EUPHRATES: Evaluating the **U**se of **P**olymyxin B **H**emoperfusion in a **R**andomized Controlled Trial of **A**dults **T**reated for **E**ndotoxemia and **S**eptic shock

Sponsor: Spectral Diagnostics, Inc

Inclusion Criteria to indicate eligibility (septic shock)

- **Age ≥18**
- **Hypotension requiring at LEAST ONE vasopressor: for at least 2 continuous hours and a max. of 30 hours**
- **Documented or suspected infection – ON ANTIBIOTICS**

Residents and other staff are to look out for these criteria and call the study coordinator. No resident is to approach patient/patient's family about EUPHRATES

Integral trial components:

- An assay for endotoxin (the Endotoxin Activity Assay, EAA) **Consent is obtained before EAA test by EUPHRATES study coordinator, principal investigator, and sub-investigator only**

Endotoxemia: triggers the release of numerous inflammatory mediators

- Therefore, *primary trigger in the initiation and propagation of sepsis and organ failure*
- For high EAA test:
  - Endotoxin must be accessible. If bacteria not releasing high endotoxin the EAA Result will be low,
  - EAA Result may also be high with gram positive culture growth
    - *Theory: Endotoxin from gram negative bacteria in intestine released due to decrease blood flow and increased permeability of the lining of the G.I. tract*

Treating physician and residents will only see the EAA result before treatment

IF EAA is high (≥0.6 units), patient is eligible for randomization to:

- **2012 Surviving Sepsis Campaign Guidelines** if patient on treatment arm or sham arm

1. Treatment arm: **PMX Cartridge Hemoperfusion**

- Polymyxin B antibiotic covalently bonded onto polystyrene hollow fibers and does not return to patient
- Endotoxins are adsorbed onto the coated fibers
  - PMX Treatment Group requires:
- Insertion of femoral or internal jugular venous access catheter, by study trained nephrologist
- Treatment will last 1.5 to 2.0 hours by trained dialysis nurses
- 2 treatment interventions in 24 hours

2. Placebo/SHAM arm: Standard of Care

- No catheter will be inserted and no hemoperfusion will occur
- Run the dialysis machine in recirculation mode (noise)
  - 2 treatments lasting 1.5-2 hours in 24 hours

Please keep the blind. The residents, clinical physicians, principal investigator, patient and patient's family members are all blinded to study arm. Please do not lift dressing over catheter site or enter room while patient is in study treatment/sham time (unless emergency).

All physicians who know study arm are not to make any treatment decisions for patient.

Screening Sunday after 12 to Thursday before 12

- Study Coordinator: **Srividya Ranganathan** (unblinded)
- Principal Investigator: **Dr. Wax**
- Sub Investigator: **Dr. Sridhar**