

**Title: Advanced Certification Program for Extracorporeal Therapies,
THE HEMODIALYSIS ACADEMY**

Introduction:

Extracorporeal blood purification, which includes hemodialysis, hemoperfusion and therapeutic apheresis, is the process of purifying the blood of pathologic contaminants in patients with kidney failure, immune-mediated diseases, or other intoxications. Hemodialysis (the prototype therapy) has evolved considerably over the past 45 years, and today has become the advanced standard of care for the management of acute kidney failure in veterinary medicine. Despite its long history of development, the application of hemodialysis in veterinary therapeutics has been relatively obscure until the past 10-15 years when interest and demand for this therapy and establishment of new hemodialysis programs for companion animals has flourished. Hemodialysis now has emerged as a highly sought therapeutic entity to support the management of animal patients with acute or chronic kidney failure, acute poisonings, and life-threatening fluid overload. Consequently, there is heightened demand for highly qualified and specifically trained individuals who can manage these burgeoning programs and critically ill patients. This demand now is noted worldwide where the development of extracorporeal programs is expanding rapidly throughout the Americas, Europe, and Asia

Hemodialysis (as well as other extracorporeal therapies) remains technically complex, professionally demanding, and medically challenging. The delivery of hemodialysis is not readily mastered by the untrained, self-taught, or the casual practitioner, and despite the interest and development of these programs in both academic centers and private practice, currently there is little established expertise in emerging programs. New programs often have little understanding of the current standards of care for the delivery of these complex therapies as there are no current training opportunities for these sophisticated therapeutic modalities.

To remedy the ongoing need for instruction in the foundations of extracorporeal therapies, we have established a web-based academy that is available worldwide. This interactive, self-paced program will provide didactic instruction, case-based discussions, literature review, and virtual real-time extracorporeal experiences. Our developments in "Teledialysis™" provides opportunity for a virtual, real-time, "on-the-floor" presence in our hemodialysis units providing personalized interaction with the doctors and technicians attending to patients. This case-based instruction will illustrate all phases of patient assessment, surgical procedures, hemodialysis prescription and delivery, and patient management. Additionally, the Academy will provide a "classroom" experience during non-clinic times for didactic instruction and regularly scheduled rounds sessions.

Structure of the Extracorporeal Therapies Academy:

1. **Objectives of the program:** The objectives of the program will be to provide advanced clinical and didactic training in the discipline of blood purification by extracorporeal therapies including hemodialysis, hemoperfusion, and therapeutic apheresis and the adjunctive discipline of clinical nephrology. More specifically, the program will provide directed instruction in:

- a. The basic science and clinical application of hemodialysis, hemoperfusion, and therapeutic apheresis in uremic and non-uremic animals.
- b. The basic science and pathophysiology of renal failure and its management.
- c. Operation of a full-time extracorporeal therapies service for companion animals.
- d. Advanced concepts of uremia, urinary disease, and critical patient care.

2. Training Procedures:

- a. All trainees will be provided a digital copy of training materials which are organized into topical modules and a bibliography of relevant literature on hemodialysis, extracorporeal therapies, nephrology.
- b. Didactic topic review, journal review, and hemodialysis rounds will be scheduled on Monday, Wednesday, and Friday using web-based conferencing.

In addition, trainees will be expected to attend International Renal Replacement Rounds, a twice monthly web-based conferencing session, established at UC Davis to unite and engage individuals and advance the discipline of extracorporeal therapy among hemodialysis programs based throughout the world.

- c. Training modules will be self-paced, and mastery of each module will be determined by examination and project assignments associated with each module.
- d. The virtual clinical experience will be an important and novel component of the training to provide real-time exposure to patients presented for hemodialysis and extracorporeal therapies by web-based, “telehealth” conferencing. This experience will provide the virtual trainee:
 - i. Opportunity for “telehealth” assessment of animals for extracorporeal management.
 - ii. Access to patient management activities during extracorporeal sessions which will include vascular access placement and prescription, implementation, and monitoring of the hemodialysis treatments.
 - iii. Opportunity for interactive discussion and decision making for hospitalized animals with kidney disease and inpatients and outpatients receiving extracorporeal management.
 - iv. Opportunity for quality-assurance assessment of extracorporeal prescriptions, procedures, and therapeutic outcomes.

- 3. Faculty/Staff participating in the proposed program:** The Hemodialysis Academy is staffed by, Drs. Larry Cowgill (UC Davis and the UCVMC-SD); Cathy Langston (Ohio State University), JD Foster (Friendship Hospital for Animals), Sheri Ross (UCVMC-SD), Carrie Palm (UC Davis); Thierry Francey (University of Bern), Gilad Segev (Hebrew University of Israel), and Mary Lobato (Tufts University) The faculty will reinforce a level of training in the foundations and practice of internal medicine and nephrology in addition to extracorporeal therapies to maintain breadth and expertise in this discipline.

4. **Process of evaluation:** The Academy trainee will be evaluated following each topical module of the curriculum to assess timely progress and mastery of the curriculum. It is recognized that varying time zones and job responsibilities are important constraints for real-time attendance and participation. However, the entire content of the Academy will be available for self-paced study and review.

Certification: Upon successful completion and mastery of all didactic training modules and assignments, trainees will be granted a Certificate of Achievement in Hemodialysis from UC Davis acknowledging competency in the principles of extracorporeal therapies.