

Part 1: Design of the scenarios

- Patient appearance
 - Mannequin: SimBaby
 - Clothing: onesie
 - Moulage: N/A
 - On monitor: NO
 - On oxygen: NO
 - IV access in place: NO
- Supplies and equipment
 - Simulator
 - Jump bag or training equipment (provided by EMS site)
- Required roles
 - Confederate roles
 - Mother/Relative (study confederate)
 - Participants
 - 2-4 person EMS teams, with at least 1 ALS provider

Outline:

Pgs. 2-5: Case #1 **Anaphylaxis**

Pgs. 6-8: Case #2 **Cardiopulmonary Arrest**

Pgs. 9-12: Case #3 **Status Epilepticus**

Scenario 1: Anaphylaxis

Facilitator will READ OUT LOUD to Paramedic

CASE #1 INFORMATION

You are a paramedic responding to the following dispatch call:

“Priority One. 36 North Street, 1-year old with difficulty breathing. The patient is conscious at this time.”

The setting is just outside an apartment building. Transport time to the hospital is 30 minutes.

The patient is a 1-yo whose aunt called 911. The child has been visiting relatives, and his parents are unavailable. The relative reports that the child has had difficulty breathing for the past hour following a bee sting.

ACTOR'S SCRIPT

Case #1: Anaphylaxis

The purpose of the actor's script is to provide consistency to the scenario, and thereby control as many variables as possible during the simulation. Try to answer all questions in the same manner, maintain the same level of apprehension when playing the part of the relative, and provide the same degree of interaction with all participants. Having prepared responses to questions that the aunt would be able to answer will help reduce variability in the scenario.

Role-playing the patient's relative

The relative (uncle or aunt) will provide any history that is requested with a reasonable degree of medical sophistication. She has been watching the child for the past 8 hours. She volunteers that the child has had increasing difficulty with breathing for the past hour following a bee sting. The child will deteriorate rapidly, and the paramedic will not have time to ask many questions. Three minutes into the scenario, the relative becomes distraught and cannot answer any further questions.

Historical questions:

If asked the appropriate questions, only then does the relative respond with the following answers:

Q. When did the wheezing start?

One hour ago.

Q. When did the rash start?

One hour ago.

Q. Does the child have any past history of asthma or heart disease?

None.

Q. Any chronic illnesses?

None that she knows of.

Q. Does the child take any medications?

No

Q. Any past history of wheezing?

He has had some wheezing with colds in the past.

Q. Any prior hospitalizations?

No.

Q. Did the child choke on any object?

No.

Q. How much does the child weigh?

She does not know his weight.

Q. Did the child's mother give you permission to consent for medical treatment?

Yes, but she did not provide a written note.

Answers to all other questions are negative

Test Case #1: 1 Y.O. Anaphylaxis

Learners' action(s)	Time (minutes)	Patient's response(s)
<p>Recognize respiratory distress</p> <p>Obtain history, inspect skin</p> <p>Recognize anaphylaxis</p>	<p>0-3 min</p>	<ul style="list-style-type: none"> • Initial Vital signs <ul style="list-style-type: none"> • Rhythm: Sinus tachycardia • HR: 140 • BP: 76/40 • SpO₂: 91% on RA 93% over 40 sec (if O₂ applied) 95% over 40sec (if albuterol or racemic epi neb applied) • RR: 45 • Temp: 37°C • Cap refill: 3 sec <ul style="list-style-type: none"> • Initial Manikin Settings <ul style="list-style-type: none"> • Heart: normal, 100% • Lungs: wheeze, 100% (bilateral) • Resistance: 50% (bilateral) • Cry: weak • Pattern: seesaw • Resistance: 50% • Chest rise: deep <p>FACILITATOR informs the paramedic at the start of the scenario that “the child is breathing rapidly and audibly wheezing”</p> <p>If skin is inspected or asked, “Pt has hives over chest, trunk, and extremities.”</p> <p>Uncle/Aunt (FACILITATOR) will answer all questions. DO NOT offer information if paramedic does not ask for it.</p> <p>FACILITATOR provides information about physical exam, but only if requested.</p>

Learners' action(s)	Time (minutes)	Patient's response(s)
Anaphylaxis therapy provided IM epinephrine Supplemental O2 and/or albuterol/and or racemic epinephrine IV fluids	3-5 min	<p>At t = 3 minutes, FACILITATOR informs paramedics that <i>“the infant looks more agitated and is in more respiratory distress”</i></p> <p>Uncle/Aunt is distraught and will not provide any additional information.</p> <ul style="list-style-type: none"> • <u>Vital signs</u> <ul style="list-style-type: none"> • HR: Increases +20 with IM epi • SpO₂: Increases +2-3 with IM epi or albuterol • RR: Improves/decreases by 10 with IM epi or albuterol over 40 sec • BP: Improves to 88/50 with IM epi, improves additional 10/4 if IV bolus given
Additional anaphylaxis therapies may be provided May contact online medical control for additional therapies		<ul style="list-style-type: none"> • <u>Vital signs (if treatment given)</u> <ul style="list-style-type: none"> • HR: 100 • SpO₂: 97% • RR: 25 • BP: 100/55
___ min ___ sec Total scenario time	TIME LIMIT 5-10 minutes	Terminate scenario after X minutes OR after final phase completed (whichever comes first).
		END SIMULATION

Scenario 2: Infant Cardiopulmonary Arrest
Facilitator will READ OUT LOUD to EMS team

CASE#2 INFORMATION

You are a paramedic responding to the following dispatch call:

“Priority One. 122 South Street, 3-month-old infant with difficulty breathing. The patient is conscious at this time.”

The setting is just outside a house. Transport time to the hospital is 30 minutes.

The patient is a 3-month-old female infant whose mother called 911. The child’s mother states that her infant has been well until today, when she developed respiratory distress. She decided to call 911 when the infant’s skin color became dusky, which began about 30 minutes prior to the call.

When you arrive on the scene, the infant is cyanotic and limp, which occurred seconds before your arrival. The mother is distraught and cannot answer any questions.

ACTOR’S SCRIPT

CASE#2: cardiopulmonary arrest

Role-playing the patient’s mother:

When paramedics arrive, the mother screams: “My baby just stopped breathing.” Because of this emotionally wrenching event, the mother will not be able to provide any information, including weight. Her infant was well until today, when she developed respiratory distress. She called 911 when the infant’s skin color became dusky.

Practice Scenario: Infant Cardiopulmonary Arrest

Learners' action(s)	Time (minutes)	Patient's response(s)
<p>PHASE 1:</p> <p>Check pulse, airway, breathing Recognize pulseless arrest Start CPR</p>	<p>0-5 min</p>	<p><i>FACILITATOR</i> informs paramedics at the start of the scenario that "the infant's extremities and trunk are cyanotic."</p> <p>Mother is unable to answer questions. The infant's weight is "4-5 kilos".</p> <p>Provide information about physical exam <u>only</u> if requested.</p> <p><u>Vital signs</u></p> <ul style="list-style-type: none"> • Rhythm: ASYSTOLE • HR: -- • BP: --/-- • SpO₂: -- • RR: -- • Temp: 37°C <p>After CPR started: CHECK manikin log for</p> <ul style="list-style-type: none"> - Bilateral chest rise - CPR quality
<p>Obtain IV/IO access</p>		<p><i>FACILITATOR</i> will state: "The IV line is unsuccessful." If IO attempted, it is immediately successful - "You get blood return immediately."</p>
<p>PHASE 2:</p> <p>Initial drug therapy with epinephrine</p> <p>Use length-based tape or age-based app to estimate weight</p> <p>Ongoing CPR Pulse checks Q2min (absent)</p>	<p>5-10 min</p>	<p>After 1st dose epinephrine given, change rhythm within 30 seconds to PEA</p> <ul style="list-style-type: none"> • Vital signs <ul style="list-style-type: none"> • Rhythm: PEA (30 seconds after epi) • Pulse: OFF • HR: 50 • BP: --/-- • SpO₂: -- • RR: -- • Temp: 37°C • Settings <ul style="list-style-type: none"> • Stomach: distended • Lungs: Resistance 50% (R and L) <p>After epinephrine given, <i>FACILITATOR</i> informs paramedic that "the infant's abdomen is distending, and she's getting more difficult to bag." Repeat every 60 seconds until intubation.</p>

Learners' action(s)	Time (minutes)	Patient's response(s)
Manage challenges with ventilation May use 2-person BVM, place OPA Perform intubation/SGA placement		After intubation: CHECK manikin log for BILATERAL LUNG INFLATION . DO NOT change EtCO ₂ if intubation is esophageal. <ul style="list-style-type: none"> • Vital signs <ul style="list-style-type: none"> • Rhythm: PEA (30 seconds after epi) • Pulse: OFF • HR: 50 • BP: --/-- • SpO₂: -- • RR: -- • EtCO₂: 15 (ONLY if tracheal intubation) • Temp: 37°C
Second dose of epinephrine Contact online Medical Control <i>(may be performed at any point prior)</i> Additional PEA therapy- IV bolus, discuss H&Ts	10-12	Medical Control may also order: <ul style="list-style-type: none"> • Sodium bicarbonate 1mEq/kg IV/IO (dose 4-5 mEq) • Atropine 0.02mg/kg IV/IO (min dose 0.1mg) DO NOT score these medications.
___ min ___ sec Total scenario time	TIME LIMIT 12 minutes	Terminate scenario after 12 minutes OR after final phase completed (whichever comes first).
		END SIMULATION

Scenario 3: Status Epilepticus

Facilitator will READ OUT LOUD to Paramedic

CASE #3 INFORMATION

You are a paramedic responding to the following dispatch call:

“Priority One. 101 West Street, 6-month old male with possible seizure.”

The setting is a house in a rural area. Transport time to the hospital is 30 minutes.

The patient is a 6-month old male infant whose aunt called 911. The infant’s mother is visiting relatives out of town. The aunt reports that the infant has been “fussy” and feeding poorly for 2 days. The infant has been sleeping for the past 8 hours. When his aunt attempted to waken him from this unusually long “nap”, he was difficult to arouse, then had 10-15 minutes of “twitching”. You may ask the aunt for additional information.

ACTOR’S SCRIPT

Case #3: Status epilepticus

Role-playing the patient’s aunt

The aunt called 911. The infant’s mother is visiting relatives out of town. The aunt reports that the infant has been “fussy” and feeding poorly for 2 days. The infant has been sleeping for the past 8 hours. When his aunt attempted to waken him from this unusually long “nap,” he was difficult to arouse. He had a 10-15 minute episode of twitching, which seem to have stopped. The family then called 911. Time from call to paramedic arrival is 10 minutes.

When the paramedic recognizes the seizure, only then should the aunt become anxious and suspicious. With any attempt at an explanation, the family should be reassured and calm down. The aunt will not impede the paramedic’s efforts even if reassurance is not given. Do not pressure the paramedic for reassurance.

Historical questions

The paramedic is required to ask only a few of the following questions. However, answer any questions that are asked. Do not volunteer any information. Answers to all non-scripted questions are negative.

Q. How old is your nephew?

6 months old

Q. How long was he “twitching”?

About 10-15 minutes.

Q. Does he appear to you to be "twitching" now?
Yes, but it was a stronger, jerky movement earlier.

Q. How long has the infant been sick?
He's been fussy and not eating right for two days, and sleeping too much today.

Q. How much has he eaten?
He has only taken about 4 ounces of formula in the past 24 hours. He has not had anything else to eat or drink.

Q. When did he last have a wet diaper?
His last wet diaper was 10 hours ago.

Q. Do you think that there has been anything else wrong with him recently?
Not that I know of.

Q. Does the child have any past medical problems?
None.

Q. Does the child take any medications, or have you given any medications recently?
None.

Q. Any prior hospitalizations?
No.

Q. How much does the child weigh?
I think that he weighs about 14-15 lbs, but I'm not sure. (This weight is correct)

Q. When was he last weighed?
I don't know.

Q. Did anyone hurt the child?
No one. (The aunt plausibly denies any abuse.)

Response to diagnosis of seizure:
He's having a seizure? Does this mean he has brain damage? Is he dying?
Did all this stuff you did to him give him a seizure?"

Case #3: 6 mo male infant with status epilepticus, hypoglycemia

Learners' action(s)	Time (minutes)	Patient's response(s)
<p>PHASE 1 - STATUS EPILEPTICUS</p> <p>Initial Assessment of airway, breathing, circulation</p> <p>Recognize seizure activity</p> <p>Additional history questions</p>	<p>0-1 min</p>	<ul style="list-style-type: none"> • <u>Vital signs</u> <ul style="list-style-type: none"> • Rhythm: Sinus tachycardia • HR: 180 • BP: 90/60 • SpO₂: 90% on RA (if pulse ox placed) • RR: 30 • Temp: 37°C • Cap refill: 4 sec • <u>Manikin Settings</u> <ul style="list-style-type: none"> • Heart, Lungs: normal, 100% • Resistance: 50% • Torso: Fast (SEIZURE) <p>FACILITATOR provides information about physical exam when requested. <i>(cap refill delayed; skin mottled; skin turgor doughy; eyes deviated left)</i></p> <p>If asked, aunt (FACILITATOR) estimates weight is "14 or 15 lbs."</p>
<p>Support airway, supplemental oxygen</p> <p>Place on monitor</p> <p>IV/IO access</p>	<p>1-3 min</p>	<p>After Oxygen</p> <p>NOTE therapy on manikin log</p> <p><u>Vital signs</u></p> <ul style="list-style-type: none"> • SpO₂:90 → 100% over 20 sec (on oxygen) • DO NOT STOP SEIZURE <p>FACILITATOR provides cues: If IV line is attempted, it is unsuccessful. If an IO line is attempted, there is immediate blood return and normal flow.</p>

Learners' action(s)	Time (minutes)	Patient's response(s)
Weight-based dosing of benzodiazepine provided (IN/IM/IV/IO)	3-5 min	Record time when <u>benzodiazepine</u> is given: ___:___ DO NOT record rectal delivery—it will be ineffective because of erratic absorption. <ul style="list-style-type: none"> • At t = 4 min, Vital signs <ul style="list-style-type: none"> • Rhythm: Sinus tachycardia • HR: 200 over 1 min • BP: 60/40 over 1 min
Obtain additional history and examination	5 min	
Recognize and treat hypoglycemia Medical Control for 2 nd dose of benzodiazepine	5-10 min	FACILITATOR cue (if measured by paramedics) : <i>"The glucose is 30 mg/dL"</i>
Recognize and manage respiratory depression	10-15 min	(Hypoventilation automatically begins 3 minutes after 1st benzodiazepine) RR = 30 → 6 over 20 sec SpO2 = 85% over 1 min (if no BVM within 1 minute of hypoventilation) 30 seconds after BVM ventilation is started and performed correctly: SpO2 = 100% over 1 min
___ min ___ sec Total scenario time	TIME LIMIT 15 minutes	Terminate scenario after 15 minutes OR after last phase completed (whichever comes first).
		END SIMULATION