



U.S. MEDICINE

## CURRICULUM AGENDA

### Day 1

|                      |  |                     |  |
|----------------------|--|---------------------|--|
| <b>7:45 – 8:00</b>   | Introductions  | <b>12:00 – 1:00</b> | LUNCH  |
| <b>8:00 – 8:05</b>   | Welcome  | <b>1:00 – 2:15</b>  | Hands-on for All Participants  |
| <b>8:05 – 8:40</b>   | Indication for Kidney Support Therapy for Acute Kidney Injury, Fluid Overload, and Congenital Kidney Failure | <b>2:15 – 3:45</b>  | Breakout sessions<br>Provider lectures<br>Access<br>Medications<br>Nutrition<br>Hyperammonemia |
| <b>8:40 – 9:15</b>   | Principles of Neonatal Kidney Support Therapy Part I   |                     |  |
| <b>9:15 - 9:50</b>   | Principles of Neonatal Kidney Support Therapy Part II  |                     | Nursing Hands On<br>Priming<br>Initiation<br>Troubleshooting                                   |
| <b>9:50 – 10:25</b>  | Principles of Neonatal Kidney Support Therapy Part III   |                     |  |
| <b>10:25 – 10:35</b> | BREAK  | <b>3:45 – 4:00</b>  | BREAK  |
| <b>10:35 – 11:10</b> | Principles of Neonatal Kidney Support Therapy Part IV  | <b>4:00 – 4:20</b>  | Educating Your Team  |
| <b>11:10 – 11:25</b> | ECMO   | <b>4:20 – 4:45</b>  | Caring for Your Program  |
| <b>11:25 – 11:40</b> | Caring for the Neonate on Kidney Support Therapy: The Intensivist's Perspective                              | <b>4:45 – 5:00</b>  | Concluding Remarks: Bringing It All Together   |
| <b>11:40 – 12:00</b> | Caring for the Neonate on Kidney Support Therapy: Parent's Perspective                                       | <b>5:00</b>         | DISMISSAL  |

### CONTINUING EDUCATION

Children's of Alabama designates this live activity for a maximum of **10.5 AMA PRA Category 1 Credits**.

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## CURRICULUM AGENDA

### Day 2

|              |  |  |  |
|--------------|--|--|--|
|              | In Person Course Schedule              |  |  |
| 8:00 – 8:15  | Welcome, information about simulations |  |  |
| 8:15 – 12:00 | In person Simulation                   |  |  |
|              | Virtual Course Schedule                |  |  |
| 8:15 – 12:00 | Virtual Simulation Group 1             |  |  |
| 1:00 – 5:00  | Virtual Simulation Group 2 (if needed) |  |  |
|              |  |  |  |
|              |  |  |  |
|              |  |  |  |

## LEARNING OBJECTIVES

At the end of the course, the learner will:

1. Recognize the epidemiology of neonatal acute kidney injury and neonatal congenital kidney failure.
2. Recognize the indications and optimal timing of kidney support therapy in neonates and infants.
3. Identify the principles central to the provision of safe and effective treatment using different forms of neonatal kidney support therapy.
4. Develop strategies to optimize the kidney support program at each participant's home institution through educational, administrative, personnel and quality improvement initiatives.

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## Objectives by lecture

### Indications for Kidney Support Therapy for Acute Kidney Injury, Fluid Overload and Congenital Kidney Failure

- ⇒ Review the epidemiology of neonatal and pediatric acute kidney injury (AKI)
- ⇒ Recognize the impact of fluid overload (FO) in critically ill infants and children
- ⇒ Discuss the epidemiology of congenital kidney failure
- ⇒ Outline goals for kidney support therapy for neonates and infants with kidney failure

### Principles of Neonatal Kidney Support Therapy, Part I

- ⇒ Discuss the timing of kidney support therapy for neonates and infants with AKI, FO, and CKF
- ⇒ Describe the terminology of KST
  - Clearance mode (Diffusion vs. Hemofiltration vs. Ultrafiltration)
  - Peritoneal vs. Veno-venous
  - Continuous vs. Intermittent vs. Prolonged Intermittent
- ⇒ Discuss elements of the PD prescription

### Principles of Neonatal Kidney Support Therapy, Part II

- ⇒ Discuss specifics (features, pros, and cons) for different KST machines available for small children
- ⇒ Discuss access for patients who need KST
- ⇒ Compare the options, benefits, risks, set up, complications and monitoring for different anticoagulation options
- ⇒ Discuss rationale regarding blood flow and how to prescribe an appropriate rate

### Principles of Neonatal Kidney Support Therapy, Part III

- ⇒ Discuss elements of a CVVH/CVVHD prescription (dialysis/replacement rates, ultrafiltration rates)
- ⇒ Discuss filtration fraction
- ⇒ Discuss approaches to ultrafiltration rate prescription
- ⇒ Troubleshoot potential ultrafiltration issues and discuss plans to address these issues

### Principles of Neonatal Kidney Support Therapy, Part IV

- ⇒ Review hematocrit scenarios
- ⇒ Review options for priming circuits and the rationale for blood primes
- ⇒ Acquire strategies for optimizing blood prime procedures
- ⇒ Identify the important steps of the initiation process
- ⇒ Review specific nuances associated with neonatal RRT

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### **Kidney Support Therapy on ECMO**

- ⇒ Review options for KST on Extracorporeal Membrane Oxygenation (ECMO)

### **Caring for the Neonate on Kidney Support Therapy: The Intensivist's Perspective**

- ⇒ Discuss approaches to making decision to start KST in ICU
- ⇒ Discuss cardio-pulmonary disease care in neonates on KST
- ⇒ Discuss strategies to have the best collaborative practices for your KST program

### **Caring for the Neonate on Kidney Support Therapy: A Parent's Perspective**

- ⇒ Discuss cases of end-stage kidney disease in patients who required ECMO and KST and overview of their current status
- ⇒ Consider the perspective of the parents and the responsibilities of taking care of babies on KST

### **Hands-on for all**

- ⇒ Demonstrate features of manual PD
- ⇒ Demonstrate features of modified CVVH on Aquadex
- ⇒ Demonstrate features of CARPEDIEM
- ⇒ Review troubleshooting of extracorporeal circuits
- ⇒ Discuss initiation of KST

### **Medications During Kidney Support Therapy**

- ⇒ Discuss importance of medication goals during KST
- ⇒ Review guidelines for nutrition feeding during KST

### **Nutrition During Kidney Support Therapy**

- ⇒ Discuss importance of nutritional goals during KST
- ⇒ Review guidelines for nutrition feeding during KST

### **Hyperammonemia**

- ⇒ Discuss strategies for the care of a patient with hyperammonemia
- ⇒ Learn to mitigate potential negative consequences when performing high clearance KST

### **Access for KST in Infants**

- ⇒ Review intravascular and PD access options for KST
- ⇒ Discuss the principles of PD and vascular access placement

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### **Hands-on Nursing Specific Skills**

- ⇒ Demonstrate setup of modified CVVH on Aquadex
- ⇒ Discuss setup of CARPEDIEM
- ⇒ Review blood prime procedures
- ⇒ Discuss options for circuit-to-circuit change
- ⇒ Discuss dealing with access alarms
- ⇒ Review recirculation procedures

### **Educating Your Team for KST**

- ⇒ Discuss frequency, documentation, training, and certification of team members
- ⇒ Review educational training tools

### **Caring for your program**

- ⇒ Discuss the education framework for documentation, training, and certification of team members
- ⇒ Review educational training tools
- ⇒ Discuss the advantages and disadvantages of different types of nursing structures
- ⇒ Discuss the importance of standardizing training, policies and procedures, and program structure
- ⇒ Discuss the value of quality improvement initiatives

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