner amphitheater	**Lecture: Echocardiography as an Aid in the Critically Ill Patient** • Implement Point of Care Ultrasound to assess the critical care patient. • Describe more advanced echocardiograph techniques to assess the hemodynamically unstable patient. • Identify characteristic echocardiographic patterns in the ill horse.	*Dr. Cris Navas de Solis*
1:45-2:45 pm Woerner amphitheater	**Panel Discussion**	*All*
2:45 pm	**Course concludes**	

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