### Simulation Flowsheet for Local Anesthetic Systemic Toxicity in a Non-Operative Setting

<table>
<thead>
<tr>
<th>State</th>
<th>Patient Status</th>
<th>Student learning outcomes or actions desired and trigger to move to next state</th>
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</thead>
</table>
| 1. BASELINE | Patient is drowsy but interactive.  
- HR 88 with widened PR  
- BP 105/67  
- RR 12  
- SpO2 91% | **Learner Actions:**  
- Participant gathers focused information from both the patient and the patient's nurse, and performs a targeted physical exam  
**Operator:**  
- Only respond to questions with some prompting/effort from trainees  
**Teaching Points:**  
- Rapid assessment of "at risk" patient using appropriate data sources  
**Trigger:** Time – should last 3-4 minutes at most |
| 2. Loss of consciousness | Unresponsive, still breathing  
- HR 91 with widened QRS  
- BP unchanged  
- RR 4  
- Sats decrease to 81% | **Learner Actions:**  
- Observes change in mental status and respiratory function. Adds supplemental oxygen and/or moves toward intubation for airway protection.  
**Operator:**  
- Decrease oxygen saturation over course of 1 minute  
- Do not respond verbally to any stimulus  
**Teaching Points:**  
- Coma and seizures are often early signs of LAST. Appropriate airway management is necessary for the comatose patient.  
**Trigger:** Immediately following intubation. If this has not occurred within 3-6 minutes (depending on level of trainee), proceed to next state |
| 3. Cardiac Arrest | Asystolic Arrest  
- HR 0  
- BP unmeasurable  
- RR 0  
- Sats 55% (if trainee not providing ventilation) | **Learner Actions:**  
- Recognize cardiac arrest and begin prompt ACLS  
- Generate an adequate differential diagnosis for underlying cause(s)  
- Recognize the progression of LAST and initiate appropriate treatment with lipid emulsion  
**Operator:**  
- Confederate should feign ignorance if/when asked about lipid emulsion and availability  
- Have "pharmacist" available by phone to discuss availability – will tell trainees that the lipids will be delivered  
**Teaching Points:**  
- LAST should be considered for any patient in cardiac arrest who has recently received local anesthetics  
- The recommended treatment for LAST is IV lipid emulsion  
**Trigger:** 6 minutes (3 rounds of ACLS) or administration of lipid emulsion, whichever is first. If several rounds of
ACLS have passed without administration, consider stopping scenario to discuss appropriate management.

<table>
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<tr>
<th>4. Recovery</th>
<th>Return of Spontaneous Circulation</th>
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<tbody>
<tr>
<td><strong>Learner Actions:</strong></td>
<td></td>
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<tr>
<td>o Identify ROSC and take appropriate supportive steps</td>
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| Operator: |
| o Return vital signs as described |

| Teaching Points: |
| o Supportive care, including ongoing lipid emulsion as well as ICU transfer, needs to continue following ROSC |

| Trigger: Scenario ends when team makes arrangements for ICU transfer |