

## Sepsis Scenarios

<p>Goals and objectives Technical and non-technical</p> <p><b>Acceleration to Expertise Phase II Scenario 1</b></p>	<p><b><u>The focus of this simulation is around:</u></b></p> <ol style="list-style-type: none"> <li>1. Recognition of compensated septic shock, including differential diagnosis</li> <li>2. Manage ABC's/ Obtain appropriate access</li> <li>3. Early intervention and appropriate fluid resuscitation</li> </ol> <p><b><u>The focus of the semi-structure interview/debriefing will be:</u></b></p> <ol style="list-style-type: none"> <li>1. Major events that occurred during simulation</li> <li>2. Timeline for major events</li> <li>3. Unpacking major events</li> <li>4. Big-picture/hypothetical questions</li> </ol>
<p>Target participants (roles, specialty)</p>	<p>Pilot Group (2012): PGY-1, PGY-3, PEM/PICU Faculty Training (2013): PGY-1 In-person support roles: bedside RN, charge nurse or support nurse, PCA, and parent Other support roles: RT, radiology tech, consultant by phone (ICU fellow)</p>
<p>Orientation</p>	<p>Participants will start with:</p> <ul style="list-style-type: none"> <li>• an orientation to the simulator (see separate document) led by Jenn or Jerome, if possible, and then</li> <li>• an orientation to the course (see separate document) led by the facilitator</li> </ul> <p><b><i>Please stress that those leading these orientation go over the directions slowly, so that participant is not overwhelmed with information</i></b></p>
<p>Clinical setting (ED, OR, patient room) sim lab or insitu</p>	<p>Satellite sim lab at base – set up in the West (Left) Room</p> <p><b>Setting to be read to participant: You are currently located in...</b> The Emergency Department in Team D at CCHMC. Your support team includes a bedside nurse, a charge nurse, and a PCA. Other physicians and the RT are currently busy with the other patients in the shock trauma suite and are not available for consultation; however the RT can be asked to come to the bedside if needed. Your patient's parent is here with him and is available for consultation.</p>
<p>Basic scenario information (outline)</p>	<p><b>History to be read to participant: Your patient is a...</b> 6-month old who arrived to the ED by mom for general illness/fever x 2 days. Patient is triaged as a "Red" or level 2, was febrile at 38.1 so received Tylenol in triage, and was brought to Area D for further evaluation.</p> <p>Per Mom, he has had "cold" symptoms the past 2 days with occasional fever. He has had decreased intake over the past day, generally breastfeeds for 20 minutes every 4 hours and has started eating rice cereals. He has decreased breastfeeding to 10 minutes and has not taken any rice cereal today. Mom attempted to breastfeed in the evening and noticed the baby was not acting "normal", acting tired. Mom called pediatrician and was told to bring him to ED for evaluation</p> <p><b><u>Other historical information that participant needs to ask parent for:</u></b> General: Temp at home 100.3, no Tylenol given at home HEENT: some rhinorrhea but no nasal congestion, not pulling at ears Resp: mild cough initially, that worsened over the last day, described as "wet" – parents deny barky or paroxysmal nature GI: no vomiting, no diarrhea, less PO intake over the last day GU: Wet diapers throughout day, slightly decreased, no blood in urine Skin: no rash Musculoskeletal: no joint swelling, no edema CNS: less active, no irritability, no seizures</p>

## Sepsis Scenarios

	<p><b>Physical exam findings that the simulator will initially display:</b>  Triage weight: 7kg  Triage vitals: temp 38.1° C, HR 160, RR 40, sats 97% room air, BP 80/50  Room D2: on monitor is sinus tachycardia, with HR 160s, sats 96-97%  Fontanel flat/soft  Eyes: Pupils symmetric and normal size  Lungs: <b>Increased respiratory effort</b>; Clear lung fields  Heart: Normal heart sounds  Pulses: Intact central pulses and distal pulses  Skin: <b>hands/feet cool (need to ice them before we start)</b>  CNS: <b>Intermittent crying, irritable</b>;</p> <p><u>Physical exam findings that participant needs to ask for, or assess via audio-visual aids:</u>  Appearance: <b>ill</b>  Pupils reactivity: normal  HEENT exam: <b>mild nasal congestion</b>, otherwise normal, neck without nuchal rigidity, full passive range of motion  Abdomen: soft, non-tender, non-distended, no organomegally  Skin: <b>mottling (see POWERPOINT)</b>, but no rash  Extr: full range of motion, no joint effusions or tenderness  Perfusion: Cap refill: 4-5 seconds (<b>will display cap refill video – see POWERPOINT - and force participant to identify length of refill</b>)</p> <ul style="list-style-type: none"> <li>• Later on in scenario, if they reassess cap refill the facilitator can state one of the following: <ul style="list-style-type: none"> <li>○ If given less than 40 mL/kg: CR is the same</li> <li>○ If given 40 mL/kg or more, then CR is 3 seconds</li> </ul> </li> </ul> <p>Neuro: <b>opens eyes, irritable and crying, cries and pulls away with IV stick/physical stimuli</b></p>
<p>Simulator to be used</p>	<p><b>Laerdal Infant</b></p>
<p>Fluids and medications to have available</p>	<p>Fluids: Normal saline, dextrose (D10 or D25)  RSI meds: atropine, etomidate, ketamine, succinylcholine, rocuronium, vecuronium, fentanyl, versed  Pressors: dopamine gtt, epinephrine gtt, norepinephrine gtt  Resuscitative meds: epinephrine, sodium bicarb, calcium carbonate/gluconate  Antibiotics: ceftriaxone/cefotaxime, vancomycin, clindamycin, ampicillin, gentamicin</p>
<p>Equipment needed ( IV's, ET tubes, Chest tubes,)</p>	<p>Will only have equipment that is available in a regular ER room:</p> <ul style="list-style-type: none"> <li>• PPE</li> <li>• B/P cuff, monitor leads, pulse oximetry</li> <li>• B-Board</li> <li>• IV/IO supplies <ul style="list-style-type: none"> <li>○ Must get IO supplies from STS</li> </ul> </li> <li>• IV pump, syringe pump(s)</li> <li>• Monitors</li> <li>• Airway equipment: nasal cannula, simple face mask, NRB setup, BVM setup, suction <ul style="list-style-type: none"> <li>○ Must get the following from STS: ETT tubes, laryngoscope and blades, stylets, and ETCO2 detector/monitor</li> </ul> </li> </ul>
<p>Paperwork, labs, X rays and EKG's, photos, videos</p>	<p><b><u>X-rays, only if obtained:</u></b>  CXr: normal  I-stat: Initial: pH =7.09, PCO2 = 36, PO2 = 60, HCO3 10, BD -14, Glucose 58, iCa 1.09, Na 137, K 4.8 (<b>need lab slip for this given to nursing team leader 2 minutes after drawn</b>)</p> <ul style="list-style-type: none"> <li>• After 40 mL/kg or more of IVF: pH =7.12, PCO2 = 30, PO2 = 58, HCO3 11, BD - 12, Glucose 60, iCa 1.12, Na 139, K 4.3 (<b>need lab slip for this given to nursing team leader 2 minutes after drawn</b>)</li> <li>• if give &lt; 40 mL/kg then the blood gas is unchanged from initial</li> </ul> <p>Other labs that are drawn will not be available in the 15-minute window</p>
<p>Medication intervention</p>	<p><b><u>RSI Medications, if applicable:</u></b></p> <ul style="list-style-type: none"> <li>• most likely will use RSI, including etomidate (or ketamine) and succ – rocuronium would be fine</li> <li>• likely will pre-medicate with atropine (given age)</li> <li>• no indication for lidocaine (without possibility of NAT/head injury)</li> </ul>

## Sepsis Scenarios

	<p><u>Sinus tachycardia:</u> Volume resuscitation with crystalloid initially in 20 mL/kg aliquots Consider ibuprofen or more tylenol for fever Early use of inotropes/pressors – as in ED, will not be able to get these started within 15 minute simulation time frame, but expect to be ordered</p> <p><u>Other based on I-stat results:</u> Hypoglycemia - D25W at 2mL/kg</p>
Airway intervention (oxygen, BVM, intubation)	<p>Initial Non-Rebreather or CPAP mask for increase oxygen demands and work of breathing</p> <p>Anticipate need for assisted ventilation – CPAP, BiPAP, BVM</p> <p>Anticipate need for advanced airway - appropriate sized blade/ETT, suction, RSI meds as above</p>
Physiologic intervention (CPR)	<p>Recognition of compensated shock state: ill appearance, decreased mental status, tachycardia, borderline systolic blood pressures with wide pulse pressure, poor distal perfusion</p> <p>Aggressive use of IVFs to resuscitate shock state, while watching for potential side effects/progression that include:</p> <ul style="list-style-type: none"> <li>Respiratory Failure - Assisted Ventilation and Oxygenation</li> <li>Circulatory Collapse – IVF resuscitation, resusc meds and CPR</li> </ul> <p>Early use of pressors, even with peripheral IV access if progresses to decompensated shock or not improving with fluid replacement</p>
Procedures and other interventions	<p>IV access – <b><i>will allow them to get PIV access, but limit to one</i></b>; thus, could also place IO using lidocaine protocol or place CVC</p>
Number of and education of instructors	<p>1 education specialist: to orient participant to simulator and run software</p> <p>1 facilitator: to orient participant to simulation, perform SAGATs and perform semi-structured interview</p>
Evaluation tools and measurement points	<ul style="list-style-type: none"> <li>SAGAT (2-minute freeze) occurring three times within scenario (after the first 5 minutes, not during procedures, not within a minute of each other) <ul style="list-style-type: none"> <li>Whether patient correctly identified as septic (yes/no) by the end of 15-minute simulation</li> </ul> </li> <li>Post-simulation semi-structured interview to elicit clues, perceptions and cognitive processes that entered into management of the simulated patient</li> <li>Performance checklist (PALS, early goal directed management) of observed behaviors (via video review)</li> </ul> <p><b><i>Please record the simulation using SimBridge and only mark the beginning and end of the scenario (no other annotations should be placed)</i></b></p>
Advance organizer/pretest and how delivered	<p>Pilot: Will need to recruit pilot participants and obtain informed consent (Regina) prior to enrollment</p> <p>Training: Will not need consent, as training is considered mandatory by residency program director; however, will still need videotaping and confidentiality agreements signed before enrollment</p>
Personnel-simulation specialist, Actors/family members	<p>5 support roles (bedside RN, charge nurse, PCA, and parent; +/- RT if called) – see separate script written for each of these roles at the bottom of this scenario (after flow diagram)</p>
Estimated time to run simulation and debriefing	<p>Have a maximum of 60 minutes for each session:</p> <ol style="list-style-type: none"> <li>Orientation to the simulator and the setting, meet the rest of the “team”: 10 minutes</li> <li>Simulation: 15 minutes <ol style="list-style-type: none"> <li>Actually will be about 21 minutes given SAGAT stoppages</li> </ol> </li> <li>SAGAT stoppages: 6 minutes</li> <li>Semi-structured interview: 15-20 minutes</li> </ol>
Special Modifications/Moulage needed	<p>Will need to make the extremities cold prior to the simulation starting</p> <ul style="list-style-type: none"> <li><b><i>Is best to allow orientation to the simulator first, then when participant is finishing orientation in the hall we can apply ice to the limbs</i></b></li> </ul> <p><u>Additional things to have set up:</u></p>

## Sepsis Scenarios

	As we will likely not have enough personnel to provide the team with medication nurses, we need a med cart outside the room with all anticipated medications already drawn up and labeled  Move compressor into other simulation room to decrease sound in control room
Need for reevaluation (time frame)	N/A

***Additional possibilities to consider:***

- 1) What if participant asks for help from ED attending or fellow?
  - a. If this is an intern or 3<sup>rd</sup> year resident, then would have an ED fellow or faculty with them in the ED. However, for this resuscitation we can say the supervisor is running a trauma resuscitation in the next bay and will be over “in a few minutes.” At the 10-minute mark, can have the supervisor “check in” with the intern/resident, but be pulled back to the trauma. Thus, will not really allow intern/resident to have any help except for seconds at a time.
- 2) What is participant calls the PICU?
  - a. Can page the ICU. Will have the ICU (facilitator) call back, stating that the fellow is placing a central line in the ICU and will be down as soon as he/she can make it.



## Sepsis Scenarios

### Support Roles:

#### Bedside Nurse:

You are the bedside nurse for this patient. You will attempt access/obtain blood for labs, give IVF and medications during the simulation, you will perform the following:

- Duties as directed by physician, including delivery of medications or fluids.
- Contribute to communication by performing callout/readbacks as you complete each requested intervention.
- Should **NOT** engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as “what do you think is going on?” or “what are you worried about?”
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should **NOT** make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- If team is pushing IVF and gets to 40 mL/kg in NS, then state “his perfusion is getting a little better after the IV fluids.”
- If the participant asks for the CXR findings, the bedside nurse can say “would you like me to check EPIC” and we would then display a screen shot for the participant to review
- Mom had stated “the patient has just **NOT** been acting normal in terms of feeding pattern and behavior”

#### Paramedic/ PCA:

You are the patient care assistant assigned to this patient. Your main responsibilities are placing patient on monitors, helping get IV access and obtaining other equipment as needed.

During the simulation, you will perform the following:

- Place patient on monitors
- Aid in obtaining further PIV access, if asked
- Help by obtaining other equipment asked for by the participant, i.e. airway supplies, IVFs, etc.
- Should **NOT** engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as “what do you think is going on?” or “what are you worried about?”
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should **NOT** make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- “I think he is really pale, don’t you?”
- If doctor does not examine his feet or hands, can state one of the following:
  - If team is not giving IVF, please state “his feet are a little cold, don’t you think?”
  - If team is pushing IVF and gets to 40 mL/kg in NS, then state “his perfusion is getting a little better after the IV fluids.”

#### Charge RN:

You are the charge nurse for this simulation and are responsible for providing assistance if asked by the team providing care.

During the simulation, you will perform the following:

- Will perform documentation and coordinate medications and fluids asked for by participant.
- Can offer limited suggestions around logistics.
- Should **NOT** engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as “what do you think is going on?” or “what are you worried about?”
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should **NOT** make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- “Is this normal for the patient?”
- “Mom had stated the patient has not been feeding well, don’t we think this is worrisome?”

#### Parent:

You are either mom or dad. You are very anxious, as your child has never been sick before.

During the simulation, you will perform the following:

- Can provide the additional history, if asked.
- General: Temp at home 100.3, no Tylenol given at home
  - HEENT: some rhinorrhea but no nasal congestion, not pulling at ears
  - Resp: mild cough initially, that worsened over the last day, described as “wet” – parents deny barking or paroxysmal nature
  - GI: no vomiting, no diarrhea, less PO intake over the last day
  - GU: Wet diapers throughout day, slightly decreased, no blood in urine
  - Skin: no rash
  - Musculoskeletal: no joint swelling, no edema
  - CNS: less active, no irritability, no seizures
- Also, can offer that the patient has no past medical problems, no allergies to medications, is not taking any medications daily, and has been developing normally.

At some point, we would like you to throw out the comment(s):

- “This is not how my child looks...something is wrong with him.”

## Sepsis Scenarios

- If asked what you are most worried about, please state: *“He is not acting like himself.”*
  - If asked for further explanation, state: *“He is not eating, and that is not like him.”*
- At the 4-minute mark approach the participant and ask *“what is going on?”* or *“what is wrong with my child?”*, thus prompting a verbalization of thought process.
- *“This time he is just not as interested in breastfeeding”*

### **Respiratory therapy:**

You are the ED respiratory therapist, ***however you are busy in the STS with other patients – So, if called to the room you will quickly apply oxygen or perform other duties, but will then say “I need to go back to the trauma bay.”***

During the simulation, you will perform the following:

- Will provide airway management as required and as is normal for that role.
- Can offer suggestions based on respiratory effort and saturations to escalate care.
- Can also help arrange needed airway equipment and facilitate intubation.
- You should NOT engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as *“what do you think is going on?”* or *“what are you worried about?”*

*At some point, we would like you to throw out the comment(s):*

- *“His respiratory effort seems to be a little increased.”*

## Sepsis Scenarios

<p>Goals and objectives Technical and non-technical</p> <p><b>ACCELERATION TO EXPERTISE</b></p> <p><b>Phase II</b></p> <p><b>Scenario 2</b></p>	<p><b><u>The focus of this simulation is around:</u></b></p> <ol style="list-style-type: none"> <li>4. Recognition of sepsis, including differential diagnosis</li> <li>5. Proper ABCs and airway management, as intubation will be required, including RSI medications, timing of attempt, etc.</li> <li>6. Access, including need for IO vs. central venous access</li> </ol> <p><b><u>The focus of the semi-structure interview/debriefing will be:</u></b></p> <ol style="list-style-type: none"> <li>5. Major events that occurred during simulation</li> <li>6. Timeline for major events</li> <li>7. Unpacking major events</li> <li>8. Big-picture/hypothetical questions</li> </ol>
<p>Target participants (roles, specialty)</p>	<p>Pilot Group (2012): PGY-1, PGY-3, PEM/PICU Faculty Training (2013): PGY-1 In-person support roles: bedside RN (nurse right), nurse team leader, paramedic, RT and parent Other support roles: radiology tech, consultant by phone (radiologist, ICU fellow)</p>
<p>Orientation</p>	<p>Participants will start with:</p> <ul style="list-style-type: none"> <li>• an orientation to the simulator (see separate document) led by Jenn or Jerome, if possible, and then</li> <li>• an orientation to the course (see separate document) led by the facilitator</li> </ul> <p><b><i>Please stress that those leading these orientation go over the directions slowly, so that participant is not overwhelmed with information</i></b></p>
<p>Clinical setting (ED, OR, patient room) sim lab or insitu</p>	<p>Satellite sim lab at base – set up in the West (Left) Room</p> <p><b>Setting to be read to participant: You are currently located in...</b> The Emergency Department in Shock Trauma Suite (STS) 1 at CCHMC. Your support team includes a bedside nurse (nurse right), a nurse team leader, a paramedic and an RT. Other physicians are currently busy with the other patients in the shock trauma suite and are not available for consultation. Your patient's parent is here with him and is available for consultation. The medication nurses are currently helping with the other patients in the STS, but will respond to your requests in a timely fashion.</p>
<p>Basic scenario information (outline)</p>	<p><b>History to be read to participant: Your patient is a...</b> 9-month old male who arrived by squad. EMS was called for "difficulty breathing." Brought from triage to shock trauma suite due to respiratory rate of 68 (show video from <b>POWERPOINT</b> at this point) and sat of 89% in triage. Per EMS, parent noted he has been "ill" for 2 days, not as active, wanting to be held, then overnight had difficulty breathing and refusing bottle. No past medical problems. At scene, infant was assessed to be sleepy but arousable, with an increased respiratory rate. He was put on oxygen via face mask and transported without further management.</p> <p><u>Other historical information that participant needs to ask parent for:</u> General: tactile temps (no thermometer at home) so giving Tylenol and ibuprofen HEENT: some rhinorrhea but no nasal congestion, not pulling at ears Resp: mild cough initially, that worsened over the last day, described as "wet" – mom denies barky or paroxysmal nature GI: no vomiting, no diarrhea, less PO intake over the last 2 days GU: less urine output, but had a wet diaper overnight, no blood in urine Skin: no rash Musculoskeletal: no joint swelling, no edema CNS: less active, no irritability, no seizures Allergies: none PMHx: none Medications: none</p> <p><b>Physical exam findings that the simulator will initially display:</b> Vitals: temp 38.4° C, HR 190s, RR 60s, sats 90% room air, BP 70s/30s; Monitor: sinus tachycardia Eyes: closed, pupils symmetric and normal size Lungs: increased respiratory effort (<i>augmented by video</i>), clear lungs Heart: normal heart sounds – no murmur or gallop Pulses: intact central pulses, weak (or no) distal pulses Skin/moulage: he is cyanotic on room air; hands/feet cool (need to ice them before we start) CNS: weak intermittent cry</p> <p><u>Physical exam findings that participant needs to ask for, or assess via audio-visual aids:</u> Estimated weight: 10kg</p>

## Sepsis Scenarios

	<p>Appearance: ill  Mental status: opens eyes to physical stimuli, cries and pulls away with IV stick/physical stimuli  Pupil reactivity: normal  HEENT exam: mild nasal congestion, otherwise normal, neck without nuchal rigidity, full passive range of motion  Abdomen: soft, non-tender, non-distended, no organomegally  Cap refill: 4-5 seconds (<i>will display cap refill video – see <b>POWERPOINT</b> - and force participant to identify length of refill</i>)</p> <ul style="list-style-type: none"> <li>• Later on in scenario, if they reassess cap refill the facilitator can state one of the following: <ul style="list-style-type: none"> <li>○ If given less than 40 mL/kg: CR is the same</li> <li>○ If given 40 mL/kg or more, then CR is 3 seconds</li> </ul> </li> </ul> <p>Skin: mottling (<i>see picture on <b>POWERPOINT</b></i>), but no rash</p>
<p>Simulator to be used</p>	<p><b>Laerdal Infant</b></p>
<p>Fluids and medications to have available</p>	<p>Fluids: Normal saline, dextrose (D10 or D25)  RSI meds: atropine, etomidate, ketamine, succinylcholine, rocuronium, vecuronium, fentanyl, versed  Pressors: dopamine gtt, epinephrine gtt, norepinephrine gtt  Resuscitative meds: epinephrine, sodium bicarb, calcium carbonate/gluconate  Antibiotics: ceftriaxone/cefotaxime, vancomycin, clindamycin, ampicillin, gentamicin</p>
<p>Equipment needed ( IV’s, ET tubes, Chest tubes,)</p>	<p>Equipment available in the room (STS):</p> <ul style="list-style-type: none"> <li>• PPE</li> <li>• B/P cuff, monitor leads, pulse oximetry</li> <li>• B-Board</li> <li>• IV/IO supplies</li> <li>• IV pump, syringe pump(s)</li> <li>• Monitors <ul style="list-style-type: none"> <li>○ Alarm limits: <ul style="list-style-type: none"> <li>▪ HR: high 160, low 60</li> <li>▪ Sats: low 90</li> </ul> </li> </ul> </li> <li>• Airway equipment: nasal cannula, simple face mask, NRB setup, BVM setup, ETT tubes, laryngoscope and blades, stylets, suction</li> <li>• ETCO2 detector/monitor</li> <li>• Defibrillator</li> </ul> <p>Equipment that needs to be available if they decide to place Central line:</p> <ul style="list-style-type: none"> <li>• Central line trainer (SimuLab)</li> <li>• CVC line kit</li> <li>• PPE kit</li> <li>• Sterile gloves (multiple sizes) – but we can substitute non-sterile gloves here</li> </ul>
<p>Paperwork, labs, X rays and EKG’s, photos, videos</p>	<p><b><u>X-rays, only if obtained:</u></b> can order one and we will allow radiology tech to arrive and perform the CXR; however there are only two ways to get the results during the 15-minute timeframe:</p> <ul style="list-style-type: none"> <li>• Participant can ask to log onto PACS or EPIC and view the image themselves (<i>see <b>PowerPoint slides for picture</b></i>), after which time we will put up the CXR image on the screen, or</li> <li>• Participant can ask that radiology calls with a wet read or they call radiology to get one; if this occurs, facilitator should call into the room and act as radiology, then give the following information: <ul style="list-style-type: none"> <li>○ Normal heart size</li> <li>○ No pulmonary edema</li> <li>○ Mild right lower lobe airspace disease</li> </ul> </li> </ul> <p><b><u>Lab Values, only if obtained:</u></b>  There will be two possible I-stats:</p> <ul style="list-style-type: none"> <li>• Initial: pH =7.08, PCO2 = 32, PO2 = 60, HCO3 9, BD -16, Glucose 50, iCa 1.09, Na 137, K 4.8 (<i>need lab slip for this given to nursing team leader 2 minutes after drawn</i>)</li> <li>• After 40 mL/kg or more of IVF: pH =7.12, PCO2 = 30, PO2 = 58, HCO3 11, BD -12, Glucose 60, iCa 1.12, Na 139, K 4.3 (<i>need lab slip for this given to nursing team leader 2 minutes after drawn</i>)</li> <li>• if give &lt; 40 mL/kg then the blood gas is unchanged from initial</li> </ul> <p>CBC with WBC 18.9, H/H 12.8/33, plts 143; differential pending  Lactate 2.4</p>

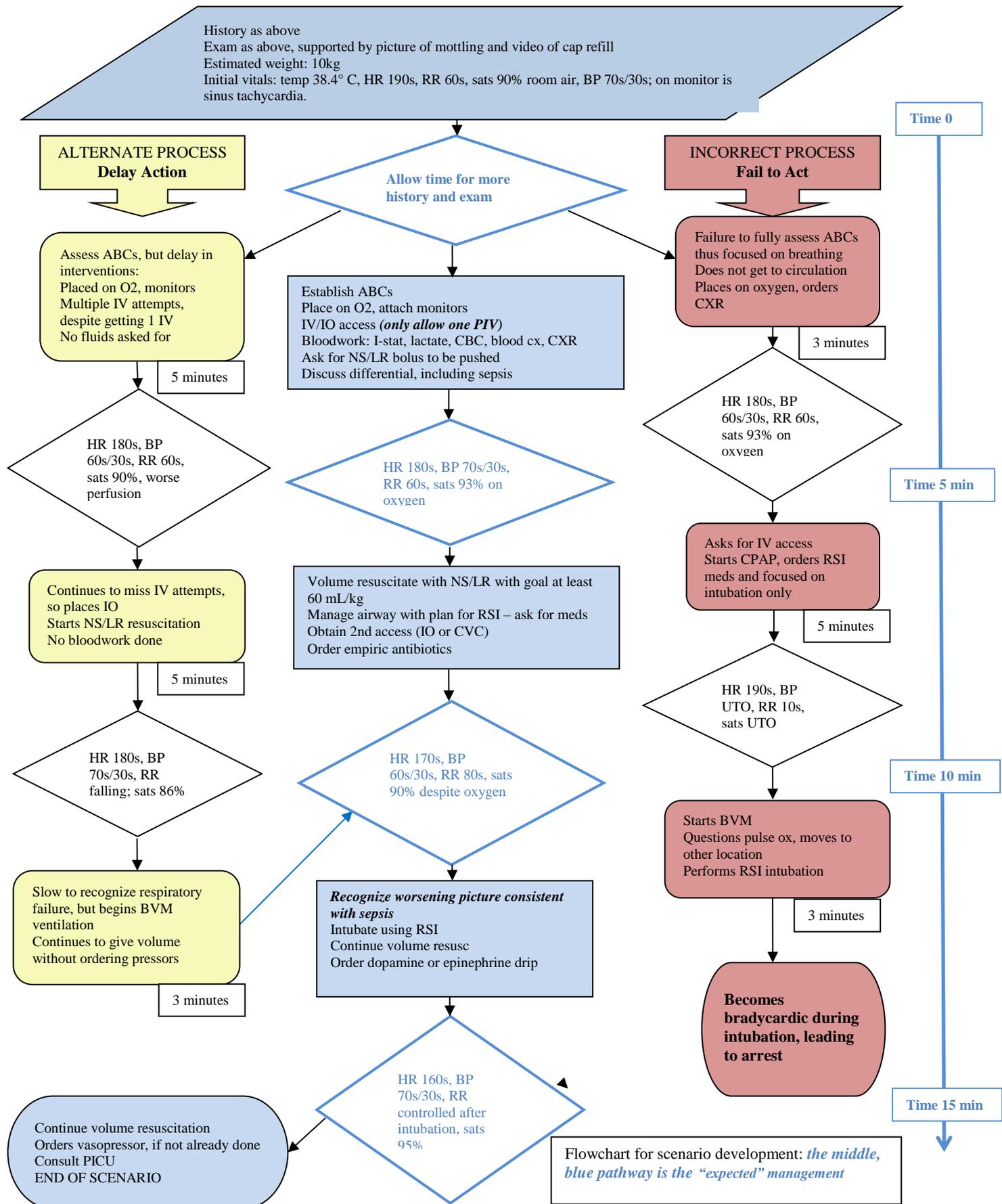
## Sepsis Scenarios

	<i>(CBC and lactate need to be called in to phone by facilitator 5 minutes after drawn)</i>
Medication intervention	<p><u>RSI medications:</u></p> <ul style="list-style-type: none"> <li>• most likely will use RSI, including etomidate (or ketamine) and succ – rocuronium would be fine</li> <li>• likely will pre-medicate with atropine (given age)</li> <li>• no indication for lidocaine (without possibility of NAT/head injury)</li> </ul> <p><u>Sinus tachycardia:</u> Volume resuscitation with crystalloid initially in 20 mL/kg aliquots Consider ibuprofen or tylenol for fever Early use of inotropes/pressors – as in ED, will not be able to get these started within 15 minute simulation time frame, but expect to be ordered</p> <p><u>Other based on I-stat results:</u> Hypoglycemia - D25W at 2mL/kg</p>
Airway intervention (oxygen, BVM, intubation)	<p>Initial Non-Rebreather or CPAP mask for increase oxygen demands and work of breathing</p> <p>Anticipate need for assisted ventilation – CPAP, BiPAP, BVM</p> <p>Anticipate need for advanced airway - appropriate sized blade/ETT, suction, RSI meds as above</p>
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Procedures and other interventions	IV access – <b><i>will allow them to get PIV access, but limit to one</i></b> ; thus, could also place IO using lidocaine protocol or place CVC
Number of and education of instructors	<p>1 education specialist: to orient participant to simulator and run software</p> <p>1 facilitator: to orient participant to simulation, perform SAGATs and perform semi-structured interview</p>
Evaluation tools and measurement points	<ul style="list-style-type: none"> <li>• SAGAT (2-minute freeze) occurring three times within scenario (after the first 5 minutes, not during procedures, not within a minute of each other) <ul style="list-style-type: none"> <li>◦ Whether patient correctly identified as septic (yes/no) by the end of 15-minute simulation</li> </ul> </li> <li>• Post-simulation semi-structured interview to elicit clues, perceptions and cognitive processes that entered into management of the simulated patient</li> <li>• Performance checklist (PALS, early goal directed management) of observed behaviors (via video review)</li> </ul> <p><b><i>Please record the simulation using SimBridge and only mark the beginning and end of the scenario (no other annotations should be placed)</i></b></p>
Advance organizer/pretest and how delivered	<p>Pilot: Will need to recruit pilot participants and obtain informed consent (Regina) prior to enrollment</p> <p>Training: Will not need consent, as training is considered mandatory by residency program director; however, will still need videotaping and confidentiality agreements signed before enrollment</p>
Personnel-simulation specialist, Actors/family members	5 support roles (bedside RN, nursing team leader, paramedic, RT and parent) – see separate script written for each of these roles at the bottom of this scenario (after flow diagram)
Estimated time to run simulation and debriefing	<p>Have a maximum of 60 minutes for each session:</p> <ol style="list-style-type: none"> <li>5. Orientation to the simulator and the setting, meet the rest of the “team”: 10 minutes</li> <li>6. Simulation: 15 minutes</li> </ol>

## Sepsis Scenarios

	<p>a. Actually will be about 21 minutes given SAGAT stoppages</p> <p>7. SAGAT stoppages: 3 times, up to 2 minutes each, for total of 6 minutes</p> <p>8. Semi-structured interview: 15-20 minutes</p>
Special Modifications/Moulage needed	<p>Will need to make the extremities cold prior to the simulation starting</p> <ul style="list-style-type: none"> <li>• <b><i>Is best to allow orientation to the simulator first, then when participant is finishing orientation in the hall we can apply ice to the limbs</i></b></li> </ul> <p><u>Additional things to have set up:</u></p> <p>As we will likely not have enough personnel to provide the team with medication nurses, we need a med cart outside the room with all anticipated medications already drawn up and labeled</p> <p>Need a blank trauma flowsheet at bedside</p> <p>Move compressor into other simulation room to decrease sound in control room</p>
Need for reevaluation (time frame)	N/A
<p><b><i>Additional possibilities to consider:</i></b></p> <p>3) What if participant asks for help from ED attending or fellow?</p> <p>a. If this is an intern or 3<sup>rd</sup> year resident, then would have an ED fellow or faculty with them in the ED. However, for this resuscitation we can say the supervisor is running a trauma resuscitation in the next bay and will be over “in a few minutes.” At the 10-minute mark, can have the supervisor “check in” with the intern/resident, but be pulled back to the trauma. Thus, will not really allow intern/resident to have any help except for seconds at a time.</p> <p>4) What is participant calls the PICU?</p> <p>a. Can page the ICU. Will have the ICU (facilitator) call back, stating that the fellow is placing a central line in the ICU and will be down as soon as he/she can make it.</p>	

# Sepsis Scenarios



## Major potential errors that can be made:

- Task fixation: too much time on airway, not aggressive with volume and pressors → leads bradycardia and arrest
- Not recognizing sepsis in differential, not aggressive enough with volume → leads to severe hypotension

## Sepsis Scenarios

### Support Roles:

#### Bedside (Right) Nurse:

You are the nurse who stands on the patient's right side, attempts access/obtains blood for labs, gives IVF and medications  
During the simulation, you will perform the following:

- Duties as directed by physician, including delivery of medications or fluids.
- Contribute to communication by performing callout/readbacks as you complete each requested intervention.
- Should **NOT** engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as "what do you think is going on?" or "what are you worried about?"
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should NOT make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- If team is not giving IVF, please state *"He is flushed; he look's mottled to me; why isn't his color coming back right away?"*
- If team is pushing IVF and gets to 40 mL/kg in NS, then state *"He seems to be improving, as his mottling is gone."*
- If the participant asks for the CXR findings, the bedside nurse can say *"would you like me to check EPIC"* and we would then display a screen shot for the participant to review

#### Paramedic:

You are the patient care assistant assigned to this patient. Your main responsibilities are placing patient on monitors, helping get IV access and obtaining other equipment as needed.

During the simulation, you will perform the following:

- Place patient on monitors
- Aid in obtaining further PIV access, if asked
- Help by obtaining other equipment asked for by the participant, i.e. airway supplies, IVFs, etc.
- Should NOT engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as "what do you think is going on?" or "what are you worried about?"
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should NOT make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- *"I think he is really pale, don't you?"*
- If doctor does not examine his feet or hands, can state one of the following:
  - If team is not giving IVF, please state *"his feet are really cold, don't you think?"*
  - If team is pushing IVF and gets to 40 mL/kg in NS, then state *"his feet are getting warmer."*

#### Team Lead RN:

You are the nurse team leader and responsible for documentation, as well as making sure the team is giving you the information you are supposed to record. So, if you are lacking information to fill out page 1 of the trauma flowsheet, then please ask for it.

During the simulation, you will perform the following:

- Will perform documentation and coordinate medications and fluids asked for by participant.
- Can offer limited suggestions around logistics.
- Should NOT engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as "what do you think is going on?" or "what are you worried about?"
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should NOT make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- *Early on when the bedside nurse or PCA attempts IV access, you can state "boy, he didn't even move with the IV stick, he's not just a fever."*

#### Respiratory therapy:

You are the ED respiratory therapist, so manage the airway by yourself up to the point of intubation, at which time the doctor will need to actually perform the procedure (with your help).

During the simulation, you will perform the following:

- Will provide airway management as required and as is normal for that role.
- Can offer suggestions based on respiratory effort and saturations to escalate care.
- Can also help arrange needed airway equipment and facilitate intubation.
- You should NOT engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as "what do you think is going on?" or "what are you worried about?"

At some point, we would like you to throw out the comment(s):

- *"His respiratory effort seems to be waxing and waning."*

#### Parent:

You are either mom or dad. You are very anxious, as your child has never been sick before.

During the simulation, you will perform the following:

## Sepsis Scenarios

- Can provide the additional history listed above, if asked.
- Also, can offer that the patient has no past medical problems, no allergies to medications, is not taking any medications daily, and has been developing normally.

*At some point, we would like you to throw out the comment(s):*

- *“This is not how my child looks...something is wrong with him.”*
- If asked what you are most worried about, please state: *“He is not acting like himself.”*
  - If asked for further explanation, state: *“He is not eating, and that is not like him.”*
- At the 4-minute mark approach the participant and ask *“what is going on?”* or *“what is wrong with my child?”*, thus prompting a verbalization of thought process.

### Other roles that may be needed:

- Radiology tech – see above X-rays section for behaviors
- ICU fellow – see above “additional possibilities to consider” section for behaviors

<p>Goals and objectives Sepsis Scenarios ACCELERATION TO EXPERTISE Phase II Scenario 3</p>	<p><b>The focus of this simulation is around:</b></p> <ol style="list-style-type: none"> <li>7. Recognition of sepsis, including differential diagnosis</li> <li>8. Proper ABCs and airway management</li> <li>9. Antibiotic initiation</li> <li>10. Access, including need for IO vs. central venous access</li> </ol> <p><b>The focus of the semi-structure interview/debriefing will be:</b></p> <ol style="list-style-type: none"> <li>9. Major events that occurred during simulation</li> <li>10. Timeline for major events</li> <li>11. Unpacking major events</li> <li>12. Big-picture/hypothetical questions</li> </ol>
<p>Target participants (roles, specialty)</p>	<p>Pilot Group (2012): PGY-1, PGY-3, PEM/PICU Faculty Training (2013): PGY-1 In person support roles: Bedside RN, PCA, Staff assist/Charge RN (No RT, No Parent) Other support roles: Orthopedic resident by phone; Facilitator can also play VAT and/or RRU as detailed below</p>
<p>Orientation</p>	<p>Participants will start with:</p> <ul style="list-style-type: none"> <li>• an orientation to the simulator (see separate document) led by Jenn or Jerome, if possible, and then</li> <li>• an orientation to the course (see separate document) led by the facilitator</li> </ul> <p><b><i>Please stress that those leading these orientation go over the directions slowly, so that participant is not overwhelmed with information</i></b></p>
<p>Clinical setting: Sim lab at Base</p>	<p>Satellite Simulation Lab at Base – set up in East (Right) Room</p> <p><b>Setting to be read to participant:</b> You are currently located on A3N (short stay surgical floor) at CCHMC. It is 5pm in the afternoon. Your patient is in a private room. Your support team includes the patient’s bedside nurse, the patient’s PCA and the unit PCF nurse, if needed. Respiratory therapy and other physicians are currently busy with the other patients. Your patient’s parents are not available now, as they have returned home to spend a few hours with their other children and get everything ready for the patient’s discharge. During this scenario the nurse will take verbal orders and you will not need to put anything into EPIC. Due to this patient’s chronic medical problems, he is on the general pediatric service despite having been operated on by orthopedics.</p>
<p>Basic scenario information (outline)</p>	<p><b>HISTORY: To be read to participant: Your patient is a...</b> 6-year old African-American male with a history of Developmental Delayed, now post-op hour 28 from intramedullary-wire fixation of a transverse fracture of the middle third of the right humerus sustained in a fall. Your patient has been increasingly agitated, thus given Tylenol with Codeine two hours ago for what was believed to be increased pain. He slept for 2 hours, but is noted to continue with agitation and moans with right arm movement. He is non-verbal at baseline due to developmental delay, but will respond to verbal stimuli easily and react when nurse/family enter room. You are called by the nurse to the bedside due to increasing agitation...</p> <p><b>Other historical information that participant needs to ask for:</b> GI: getting G-tube feeds q4h, no vomiting/ stool soft and slightly watery; he has been off IVF since feeds started this morning. GU: wears diapers, last wet diaper 4 hours ago, fewer diapers over last 8 hours than recorded yesterday. Musculoskeletal: Dressings at pin insertion sites with small-moderate amount of (pinkish-yellow-serous) drainage noted. VS 1 hour ago: Temp 37.1, HR 110s, RR 36, BP 88/52, Sats 95% room air</p> <ul style="list-style-type: none"> <li>• <b><i>Also, if participant asks for all the vitals since admission is prompted to look at a screen shot (see PowerPoint file) on monitor</i></b></li> </ul> <p>Ancef x 1 intra-op (ceftriaxone)</p>

## Sepsis Scenarios

	<p><b>Physical exam findings that the simulator will initially display:</b>  Vitals: Temp 37.9, HR 120s, RR high 40s, Sats 90% room air, BP 88/46  Monitor: on monitor is sinus tachycardia</p> <ul style="list-style-type: none"> <li>• <i>During the orientation, the rhythm should be in normal sinus, then switch to this rhythm at beginning of scenario</i></li> <li>• <i>Ensure monitor display colors match the clinical arena, i.e. pulse oximetry waveform and number are in blue</i></li> <li>• <i>No temperature should display on the monitor</i></li> </ul> <p>General: mild circumoral cyanosis without oxygen, intermittent cry  Eyes: closed  Lungs: increased respiratory effort, clear  Heart: normal heart sounds, tachycardic  Pulses: intact central and distal pulses, but weak on right arm due to injury/surgery/splinting  Skin/moulage:</p> <ul style="list-style-type: none"> <li>• right arm needs to be in splint (orthoglass/ACE wrap) with two wires in place (can use ETT stylets) – dressing needs to have some drainage at wire site</li> <li>• infiltrated PIV in left arm</li> <li>• warm extremities</li> <li>• g-tube in place and hooked up to feeding pump</li> </ul> <p><u>Physical exam findings that participant needs to ask for, or assess via audio-visual aids:</u>  Weight 25 kg  Appearance: fussy, not consolable, bordering on irritable  Mental Status: opens eyes to physical stimuli, cries and pulls away with right arm movement or IV stick/physical stimuli  Pupils: equal and reactive  Abdomen: soft, non-tender, non-distended, no organomegally  Cap Refill: 3-4 sec (slower on right hand nail beds)</p> <ul style="list-style-type: none"> <li>• <i>Play video on 2<sup>nd</sup> slide of PowerPoint presentation showing delayed cap refill at nail beds of right hands (ignore fact that patient is Caucasian)</i></li> </ul> <p>Skin: normal color, pale oral mucosa  Extremities: <i>If participant undoes splint, they will be referred to the two pictures on the PowerPoint slides</i></p> <ol style="list-style-type: none"> <li>1) <i>Appearance of right arm showing erythema and swelling of elbow</i></li> <li>2) <i>Close up of wires exiting skin with some exudate but no frank pus</i></li> </ol>
Simulator to be used	<b>Gaumard African-American Child (can substitute Toddler if needed)</b>
Fluids and medications to have available	Fluids: Normal saline, Lactated Ringer's, 5% Albumin, Dextrose (D10 or D25) Pressors: None (have to order them in Epic and get from pharmacy as no kits on the floor) Resuscitative meds: Code Cart Medications, Floor pyxis medications Antibiotics: Must order from pharmacy via EPIC
Equipment needed ( IV's, ET tubes, Chest tubes,)	Equipment available in the room/unit: <ul style="list-style-type: none"> <li>• PPE</li> <li>• B/P cuff, monitor leads, pulse oximetry</li> <li>• IV supplies</li> <li>• IV pump, syringe pump(s)</li> <li>• Monitors <ul style="list-style-type: none"> <li>○ Alarm limits: <ul style="list-style-type: none"> <li>▪ HR: high 160, low 60</li> <li>▪ Sats: low 90</li> </ul> </li> </ul> </li> <li>• Bedside respiratory bag (emergency airway bag): BVM set-up, oxygen delivery supplies</li> <li>• Suction</li> </ul> <p>Equipment specific to code cart:</p> <ul style="list-style-type: none"> <li>• IO supplies</li> <li>• backboard</li> <li>• Advanced airway equipment</li> <li>• Defibrillator (<i>will also put rhythm generator in the drawer</i>)</li> </ul>

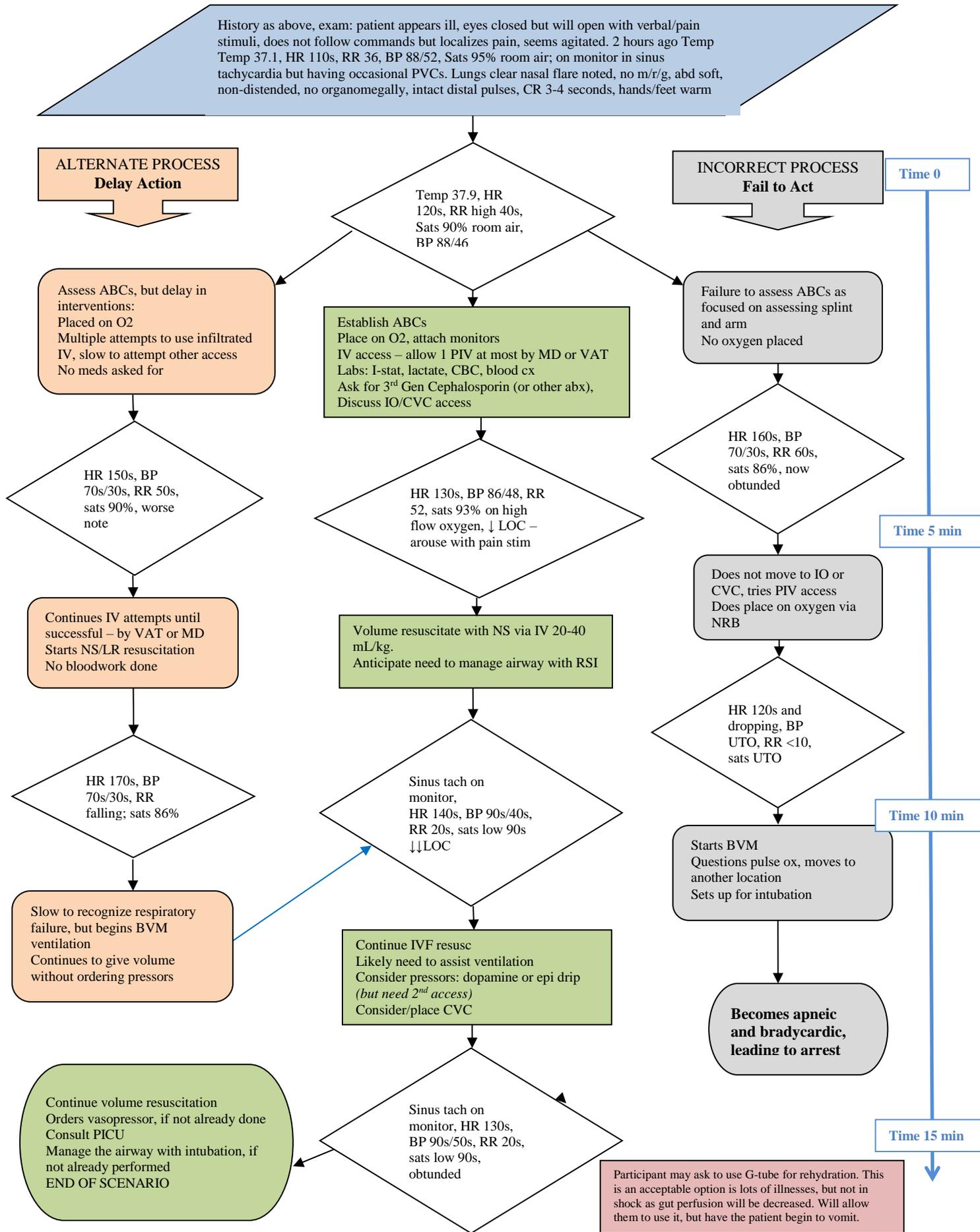
## Sepsis Scenarios

<p>Paperwork, labs, X rays and EKG's, photos, videos</p>	<p><u>Chest X-ray:</u> can order one and we will allow radiology tech to arrive and perform the CXR; however there are only two ways to get the results during the 15-minute timeframe:</p> <ul style="list-style-type: none"> <li>Participant can ask to log onto PACS or EPIC and view the image themselves, after which time we will put up the CXR image (see <b>PowerPoint</b> slides) on the screen, or</li> <li>Participant can ask that radiology calls with a wet read or they call radiology to get one; if this occurs, facilitator should call into the room and act as radiology, then give the following information: <ul style="list-style-type: none"> <li>Normal heart size</li> <li>No infiltrate</li> </ul> </li> </ul> <p><u>Right arms radiographs:</u> See associated <b>PowerPoint</b> file for pre-op humeral fracture and post-op pinning.</p> <p><u>Lab Values, only if obtained:</u> I-stat: pH 7.18, PCO2 35, PO2 30, HCO3 19, BD -8, Gluc 86, iCa 1.08, Na 142, K 4.5</p> <ul style="list-style-type: none"> <li>Needs to be run by RRU, since it's on the floor</li> </ul> <p>No other labs will come back during the 15-minute time frame</p>
<p>Medication intervention</p>	<p><u>Sinus tachycardia:</u> Volume resuscitation with crystalloid initially in 20 mL/kg aliquots Consider tylenol for fever Early use of inotropes/pressors – as on floor, will not be able to get these started within 15 minute simulation time frame, but expect to be ordered</p> <p><u>Other based on I-stat results and/or H's and T's:</u> Hypoglycemia - D25W at 2mL/kg Hypocalcemia – CaCl vs. CaGluconate</p> <p><u>RSI medications:</u> Based on those available in code cart/medication bag</p>
<p>Airway intervention (oxygen, BVM, intubation)</p>	<p>Initial Non-Rebreather or CPAP mask for increased oxygen demand Anticipate need for assisted ventilation – CPAP, BiPAP, BVM Anticipate need for advanced airway – oral airway and/or appropriate sized blade/ETT, RSI meds as above</p>
<p>Physiologic intervention (CPR)</p>	<p>Recognition of compensated shock state: ill appearance, decreased mental status, tachycardia, borderline systolic blood pressures with wide pulse pressure, fair distal perfusion</p> <p>Aggressive use of IVFs to resuscitate shock state, while watching for potential side effects/progression that include:</p> <ul style="list-style-type: none"> <li>Respiratory Failure - Assisted Oxygenation and Ventilation</li> <li>Circulatory Collapse – IVF resuscitation, resusc med and CPR</li> </ul> <p>Early use of pressors, even with peripheral IV access</p>
<p>Procedures and other interventions</p>	<p><b><u>IV access – will not allow them to get multiple PIV accesses, limit to only one and that must be by VAT or MD – floor nurse is NOT successful;</u></b> thus, must place IO and/or CVC</p>
<p>Number of and education of instructors</p>	<p>1 education specialist: to orient participant to simulator and run software 1 facilitator: to orient participant to simulation, perform SAGATs and perform semi-structured interview</p>
<p>Evaluation tools and measurement points</p>	<ul style="list-style-type: none"> <li>SAGAT (2-minute freeze) occurring three times within scenario (after the first 5 minutes, not during procedures, not within a minute of each other) <ul style="list-style-type: none"> <li>Whether patient correctly identified as septic (yes/no) by the end of 15-minute simulation</li> </ul> </li> <li>Post-simulation semi-structured interview to elicit clues, perceptions and cognitive processes that entered into management of the simulated patient</li> <li>Performance checklist (PALS, early goal directed management) of observed behaviors (via video review) <ul style="list-style-type: none"> <li><b><i>Please record the simulation using SimBridge and only mark the beginning and end of the scenario (no other annotations should be placed)</i></b></li> </ul> </li> </ul>

## Sepsis Scenarios

Advance organizer/pretest and how delivered	<p>Pilot: Will need to recruit pilot participants and obtain informed consent (Regina) prior to enrollment</p> <p>Training: Will not need consent, as training is considered mandatory by residency program director; however, will still need videotaping and confidentiality agreements signed before enrollment</p>
Personnel-simulation specialist, Actors/family members	4 support roles (bedside RN, PCA, charge/staff assist/PCF RN and Ortho resident) – see separate script written for each of these roles at the bottom of this scenario (after flow diagram)
Estimated time to run simulation and debriefing	<p>Have a maximum of 60 minutes for each session:</p> <p>9. Orientation to the simulator and the setting, meet the rest of the “team”: 10 minutes</p> <p>10. Simulation: 15 minutes</p> <p>    a. Actually will be about 21 minutes given SAGAT stoppages</p> <p>11. SAGAT stoppages: 6 minutes</p> <p>12. Semi-structured interview: 15-20 minutes</p>
Special Modifications/Moulage needed	<ul style="list-style-type: none"> <li>• Will need to make the extremities warm prior to the simulation starting             <ul style="list-style-type: none"> <li>○ <i>Is best to allow orientation to the simulator first, then when participant is finishing orientation in the hall we can apply heat to the limbs</i></li> </ul> </li> <li>• Will need to place splint and exposed wires to right arm             <ul style="list-style-type: none"> <li>○ <i>Need to put some drainage around where the pins come through the dressing</i></li> </ul> </li> <li>• Place PIV in left arm, but occlude outlet so feels as if infiltrated if try to use – will have D51/2 NS hanging at bedside, as that is what patient was on prior to feeds having been started this morning</li> <li>• G-tube in place and hooked up to feeding pump, but bag is empty as feed ended an hour ago (getting q4hour feeds)</li> <li>• Patient needs to be in gown and a diaper (given developmental delay)</li> </ul>
Need for reevaluation (time frame)	N/A
<p><b>Additional possibilities to consider:</b></p> <p>5) What if participant asks for MRT?</p> <p>    a. Will respond with “okay, I will page the MRT.” However, given our 15-minute time frame, the MRT “crew” will not show up before we are finished.</p> <p>6) What if participant asks to call a house wide code?</p> <p>    a. Will respond with “okay, I will call the code.” However, something goes wrong with the code paging system and code team not activated. If the participant asks again, then we will do it correctly, but team does not arrive before simulation is complete.</p> <p>7) What if participant asks for VAT to be called?</p> <p>    a. Can call them and they will respond in 5 minutes (role will need to be played by facilitator or someone else)</p> <p>    b. Will be able to get 24-gauge IV in foot or left hand</p> <p>    c. Will be able to get blood for labs, if asked</p>	

# Sepsis Scenarios



Other potential errors that can be made:

## Sepsis Scenarios

### Support Roles:

#### Bedside Nurse:

You are the nurse who has taken care of this patient since you came on shift at 7am (now 5pm). Therefore, you are the one who called the physician to the bedside because of increased agitation, periods of lethargy. You will have the information needed, including allergies, medications, past medical history, past vital signs.

During this scenario:

- Patient has been agitated all day, not acting at baseline. **You believe the patient's pain is not under control.** Once the physician arrives please start with the following, right after the facilitator read the scenario information:
  - ***"I think he needs better pain control. I had him yesterday after surgery also, and he seems much more agitated. His HR was 130, but came down a little after administration of Tylenol with Codeine. Maybe we can give him some morphine. I know these kids usually go to ortho and they give us standing orders for morphine. What do you think?"***
- If another IV is asked for by the physician, you will not be able to gain PIV access. Floor nurses cannot insert IO (IO only available in crash cart) and there are no central line kits on the floor.
- You may provide VS over your shift and what you received in report. Again, if participant asks for all the vitals, you can direct them to look in EPIC or offer to do it for them. Then, direct them to the screen shot of vitals table.
- If physician asks for NS bolus, place fluids on pump but not push fluids unless specifically directed

During the simulation, you will perform the following:

- Duties as directed by physician, including delivery of medications or fluids.
- Contribute to communication by performing callout/readbacks as you complete each requested intervention.
- Should **NOT** engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as "what do you think is going on?" or "what are you worried about?"
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should NOT make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- *"I think the perfusion is a little better after the first bolus of IV fluids"*
- *"I have been checking his pulses and just not really noticing much of a change"*
- *"His extremities seem a little cooler than before"*

#### PCA:

You are the patient care assistant assigned to this patient. You were assigned this patient in the morning, but have only recorded vital signs. You have been busy with other discharges and admissions throughout the day. Thus, you will not really have any information for the physician on what has happened over the past couple hours.

During the simulation, you will perform the following:

- Place patient on monitors
- Aid in obtaining further PIV access, if asked
- Help by obtaining other equipment asked for by the participant, i.e. airway supplies, IVFs, etc.
- Should NOT engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as "what do you think is going on?" or "what are you worried about?"
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should NOT make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- *"Does he look pale for an African-American?"*
- *"He looks different than this morning"*
- If physician asks for I-stat, recommend calling RRU so *"they can bring the machine and run the I-stat"*
  - Facilitator will fill in that role of RRU and then provide the I-stat results 2 minutes after they "run the I-stat"

#### Charge/staff assist/PCF RN:

You are the back-up nurse for the bedside nurse and are the more experienced provider. Your information is limited, but you do remember some of the history because you were part of his admission yesterday.

During the simulation, you will perform the following:

- Will perform documentation and coordinate medications and fluids asked for by participant.
- Can offer limited suggestions around logistics.
- Should NOT engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as "what do you think is going on?" or "what are you worried about?"
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should NOT make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- *"Did he get pain medication...he is appearing a sleepy. I am not sure if that is because he is not feeling well or the time of day?"*
- *"He doesn't seem to be acting like his normal self. He acted different yesterday."*

#### Ortho Resident (Chief/ Faculty)

## Sepsis Scenarios

They would have an ortho resident or faculty available to them for consultation, at least by phone. During the simulation, the facilitator will fill this role as phone consultation only and perform the following:

- Take two minutes to call back
- Listen to the resident and review his/her concerns
- Agree that the patient seems ill and “approve” what the resident is doing if the interventions are correct, however should not make statements such as “what do you think is going on?” or “what are you worried about?”
- If pushed by the resident to come to the bedside, will answer with “okay, I will be there as soon as I can.” However, given time frame of simulation, will not arrive before simulation is complete.

Finally, should NOT suggest to resident to call an MRT or hose wide code; nor make any reference to sepsis, septic shock, etc.

### Other roles that may be needed:

- Radiology tech – see X-ray section above for behaviors
- VAT nurse – see “additional possibilities to consider” section above for behaviors

## Sepsis Scenarios

<p>Goals and objectives Technical and non-technical</p> <p><b>ACCELERATION TO EXPERTISE</b></p> <p><b>Phase 2</b></p> <p><b>Scenario 4</b></p>	<p><b><u>The focus of this simulation is around:</u></b></p> <ol style="list-style-type: none"> <li>11. Recognition of decompensated septic shock.</li> <li>12. Initial resuscitation of septic shock</li> <li>13. Proper ABCs and airway management</li> </ol> <p><b><u>The focus of the semi-structure interview/debriefing will be:</u></b></p> <ol style="list-style-type: none"> <li>13. Major events that occurred during simulation</li> <li>14. Timeline for major events</li> <li>15. Unpacking major events</li> <li>16. Big-picture/hypothetical questions</li> </ol>
<p>Target participants (roles, specialty)</p>	<p>Training (2013): PGY-1 In-person support roles: Bedside RN (No PCA, Staff assist/charge RN, RT, or Parent) Other support roles: Oncology fellow available by phone, RT can be called in for blood gas if needed</p>
<p>Orientation</p>	<p>Participants will start with:</p> <ul style="list-style-type: none"> <li>• an orientation to the simulator (see separate document) led by Jenn or Jerome, if possible, and then</li> <li>• an orientation to the course (see separate document) led by the facilitator</li> </ul> <p><b><i>Please stress that those leading these orientation go over the directions slowly, so that participant is not overwhelmed with information</i></b></p>
<p>Clinical setting (ED, OR, patient room) sim lab or insitu</p>	<p>Satellite Simulation Lab at Base – set up in East (Right) Room</p> <p><b>Setting to be read to participant: You are currently located in...</b> The inpatient oncology unit at CCHMC. Your patient is in a private room. Your support team includes the patient's bedside nurse. Respiratory therapy and other physicians are currently busy with the other patients. Your patient's parents are not available now, as they have gone home to get clothes and other necessities, as had not planned on being admitted. They thought he was just coming in for his chemotherapy.</p>
<p>Basic scenario information (outline)</p>	<p><b>History to be read to participant: Your patient is a...</b> 3 year-old African American male with history of ALL who was admitted to the Oncology Unit with fever and neutropenia. He was admitted from the clinic about 20 minutes ago after presenting to the clinic with fever and cough x 1 day. Blood cultures were obtained from his indwelling central line and he received an IV dose of Vancomycin and Meropenem in the clinic prior to admission. You are called to the room to admit the patient.</p> <p><u>Other historical information that participant needs to ask for:</u> Recent history: Low grade temp (38.1) overnight, parents did not go to ED as already had clinic appointment this morning, did not eat breakfast. One set of vitals in oncology clinic: T 38.9, HR 138, RR 34, BP not obtained as mom refused in clinic as it's "the worst part of his care, he hates it", sat 96% on room air (<b><i>show them Powerpoint slide of clinic notes</i></b>) Allergies: none PMHx: ALL, in maintenance chemotherapy, last chemotherapy was 8 days ago Medications: prednisone, recent chemotherapy, peridex mouth rinse as needed, Tylenol in clinic (<b><i>show them Powerpoint slide of EPIC for all of this information</i></b>)</p>
	<p><b>Physical exam findings that the simulator will initially display:</b> Vitals: Temp 38.4, HR 150s, RR 30s, sats 94% room air, BP 70s/30s Monitor: sinus tachycardia with ST segment depression (best we can find on Gaumard is to use left bundle branch block, as it shows wider QRS and t-wave inversion)</p> <ul style="list-style-type: none"> <li>• <b><i>During the orientation, the rhythm should be in normal sinus, then switch to this rhythm at beginning of scenario</i></b> <ul style="list-style-type: none"> <li>○ <b><i>Show them Powerpoint slide of ECG tracing</i></b></li> </ul> </li> <li>• <b><i>Ensure monitor display colors match the clinical arena, i.e. pulse oximetry waveform and number are in blue</i></b></li> </ul> <p>Eyes: closed Lungs: clear, but with obvious retractions Heart: no murmur, rub or gallop Pulses: intact central pulses, absent distal pulses Skin/moulage: double-lumen central line under CVC dressing; hands/feet cool (need to ice them before we start)</p> <p><u>Physical exam findings that participant needs to ask for, or assess via audio-visual aids:</u> Weight: 19kg Appearance: ill</p>

## Sepsis Scenarios

	<p>Mental status: will open eyes with verbal stimuli, does not follow commands but localizes pain, confused when he talks</p> <p>Abdomen: soft, non-distended, no hepatosplenomegaly</p> <p>Cap refill: 4-5 seconds (<i>will display cap refill video – see <b>POWERPOINT</b> - and force participant to identify length of refill</i>)</p>
Simulator to be used	<b>Gaumard African American Toddler</b>
Fluids and medications to have available	<p>Fluids: Normal saline, Lactated Ringer's, 5% Albumin, Dextrose (D10 or D25)</p> <p>Pressors: None (have to order them in Epic and get from pharmacy as no kits on the floor)</p> <p>Resuscitative meds: Code Cart Medications, Floor pyxis medications</p> <p>Antibiotics: Must order from pharmacy via EPIC</p>
Equipment needed ( IV's, ET tubes, Chest tubes,)	<p>Equipment available in the room/unit:</p> <ul style="list-style-type: none"> <li>• PPE</li> <li>• B/P cuff, monitor leads, pulse oximetry</li> <li>• IV supplies</li> <li>• IV pump, syringe pump(s)</li> <li>• Monitors <ul style="list-style-type: none"> <li>○ Alarm limits: <ul style="list-style-type: none"> <li>▪ HR: high 160, low 60</li> <li>▪ Sats: low 90</li> </ul> </li> </ul> </li> <li>• Bedside respiratory bag (emergency airway bag): BVM set-up, oxygen delivery supplies</li> <li>• Suction</li> </ul> <p>Equipment specific to code cart:</p> <ul style="list-style-type: none"> <li>• IO supplies</li> <li>• backboard</li> <li>• Advanced airway equipment</li> <li>• Defibrillator (<i>will also put rhythm generator in the drawer</i>)</li> </ul>
Paperwork, labs, X rays and EKG's, photos, videos	<p><u>X-ray:</u> can order one and we will allow radiology tech to arrive and perform the CXR; team gets an immediate image for them to interpret</p> <ul style="list-style-type: none"> <li>• Team can ask that radiology calls with a wet read or they call radiology to get one; if this occurs, facilitator should call into the room and act as radiology, then give the following information: <ul style="list-style-type: none"> <li>○ Normal heart size</li> <li>○ No pulmonary edema</li> <li>○ Right lower lobe airspace disease</li> <li>○ CVC in place</li> </ul> </li> </ul> <p><u>Lab Values:</u>  I-stat: pH =7.08, PCO2 = 45, PO2 = 60, HCO3 10, BD -16, Glucose 50, iCa 0.89, Na 137, K 4.8 Lactate 2.4</p> <p>Could send for co-oximetry, but will not come back in 15 minute simulation time frame</p> <p>Labs that were obtained in clinic, <i>if asked for:</i> CBC with WBC 0.9, H/H 10.8/31, plts 388; blood cultures from both ports; urinalysis was negative for infection, urine culture.</p> <ul style="list-style-type: none"> <li>• If the participant asks for the clinic labs, the bedside nurse can say “would you like me to check EPIC” and we would then display a screen shot (see <b>POWERPOINT</b>) for the participant to review</li> </ul>
Medication intervention	<p><u>Sinus tachycardia:</u>  Volume resuscitation with crystalloid initially in 20 mL/kg aliquots  Consider ibuprofen for persistent fever  Early use of inotropes/pressors – as on floor, will not be able to get these started within 15 minute simulation time frame, but expect to be ordered</p> <p><u>Other based on I-stat results and/or H's and T's:</u>  Hypoglycemia - D25W at 2mL/kg  Hypocalcemia – CaCl vs. CaGluconate</p> <p><u>RSI medications:</u>  Based on those available in code cart/medication bag</p>

## Sepsis Scenarios

Airway intervention (oxygen, BVM, intubation)	Initial Non-Rebreather or CPAP mask for increase oxygen demands (work of breathing) Anticipate need for assisted ventilation – CPAP, BiPAP, BVM Anticipate need for advanced airway - appropriate sized blade/ETT, RSI meds as above
Physiologic intervention (CPR)	Aggressive use of IVFs to resuscitate shock state, while watching for potential side effects/progression that include:  Aggressive use of IVFs to resuscitate shock state, while watching for potential side effects/progression that include: <ul style="list-style-type: none"> <li>• Respiratory Failure - Assisted Ventilation and Oxygenation</li> <li>• Circulatory Collapse – IVF resuscitation, resusc meds and CPR</li> </ul> Early use of pressors, even with peripheral IV access
Procedures and other interventions	Already has CVC; if need additional access then place PIV or consider IO
Number of and education of instructors	1 education specialist: to orient participant to simulator and run software 1 facilitator: to orient participant to simulation, perform SAGATs and perform semi-structured interview 1 medical facilitator: to perform medical debriefing/teaching
Evaluation tools and measurement points	<ul style="list-style-type: none"> <li>• SAGAT (2-minute freeze) occurring three times within scenario (after the first 5 minutes, not during procedures, not within a minute of each other) <ul style="list-style-type: none"> <li>○ Whether patient correctly identified as septic (yes/no) by the end of 15-minute simulation</li> </ul> </li> <li>• Post-simulation semi-structured interview to elicit clues, perceptions and cognitive processes that entered into management of the simulated patient</li> <li>• Performance checklist (PALS, early goal directed management) of observed behaviors (via video review) <ul style="list-style-type: none"> <li>○ <b>Please record the simulation using SimBridge and only mark the beginning and end of the scenario (no other annotations should be placed)</b></li> </ul> </li> </ul>
Advance organizer/pretest and how delivered	Training: Will not need consent, as training is considered mandatory by residency program director; however, will still need videotaping and confidentiality agreements signed before enrollment
Personnel-simulation specialist, Actors/family members	Support roles (bedside RN and Oncology fellow) – see separate script written for each of these roles at the bottom of this scenario (after flow diagram)
Estimated time to run simulation and debriefing	Have a maximum of 60 minutes for each session: <ol style="list-style-type: none"> <li>13. Orientation to the simulator and the setting, meet the rest of the “team”: 10 minutes</li> <li>14. Simulation: 15 minutes <ol style="list-style-type: none"> <li>a. Actually will be about 21 minutes given SAGAT stoppages</li> </ol> </li> <li>15. SAGAT stoppages: 3 times, up to 2 minutes each, for total of 6 minutes</li> <li>16. Semi-structured interview: 15-20 minutes</li> </ol>
Special Modifications/Moulage needed	Will need to make the extremities cold prior to the simulation starting <ul style="list-style-type: none"> <li>• <b>Is best to allow orientation to the simulator first, then when participant is finishing orientation in the hall we can apply ice to the limbs</b></li> </ul> Will need to place central line and CVC dressing <ul style="list-style-type: none"> <li>• <b>Need to hide the fluid collection part of the CVC – you can run the catheter out of the tracheostomy hole on the simulator, thus only showing the CVC dressing and the catheter ports</b></li> </ul>
Need for reevaluation (time frame)	N/A
<p><b>Additional possibilities to consider:</b></p> <ol style="list-style-type: none"> <li>8) What if participant asks for MRT? <ol style="list-style-type: none"> <li>a. Will respond with “okay, I will page the MRT.” However, given our 15-minute time frame, the MRT “crew” will not show up before we are finished.</li> </ol> </li> <li>9) What if participant asks to call a house wide code? <ol style="list-style-type: none"> <li>a. Will respond with “okay, I will call the code.” However, something goes wrong with the code paging system and code team not activated. If the participant asks again, then we will do it correctly, but team does not arrive before simulation is complete.</li> </ol> </li> </ol>	

## Sepsis Scenarios

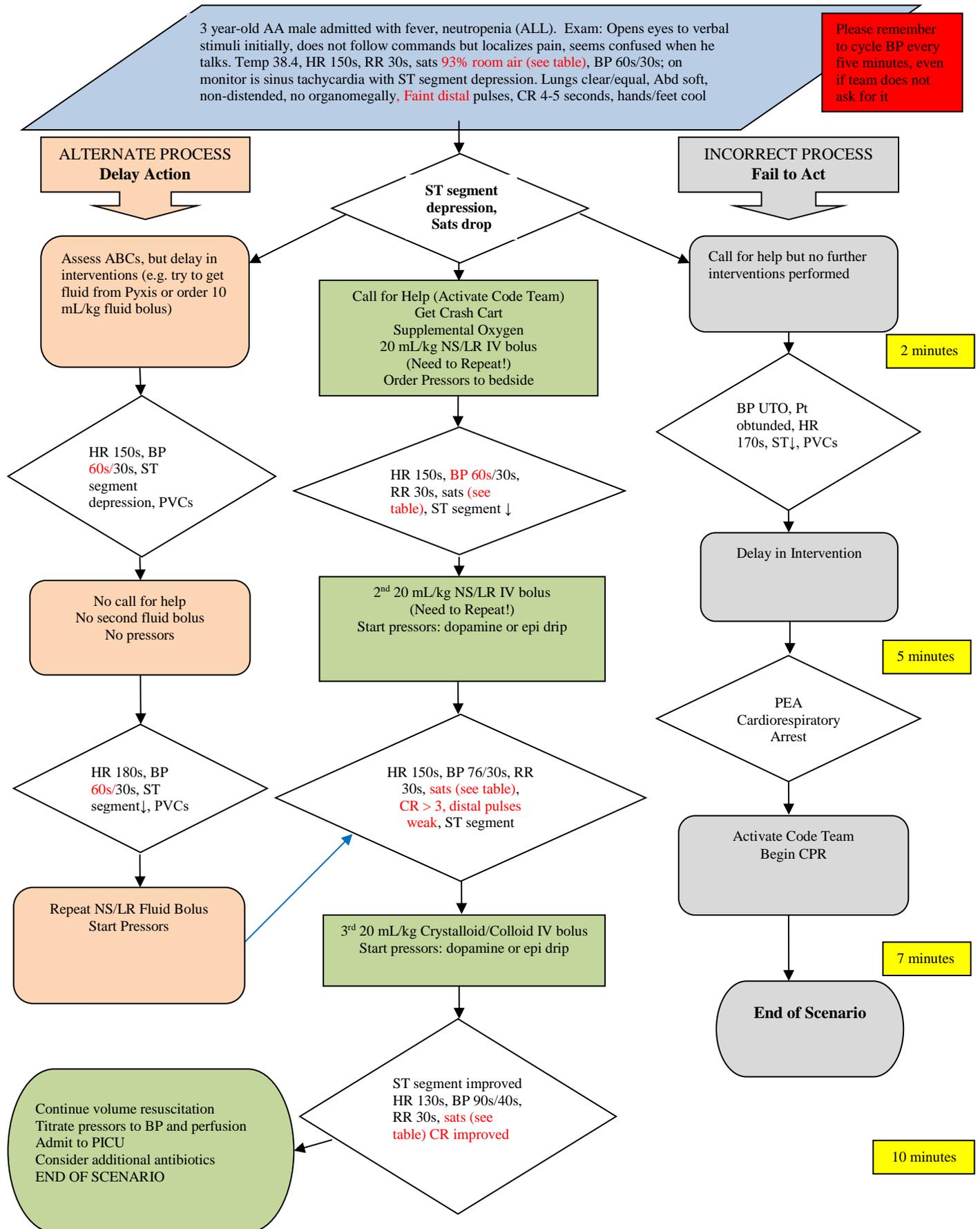
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### Oxygen saturations based on delivery device:<sup>1</sup>

<b>Room air</b>	Initially sats of 93%, that decrease to 90-91% without oxygen
<b>NC</b>	92%
<b>Face mask or NRB</b>	94%
<b>CPAP, HFNC, BiPAP</b>	96%
<b>ETT</b>	99%

<sup>1</sup>This table assumes they are doing all the other things correctly, i.e. volume resuscitation. So, these sats are based on the middle “ideal” pathway below.

# Sepsis Scenarios



## Sepsis Scenarios

### Support Roles:

#### Bedside Nurse:

You are the nurse who admitted this patient from the oncology clinic. Therefore, you are the one who called the physician to the bedside to admit the patient. You will have the information needed by the physician from clinic, including allergies, medications, past medical history, vitals from clinic and labs from clinic.

During the simulation, you will perform the following:

- Duties as directed by physician, including delivery of medications or fluids.
- Contribute to communication by performing callout/readbacks as you complete each requested intervention.
- Should **NOT** engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as “what do you think is going on?” or “what are you worried about?”
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should **NOT** make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- “His color is just not good, not normal for a three year old.”
- “He doesn’t look as good as what I was expecting based on what the nurse from clinic had mentioned.”
- If the participant asks for the clinic labs or CXR findings, the bedside nurse can say “would you like me to check EPIC” and we would then display a screen shot for the participant to review

#### Oncology fellow (only by phone):

If this is an intern or 3rd year resident, then they would have an Oncology fellow or faculty available to them for consultation, at least by phone. However, for this resuscitation we can say the fellow is at the bedside of a patient with new diagnosis of leukemia in the ED and is not readily available in person.

During the simulation, the facilitator will fill this role as phone consultation only and perform the following:

- Take two minutes to call back
- Listen to the resident and review his/her concerns
- Agree that the patient seems ill and “approve” what the resident is doing if the interventions are correct, however should not make statements such as “what do you think is going on?” or “what are you worried about?”
- If pushed by the resident to come to the bedside, will answer with “okay, I will be there as soon as I can.” However, given time frame of simulation, will not arrive before simulation is complete.
- Finally, should **NOT** suggest to resident to call an MRT or hose wide code; nor make any reference to sepsis, septic shock, etc.

#### Other roles that may be needed:

- Radiology tech – see above under X-rays for description of behavior

## Sepsis Scenarios

<p>Goals and objectives Technical and non-technical</p> <p><b>Acceleration to Expertise Phase II Scenario 5 “Garden Path”</b></p>	<p><b><u>The focus of this simulation is around:</u></b></p> <ol style="list-style-type: none"> <li>14. Recognition of sepsis, including differential diagnosis</li> <li>15. Proper ABCs and circulatory management, as aggressive fluid resuscitation will be required</li> <li>16. Access, including need for IO vs. central venous access</li> </ol> <p><b><u>The focus of debriefing will be:</u></b></p> <ol style="list-style-type: none"> <li>17. Major events that occurred during simulation</li> <li>18. Timeline for major events</li> <li>19. Unpacking major events</li> <li>20. Big-picture/hypothetical questions</li> </ol>
<p>Target participants (roles, specialty)</p>	<p>Pilot group: (2012): PGY-1, PGY-3, PEM/PICU Faculty Training (2013): PGY-1 In person support roles: Bedside RN, PCA, Staff assist/Charge RN (No RT/ No Parent). Other support roles: radiology tech, consultant by phone (nephrology fellow).</p>
<p>Orientation</p>	<p>Participants will start with:</p> <ul style="list-style-type: none"> <li>• an orientation to the simulator (see separate document) led by Jenn or Jerome, if possible, and then</li> <li>• an orientation to the course (see separate document) led by the facilitator</li> </ul> <p><b><i>Please stress that those leading these orientation go over the directions slowly, so that participant is not overwhelmed with information</i></b></p>
<p>Clinical setting (ED, OR, patient room) sim lab or in situ</p>	<p>Satellite simulation lab at base – set up in East (right) room</p> <p><b>Setting to be read to participant:</b> You are currently located on A6N (general med-surg unit) at CCHMC. It is midnight. Your patient is in a private room. Your support team includes the patient’s bedside nurse, the patient’s PCA and the unit PCF, if needed. Respiratory therapy and other physicians are currently busy with other patients. Your patient’s parents are not available now, as they are driving to the hospital. During this scenario the nurse will take verbal orders and you will not need to put anything into EPIC. Due to this patient’s chronic medical problems he has been admitted to the general pediatric service.</p>
<p>Basic scenario information (outline)</p>	<p><b>HISTORY: To be read to participant: Your patient is a...</b> 2-year old hispanic male as a direct admit on the floor from outside hospital. He is followed closely by nephrology for ESRD secondary to nephrotic syndrome. He is currently on nightly peritoneal dialysis, as well as Norvasc and Lisinopril for poorly-controlled hypertension. He was seen in at outside hospital ED today, felt to be dehydrated and transferred by CCHMC transport as direct admit to the floor. Was admitted to GIS, as not felt to be an acute renal problem.</p> <p><b>Report from Transport Team:</b> He has been having diarrhea for 2 days, described as watery with mucous, but no blood. He started vomiting last night, the last few times there were some “blood streaks” in it. His PO intake has been poor over the last 24 hours. At outside ED, they placed a left antecubital IV, gave him NS 20 mL/kg, and sent a renal, CBC and FSBS. His glucose was 58, so he received D25W in transport. He also received a 2<sup>nd</sup> 20 mL/kg NS in route. His other labs were pending at time transport team left, but were being faxed to A6N. Parents are driving separately; as they had to take their 2 other children home and arrange child care.</p> <p>Transport paperwork available as slide on <b>POWERPOINT</b></p> <p><b>Further history, only if asked by participant, and based on OSH/transport documentation:</b> General: felt warm at home, gave Tylenol; at OSH temp 99.4 F HEENT: no cough Resp: no difficulty breathing GU: is anuric; <b>his last PD was performed last night (16 hours ago), there is no documentation of PD dwell in chart, but transport nurse mentioned that it looked clear at OSH – mom bringing the bag.</b> Skin: no rash Musculoskeletal: no joint swelling, no edema CNS: less active, no irritability <b>Baseline Cr (when compliant with dialysis) is 1.3</b></p>

## Sepsis Scenarios

	<p><b>EXAM:</b>          OSH weight: 13.2 kg (<i>if asked, last dry weight in CCHMC chart was 15kg</i>)          Initial vitals: temp 37.8° C, HR 170s, RR 50s, sats 96% room air, BP 80s/50s; on monitor is sinus tachycardia</p> <ul style="list-style-type: none"> <li>• <i>if asked, usual BPs per CCHMC chart are 130s/80s</i></li> <li>• <i>If participant asks for repeat temp, then it is 38.4° C</i></li> </ul> <p><b>What simulator shows:</b> <i>Eyes closed</i>, pupils symmetric and normal size, airway patent, clear lung fields, normal heart sounds <i>but tachycardic</i>, intact central pulses, <i>weak distal pulses</i></p> <p><b>What facilitator tells them, only if asked:</b>          Appearance: <i>ill</i>          Pupils reactivity: normal          HEENT exam: neck without nuchal rigidity, full passive range of motion, mucous membranes tacky          Abdomen: soft, <i>mild, diffuse tenderness, mildly distended</i>, no organomegally, <i>PD catheter in place and no surrounding erythema/edema (see POWERPOINT picture)</i>          Skin: no rash          Extr: full range of motion, no joint effusions or tenderness          Perfusion: <i>cool feet and hands, delayed cap refill at 3-4 seconds</i>          Neuro: <i>opens eyes to verbal and physical stimuli, but otherwise eyes closed; seems tired and sleepy; does not follow directions but localizes pain</i></p>
<p>Simulator to be used</p>	<p><b>Gaumard Toddler (Hispanic)</b></p>
<p>Fluids and medications to have available</p>	<p>These will be limited to what is available on the floor</p> <p><i>If need immediate resuscitation fluids and meds, will need to request crash cart:</i></p> <ul style="list-style-type: none"> <li>• Fluids: Normal saline, dextrose (D50)</li> <li>• RSI meds: atropine, etomidate, vecuronium</li> <li>• Resuscitative meds: epinephrine, sodium bicarb, calcium carbonate</li> </ul> <p><i>If need pressors, antibiotics, etc will need to place order in EPIC and obtain from pharmacy:</i></p> <ul style="list-style-type: none"> <li>• Pressors: dopamine gtt, epinephrine gtt, norepinephrine gtt</li> <li>• Antibiotics: ceftriaxone/cefotaxime, vancomycin, clindamycin, ampicillin, gentamicin</li> </ul>
<p>Equipment needed ( IV's, ET tubes, Chest tubes,)</p>	<p>PPE          B/P cuff, monitor leads, pulse oximetry          IV pump, syringe pump(s)          Monitors          Oxygen equipment: nasal cannula, simple face mask, NRB setup, BVM setup, suction</p> <p><i>These supplies would need to be obtained from the crash cart:</i>          B-Board          IO supplies          Airway equipment: ETT tubes, laryngoscope and blades, stylets          ETCO2 detector/monitor</p>
<p>Paperwork, labs, X rays and EKG's, photos, videos</p>	<p><b><u>X-rays, only if obtained:</u></b>          CXR post-intubation film (<i>see POWERPOINT picture</i>) – tracheal intubation          CXR post-intubation film (<i>see POWERPOINT picture</i>) – right main stem intubation, with left lung collapse</p> <p><b><u>Lab values, from OSH if asked for:</u></b> (<i>see POWERPOINT slide</i>)          CBC with WBC 15.9, H/H 10.8/31, plts 443; differential automated 85% neutrophils, 11% lymph, 4 % monos          Renal: Na 138, K 5.2, Cl 104, HCO3 11, BUN 45, Cr 1.9, Gluc 49</p> <p><b><u>Lab Values, from CCHMC only if obtained:</u></b>          I-stat: pH =7.08, PCO2 = 32, PO2 = 60, HCO3 9, BD -16, Glucose 54, iCa 1.04, Na 137, K 4.8          Lactate 2.4</p>
<p>Medication intervention</p>	<p><b><u>RSI medications:</u></b></p> <ul style="list-style-type: none"> <li>• If decide to intubate, most likely will use RSI, but limited to etomidate and vecuronium</li> <li>• likely will NOT pre-medicate with atropine (given age)</li> </ul>

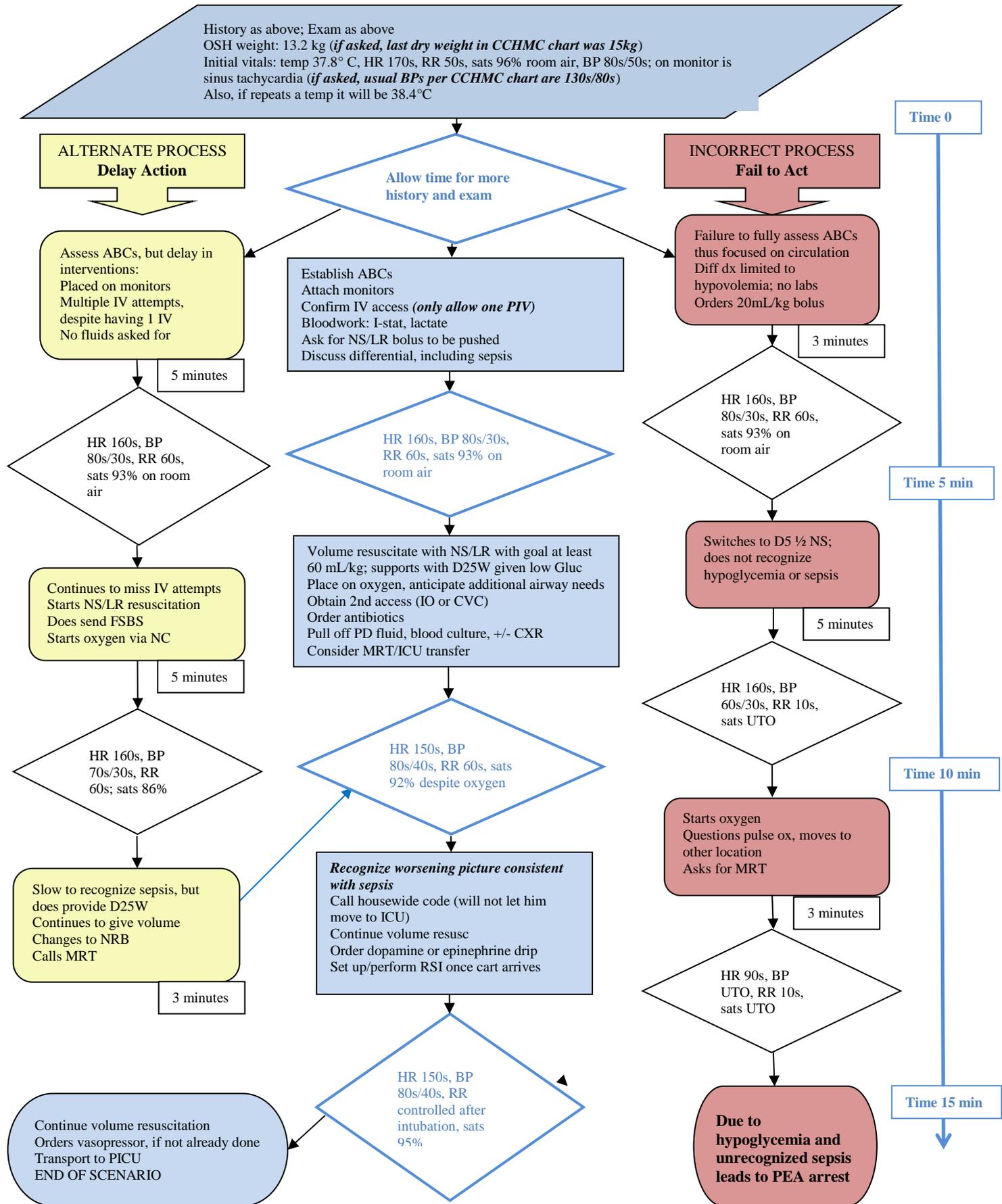
## Sepsis Scenarios

	<ul style="list-style-type: none"> <li>no indication for lidocaine (without possibility of NAT/head injury)</li> </ul> <p><u>Other based on I-stat results:</u> Hypoglycemia - D25W at 2mL/kg; will need to dilute D50W found in crash cart</p>
Airway intervention (oxygen, BVM, intubation)	<p>Initial Non-Rebreather or CPAP mask for increase oxygen demands if shock recognized</p> <ul style="list-style-type: none"> <li>Anticipate need for assisted ventilation – CPAP, BiPAP, BVM</li> <li>Anticipate need for advanced airway - appropriate sized blade/ETT, suction, RSI meds as above</li> </ul>
Physiologic intervention (CPR)	<p>Recognition of shock state: ill appearance, decreased mental status, tachycardia, BPs that while are not abnormal for that age are significantly lower than patient’s baseline, delayed cap refill, metabolic acidosis. Diff dx could be hypovolemia from V&amp;D, but must include sepsis (risk factor of PD, not responding to fluids, elevated WBC, fever)</p> <p>Aggressive use of IVFs to resuscitate shock state, while watching for potential side effects/progression that include:</p> <ul style="list-style-type: none"> <li>Respiratory Failure - Assisted Ventilation and Oxygenation</li> <li>Circulatory Collapse – IVF resuscitation, resusc meds and CPR</li> </ul> <p>Early use of pressors, even with peripheral IV access</p>
Procedures and other interventions	<p>IV access – <b><i>will have PIV access in transport, but will not allow them to get a second IV</i></b>; thus, could also place IO using lidocaine protocol or place CVC</p>
Number of and education of instructors	<p>1 education specialist: to orient participant to simulator and run software 1 facilitator: to orient participant to simulation, perform SAGATs and perform semi-structured interview</p>
Evaluation tools and measurement points	<ul style="list-style-type: none"> <li>SAGAT (2-minute freeze) occurring three times within scenario (after the first 5 minutes, randomized, not within a minute of each other)</li> <li>Whether patient correctly identified as septic (yes/no) by the end of 15-minute simulation</li> <li>Post-simulation semi-structured interview to elicit clues, perceptions and cognitive processes that entered into management of the simulated patient</li> <li>Performance checklist (PALS, early goal directed management) of observed behaviors (via video review)</li> </ul> <p><b><i>Please record the simulation using SimBridge and only mark the beginning and end of the scenario (no other annotations should be placed)</i></b></p>
Advance organizer/pretest and how delivered	<p>Pilot: Will need to recruit pilot participants and obtain informed consent (Regina) prior to enrollment</p> <p>Training: Will not need consent, as training is considered mandatory by residency program director; however, will still need videotaping and confidentiality agreements signed before enrollment</p>
Personnel-simulation specialist, Actors/family members	<p>3 support roles (bedside RN, PCA and PCF if needed)– see separate script written for each of these roles at the bottom of this scenario (after flow diagram)</p>
Estimated time to run simulation and debriefing	<p>Have a maximum of 60 minutes for each session:</p> <ol style="list-style-type: none"> <li>Orientation to the simulator and the setting, meet the rest of the “team”: 10 minutes</li> <li>Simulation: 15 minutes <ol style="list-style-type: none"> <li>Actually will be about 21 minutes given SAGAT stoppages</li> </ol> </li> <li>SAGAT stoppages: 6 minutes</li> <li>Semi-structured interview: 15-20 minutes</li> </ol>
Special Modifications/Moulage needed	<p>Will need to have a peritoneal dialysis catheter in place in the abdomen (would be really cool if attached to reservoir where we could pull off “cloudy” fluid)</p> <p>Needs a left arm PIV in place</p>
Need for reevaluation (time frame)	N/A
<p><b><i>Additional possibilities to consider:</i></b></p> <p>10) What if participant asks for MRT?</p>	

## Sepsis Scenarios

- a. Will respond with “okay, I will page the MRT.” However, given our 15-minute time frame, the MRT “crew” will not show up before we are finished unless they ask for MRT in the first 3 minutes
  - b. If asked for early, will have the PICU fellow (played by facilitator) and PICU nurse arrive at the 12 minute mark
- 11) What if participant asks to call a house wide code?
- a. Will respond with “okay, I will call the code.” However, something goes wrong with the code paging system and code team not activated. If the participant asks again, then we will do it correctly, but team does not arrive before simulation is complete.
- 12) What if participant asks for VAT to be called?
- a. Can call them and they will respond in 5 minutes (role will need to be played by facilitator or someone else)
  - b. Will be able to get 24-guage IV in foot or left hand
  - c. Will be able to get blood for labs, if asked

# Sepsis Scenarios



## Major potential errors that can be made:

- Not recognizing sepsis in differential, not aggressive enough with volume → leads to severe hypotension, then PEA arrest
- Not screening for hypoglycemia → leads to PEA arrest

## Sepsis Scenarios

Support Roles:

### Bedside Nurse:

You are the nurse who admitted this patient from transport team (now midnight, admitted at 23:50pm). Therefore, you are the one who called the physician to the bedside because of concerns over admission, agitation, and periods of lethargy. You will have the information needed, including allergies, medications, past medical history, past vital signs.

During this scenario:

- Patient is being admitted from OSH via CCHMC transport team. You received the patient at 23:50 but have concerns over admission, VS presentation, and periods of increased agitation and lethargy. Parents are not here to confirm “normal” behavior for patient because they are currently driving to the hospital.
  - ***“I am concerned with this admission. I am not comfortable and I tried to relay this information to the transport team but the report I received was vague. I am not sure of the patient’s baseline because the parents are not here and I have been unable to reach them by cell phone. He has been really fussy since admission and now he is having increased periods of lethargy”***
- If another IV is asked for by the physician, you will not be able to gain PIV access. Floor nurses cannot insert IO (IO only available in crash cart) and there are no central line kits on the floor.
- You may provide VS you have obtained and what you received in report. Again, if participant asks for all the vitals, you can direct them to look in EPIC or offer to do it for them. Then, direct them to the screen shot of vitals table.
- If physician asks for NS bolus, place fluids on pump but not push fluids unless specifically directed

During the simulation, you will perform the following:

- Duties as directed by physician, including delivery of medications or fluids.
- Contribute to communication by performing callout/readbacks as you complete each requested intervention.
- Should **NOT** engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as “what do you think is going on?” or “what are you worried about?”
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should NOT make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- *“His cap refill is about 4-5 seconds on my admission assessment and his extremities seem cool”*
- *“I have been checking his pulses and just not really noticing much of a change”*
- *“I have been checking his cap refill and pulses routinely and he has remained consistent since admission”*

### PCA:

You are the patient care assistant assigned to this patient. You were assigned this patient on admission, but have not yet been in the room because the nurse was completing the admission assessment. Thus, you will not really have any information for the physician on what has happened over the past couple hours.

During the simulation, you will perform the following:

- Place patient on monitors
- Aid in obtaining further PIV access, if asked
- Help by obtaining other equipment asked for by the participant, i.e. airway supplies, IVFs, etc.
- Should NOT engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as “what do you think is going on?” or “what are you worried about?”
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should NOT make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- *“Does he look pale?”*
- *“He was really fussy when he arrived, he appears more calm or sleepy now”*
- If physician asks for I-stat, recommend calling RRU so *“they can bring the machine and run the I-stat”*
  - Facilitator will fill in that role of RRU and then provide the I-stat results 2 minutes after they “run the I-stat”

### Charge/staff assist/PCF RN:

You are the back-up nurse for the bedside nurse and are the more experienced provider. Your information is limited, but you do remember some of the history because you were part of his admission yesterday.

During the simulation, you will perform the following:

- Will perform documentation and coordinate medications and fluids asked for by participant.
- Can offer limited suggestions around logistics.
- Should NOT engage in asking for mental models or prompting discussions of differential diagnosis. For example, should not make statements such as “what do you think is going on?” or “what are you worried about?”
- You can, if asked, agree with the physician that the patient is ill, needs immediate attention, etc. but should NOT make any reference to sepsis, septic shock, etc.

At some point, we would like you to throw out the comment(s):

- ***“transport nurse mentioned that the peritoneal dialysis bag looked clear at OSH – mom is bringing the bag”***
- *“He has been fussy and agitated since admission; could this be causing the tachycardia or maybe his fever?”*
- *“The cap refill is sluggish to me and distal pulses are slightly weaker than his central pulses.”*

## Sepsis Scenarios

### (Chief/ Faculty or Nephrology Fellow)

They would have faculty or nephrology fellow available to them for consultation, at least by phone.

During the simulation, the facilitator will fill this role as phone consultation only and perform the following:

- Take two minutes to call back
- Listen to the resident and review his/her concerns
- Agree that the patient seems ill and “approve” what the resident is doing if the interventions are correct, however should not make statements such as “what do you think is going on?” or “what are you worried about?”
- If pushed by the resident to come to the bedside, will answer with “okay, I will be there as soon as I can.” However, given time frame of simulation, will not arrive before simulation is complete.

Finally, should NOT suggest to resident to call an MRT or hose wide code; nor make any reference to sepsis, septic shock, etc.

### Other roles that may be needed include:

- 1) ICU fellow and nurse as part of MRT, only applicable if participant asks for MRT prior to 3-minute mark
- 2) Radiology tech – will come into room and shoot x-ray with machine that will allow immediate viewing, but no interpretation, of CXR