Instructor Guide

Scenario: Water Heater Failure
Initial Set-Up

Action: **Turn off heater. Unplug.**

History: *(Read)* 2 month old former premature infant with RSV pneumonia.
You are getting back from a break and no events occurred while you were gone.

ECMO Mode: VA or VV

Patient:

<table>
<thead>
<tr>
<th>Temp</th>
<th>35.9</th>
<th>34</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR</td>
<td>120</td>
<td>81</td>
</tr>
<tr>
<td>BP</td>
<td>71/42 (52)</td>
<td>75/46 (56)</td>
</tr>
<tr>
<td>CVP</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Saturation</td>
<td>94%</td>
<td></td>
</tr>
</tbody>
</table>

CDI   7.43 / 39 / 309 / 23 / BE 2
H/H   39% / 13
SvO2  68%

Fake circuit pressures with simulator cables (see suggested pressures below)

Available data *(If participant asks this data is available)*

Physical Exam:

Blood gas - ordered. Results pending.

Pressures

<table>
<thead>
<tr>
<th>Venous</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-memb</td>
<td>149</td>
</tr>
<tr>
<td>Post-memb</td>
<td>145</td>
</tr>
</tbody>
</table>

Color blood in circuit tubing – color differentiation seen

CXR: Ordered, but tech is busy in the ER with a code
Chem: Morning lab sample sent to lab. Results pending.
Heme: Morning lab results. CBC normal.
      PT slightly elevated to 22. PTT increased from 82 to 101
ACT: Increased from 179 to 193 sec

© 2010 Copyright Hanuola ECMO Program at Kapi‘olani Medical Center for Women and Children, Honolulu, Hawai‘i.
**Student Assessment and Key Concepts: Heater Failure**

Time to accomplish: 180 seconds

**Desired Responses**

**Technical**

- Check heater switch
- Check water bath/heater
- Circuit check
- Check heater temperature set point
- Check heater hose valves
- Check heater plug

**Cognitive**

- Recognize hypothermia
- Recognize hypothermia induced bradycardia
- Utilizes other methods to maintain normothermia
  - Blankets or warmer blanket or thermo-gel blankets
  - Turns overbed warmer

**Communication**

- Call for help/communicate change to team
- Check heater temperature set point
- Check heater hose valves

**Stop Point**

- Turns heater back on

**Discouraged interventions**

- Come off ECMO

**COMMENTS**