PEDIATRIC ASTHMA

Estimated Time: 30 minutes • Debriefing Time: 10 minutes

Scan to Begin

Patient Name: Patrick Armstrong

SCENARIO OVERVIEW

Patrick Armstrong is a 16 year old patient who has known asthma. Today while experiencing an asthma attack, he attempted to drive himself to the hospital. His breathing worsened on the way, so he pulled over and called 911.

Level 4 requires a “Scene Size-Up,” “Primary Survey,” “Secondary Assessment” and “Reassessment” based on the National Registry of Emergency Technicians Advanced Level Psychomotor Exam.

Note: To emphasize the clinical criteria of a 15 minute time limit, timers are in place so that if a student does not make a Transport decision within 10 minutes, they receive a warning. If they do not make a Transport decision within 15 minutes, they will automatically be exited from the scenario.

LEARNING OBJECTIVES

1. Gather information related to dispatch
2. Perform a “Scene size-up”
3. Perform a “Primary Survey”
4. Make transport decision
5. Perform “History Taking” and “Secondary Assessment”
6. Interpret vital signs
7. Verbalize proper interventions /treatment per protocol
8. Perform a “Reassessment”

CURRICULUM MAPPING

WTCS EMT-P PROGRAM OUTCOMES

- Prepare for incident response and EMS operations
- Integrate pathophysiological principles and assessment findings to provide appropriate patient care.
- Communicate effectively with others
- Demonstrate professional behavior
- Meet state and national competencies listed for EMT- paramedic certification(s).

SIMULATION LEARNING ENVIRONMENT & SET-UP

PATIENT PROFILE

Name: Patrick A. Armstrong

DOB: 11/16/20xx

Age: 16

Gender: Male

Height: 177.5 cm (5 ft 11 in)

Weight: 109 kg (240 lbs)

Code Status: Full code

Primary Language spoken: English

Allergies: NKDA

EQUIPMENT/SUPPLIES/SETTINGS

Patient

- Street clothes, ball cap, phone, jewelry can be present
    - Has his cigarettes and his inhalers with him in the car

Monitor Settings: none

QR CODES

DISPATCH	SCENE	PATIENT	DUONEB
EPINEPHRINE	METHYL-PREDNISOLONE IV	MAGNESIUM IV	KETAMINE
ETOMIDATE	SUCCINYLCHOLINE	ROCURONIUM	MIDAZOLAM

FENTATYL	PATIENT WORSENS	PATIENT CONFUSED	PATIENT UNRESPONSIVE
			

TEACHING PLAN

PREBRIEF

The facilitator should lead this portion of the simulation. The following steps will guide you through Prebrief.

- Scan the **QR code:** "**Scan to Begin**" while students are in Prebrief
- "Meet Your Patient" (on iPad) and explain how the iPad works in the simulated learning environment including:
    - Facilitator note: This scenario has been designed to flow without scanning additional QR codes for convenience in the classroom. For added flexibility, you may elect to use the QR codes provided above to design your own scenario flow.
- Discuss the simulation "Learning Objective(s)" (on iPad) as well as any other Prebrief materials

STATE 1

RECEIVE DISPATCH

- Play “Dispatch” (on iPad): “ARISE EMS, you’re dispatched for a 16 year old male patient with respiratory distress, pulled over in his car at 100 North Main Street. He states he is having an asthma attack.”
- Possible Facilitator Question
    - “What are your plans based on the dispatch you received?”
- View “En Route” plaque
- View NR-EMT Advanced Level Psychomotor Exam, Patient Assessment-Medical form

STATE 2

SURVEY THE SCENE

- Play “Arrival on Scene” video
- View “15 minute Reminder” plaque
    - Note to facilitator: students will automatically be exited from the game in 15 minutes after viewing the Scene video if they have not yet made a Transport decision. A 10 minute reminder will be given.
- View the “Scene Size-Up” plaque with the following questions:
    - Verbalize if any body substance isolation precautions are required
    - Verbalize how you will perform a “scene size-up”
    - Facilitator note: students may replay the video
- Play the “Patient” video
    - View the “Primary Survey” plaque with the following questions:
    - Verbalize how you would perform a Primary Survey for this patient
    - What is your transport decision?
    - Facilitator note: Students may replay the Patient video
- View the “Indicate Transport Decision” plaque with text stating “Indicate your transport decision by tapping the Transport tab.”
    - Students should then tap the Menu icon then the Transport Tab to indicate their decision (see instructions under the Transport Tab below.)
- Tabbed iPad Content

EMERGENCY HOME SCREEN

This is the home screen. In the top left corner is the “menu” icon where the tabs described below can be accessed.

MEDICAL ASSESSMENT FORM

The National Registry of Emergency Medical Technicians, EMT Advanced Level Psychomotor Exam: Patient Assessment/Management – Medical form is displayed here. (It is also attached in Appendix A so that it can be printed out for the student if desired.)

PATIENT PROFILE

Patient demographic information is displayed here

SCENE SURVEY

Tap here to replay the Scene Survey video if desired

PATIENT

Tap here to replay the Patient video if desired

TRANSPORT

Students are asked, “Have you made your transport decision?”

- If they select “Yes”: they will receive another question: “Will you transport?”
    - If they select “Yes” again, then then will receive a message “Prepare to transport.”
    - If they select “No” then they will receive a message “Communicate your decision to dispatch” followed by “Discuss your Transport decision with your facilitator.”
- If they select “No”: they will see an image of a clock timer with the message “Your decision must be made within 15 minutes.”

Note: Students have 15 minutes to indicate a Transport decision or they will be automatically exited from the scenario. Students will receive a 10 minute warning.

LEVEL

Level 2 is displayed. In order to progress to State 3, students must indicate "Yes" that they have made their transport decision using the Transport tab.

SCANNER

Use this to scan optional QR Codes.

EXIT

If students tap Exit at this point, the iPad reads, "Are you sure you want to exit? All data will be lost."

- If "No" is selected, the iPad will return to the tabbed content.
- If "Yes" is selected, the iPad will let the student(s) exit and prompt them to complete an embedded 3-5 minute survey.

If students tap Exit at the end of the scenario after ALL of the learning objectives HAVE been met, the iPad reads, "All scenario objectives have been completed. Would you like to exit the scenario?"

- If "No" is selected, the iPad will return to the tabbed content.
- If "Yes" is selected, the iPad will let the student(s) exit and prompt them to complete an embedded 3-5 minute survey.

STATE 3

SECONDARY ASSESSMENT

- View the “History Taking” plaque:
    - Verbalize the questions you would ask to obtain a “History of Present Illness”
    - Verbalize the questions you would ask to obtain “Past Medical History”
- View “Secondary Assessment” plaque with the following questions:
    - Verbalize how you would assess the affected body part(s)
- View the “Pulmonary Assessment: Anterior” plaque with instructions to “tap on anatomical location(s) to listen to the lung sounds.”
    - An image of an anterior chest appears with “hot spots” located over each anatomical location of the chest. Students can tap on anatomical locations to listen to lung sounds.
- View the “Pulmonary Assessment: Posterior” plaque with instructions to “tap on anatomical location(s) to listen to lung sounds.”
    - Students can listen to posterior lung sounds by tapping on the “hot spots”.
- View “Verbalize Interventions” plaque and answer the associated question:
    - Interpret Patrick’s vital signs: Pulse 120, RR 35, BP 148/92, O2 sat 88%, End tidal CO2:32
- View plaque entitled “Treatment Plan” with the following questions:
    - What is your field impression of the patient?
    - Verbalize your treatment plan per Protocol provided
    - Re-evaluate and verbalize your current transport decision.
- Tabbed iPad Content changes:

PROTOCOL

See the Protocol in Appendix A

Note: students may tap on hyperlinked medications to view medication information.

VITAL SIGNS

Patient's current vital signs are displayed here

LEVEL 3

Level 3 is displayed. Scenario progresses to Level 4 after the Protocol tab is viewed

STATE 4

REASSESSMENT

- Play video of the patient loaded in the ambulance
- View "Reassessment" plaque with the following question:
    - Verbalize how you will repeat a Primary Survey
    - Facilitator Note: Students may also re-play the new patient video
- View "Repeat Vital Signs" plaque with the following question:
    - Interpret Patrick's vital signs: Pulse 143, RR 40, BP 110/72, O2 sat 88% and End Tidal CO2 48.
    - Facilitator Note: NRB in place at this time
- Play "Second Patient Video"
    - Facilitator note: patient is becoming confused
- View "Evaluate response to treatments" plaque with text stating:
    - "Verbalize your response to patient condition."
    - Facilitator note: student may also replay the video
- Play "Third" patient video
    - Facilitator note: patient becomes unresponsive
- View "Verbalize your response per protocol" plaque with the following questions:
    - What will you assess?
    - What are your interventions per protocol?
        - Students should tap on the Protocol tab to view protocol and make decision
        - Facilitator note: Students may view additional medication information within the protocol by tapping on the hyperlinks
        - Note: Students may scan QR codes associated with medications to view realistic medication labels as they verbalize their interventions

- After the Protocol tab is tapped, a “Treatment per Protocol” plaque appears with following statement:
    - Verbalize how you would care for the patient per Protocol at this time
- A final message appears stating, “Learning objectives have been met. You may exit the scenario when you have completed describing how you would care for the patient at this time.”
- Tabbed iPad Content changes

EXIT

Students may exit after tapping the Protocol tab and verbalizing their interventions for the patient’s change in status.

DEBRIEF

Nothing needed from the iPad.

QUESTIONS

1. How did you feel this scenario went?
2. Review understanding of scenario learning objectives.
    a. Was the scene safe? Explain.
    b. What actions are required when a patient is in a car?
    c. What body isolation precautions were appropriate?
    d. What is the nature of the patient's illness?
    e. What did you discover during your Primary Survey?
    f. What information did you gather while performing History Taking?
    g. What was your transport decision? Why?
    h. What information did you gather during your Secondary Assessment and vital signs interpretation?
    i. What treatments did you initiate per protocol?
    j. Did the patient's condition change after being loaded in the ambulance? How did you respond?
    k. If you could "do over," would you do anything differently?
3. Summary/Take Away Points:
    a. "Today you analyzed the scene and performed a Scene Size-up, Primary Survey, Secondary Assessment and Reassessment for a 16 year old patient found in his car in a parking lot experiencing an asthma attack. What is one thing you learned from participating in this scenario that you will take with you into your EMS practice?" (Each student must share something different from what the others' share.)

NOTE: Debriefing technique is based on INASCL Standards for Debriefing

SURVEY

Print this page and provide to students.

Students, please complete a brief (2-3 minute) survey regarding your experience with this ARISE simulation. There are two options:

1. Use QR Code: Survey
    a. Note: You will need to download a QR Code reader/scanner onto your own device (smartphone or tablet). There are multiple free scanner apps available for both Android and Apple devices from the app store.
    b. This QR Code will not work in the ARIS app.

SURVEY

2. Copy and paste the following survey link into your browser.
    a. https://ircvtc.co1.qualtrics.com/SE/?SID=SV_6Mwfv98ShBfRnBX

APPENDIX A: RESPIRATORY DISTRESS PROTOCOL

ARISE EMERGENCY MEDICAL PROTOCOLS

RESPIRATORY DISTRESS

COPD / Emphysema / Asthma / Chronic Bronchitis

Emergency Medical Responder

- Initial Medical Care
- Position patient upright or in position of comfort
- If bronchospasm or wheezing present:
  - **Albuterol:** **2.5 mg** via nebulizer
    - May repeat as needed every 5-10 minutes

Emergency Medical Technician

- Consider CPAP (See CPAP Procedure)
- If bronchospasm or wheezing present:
  - **Duoneb** 3 ml (Ipratropium Bromide 0.5 mg/Albuterol 3 mg) via nebulizer
  - May repeat as needed every 5-10 minutes
- Monitor **End-Tidal CO_2** via nasal prongs for severely ill patients
- Respiratory distress continues despite the above interventions:
  - If patient age <50, HR <130, AND no significant cardiac history may give **Epinephrine** (1mg/mL): 0.3 mg/ 0.3 mL IM
  - If patient age >50, HR >130, OR significant cardiac history:

Per MCPO:

- **Epinephrine (1mg/mL): 0.3 mg / 0.3 mL Sub Q / IM**

Advanced EMT

Intermediate

Paramedic

- Consider **Methylprednisolone (Solumedrol): 125 mg IV**

Per MCPO:

- **Magnesium Sulfate: 2g in 250cc D_5W (Infuse over 20 min)**

- Consider ***Drug Facilitated Airway Management*** **(DFAM)** protocol if patient worsens despite above treatment.

DRUG FACILITATED AIRWAY MANAGEMENT (DFAM)

PRE-OXYGENATE:

- High-flow oxygen for 3 - 5 minutes prior to intubation
    - If patient is breathing and pulse oximetry is above 90%, apply non-rebreather at 15 lpm. If patient is **NOT** breathing adequately or pulse oximetry is below 90%, ventilate slowly and easily with bag valve mask hooked up to high flow oxygen. Best practice is to place a nasal cannula at 4-6 lpm in addition to NRB or BVM ventilations to maximize PO_2 level as well as CO_2 washout. This nasal cannula should remain in place while airway management is performed.
- Continuous pulse oximetry and capnography is required

Standard Protocol:
for Respiratory distress/failure, trauma patient (not including potential head injury), need to protect airway (not including potential head injury)

INDUCE:

Adults	
• Ketamine: 2 mg/kg IV/IO (OR) • Etomidate: 0.3 mg/kg IVP (Max: 30 mg)	

Use caution with Ketamine if HR>140bpm or SBP>180

PARALYZE:

- Succinylcholine: 2 mg/kg IV/IO (Max: 200 mg)
- **Alternate if contraindication for Succinylcholine:**
  - Rocuronium 1 mg/kg IV/IO
- **DO NOT paralyze the patient without administering sedation first**

PLACE AIRWAY:

- ETT (preferred – max of two (2) attempts) or non-visualized airway (iGel Airway) or Cricothyrotomy

POST MANAGEMENT:

- Confirm airway placement: (Minimum of 3 means)
  - Visualize
  - Check Lungs / Epigastric Sounds
  - Capnography

POST INTUBATION PLAN:

Optimize sedation and pain control post-intubation. This will allow proper ventilation for the vast majority of intubated patients.

	Sedation (PRN)	Pain (PRN)
	Ketamine: **1 mg/kg** IV/IO May repeat x1 **(or)** Midazolam: o **0.05 mg/kg** IV/IO o **Max: 10 mg/dose**	Fentanyl: **1 mcg/kg** IV/IO May repeat every 10 min as needed

*****PARALYTIC AGENTS ARE NOT TO BE ADMINISTERED UNLESS SEDATION AND PAIN CONTROL MEDICATIONS ARE USED TO THEIR MAXIMUM DOSES!!!*****

Rocuronium 1mg/kg IV/IO

Please note: if Rocuronium is utilized for initial intubation, there should be minimum 30min before post-intubation dose is administered.

- Continuous monitoring of ECG, Pulse Oximetry, and Capnography is required

Special Note:

Succinylcholine *is* **NOT** *to be used in patients with: suspected renal failure, suspected rhabdomyelysis/prolonged down time, ocular trauma, myopathy or neuro-muscular disease, suspected hyperkalemia, hx of malignant hyperthermia, recent crush injury or major burn (>48 hrs after the injury) and recent spinal cord injury (72 hrs – 6 months). In lieu of* Succinylcholine*, use* ***Rocuronium: 1 mg/kg*** *IV/IO* ***Max: 140 mg/dose)***

Potential Head injury patient:
3:2:1 protocol

This includes suspected head trauma patients as well as potential Stroke/spontaneous brain bleed patients

Administer the following medications in this order:

1. **Fentanyl 3mcg/kg IV/IO**
2. **Ketamine 2mg/kg IV/IO**
3. **Rocuronium 1mg/kg IV/IO**

See table below for dosing

- DO NOT paralyze the patient without administering sedation first

3:2:1 -- Rapid Sequence Intubation				
Lbs.	**Kg.**	**Fentanyl** ***3mcg/kg*** *50mcg/mL*	**Ketamine** ***2mg/kg*** *50mg/mL*	**Rocuronium** **1mg/kg** *10mg/mL*
		ADMINISTRATION RATE: 60 seconds. Rapid IV push may cause chest wall rigidity	**ADMINISTRATION RATE: 60 seconds.** Rapid IV push may cause respiratory depression and increased catatonia	**ADMINISTRATION RATE: 30 seconds.**

If patient with allergy, then revert to standard protocol and utilize alternative medications

PLACE AIRWAY:

- ETT (preferred – max of two (2) attempts) or non-visualized airway (iGel Airway)
  or

  Cricothyrotomy

POST MANAGEMENT:

- Confirm airway placement: (Minimum of 3 means)
  - Visualize
  - Check Lungs / Epigastric Sounds
  - Capnography

POST INTUBATION PLAN:

Optimize sedation and pain control post-intubation. This will allow proper ventilation for the vast majority of intubated patients.

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	Ketamine: 1 mg/kg IV/IO May repeat x1 **(or)** **Midazolam:** o **0.05 mg/kg** IV/IO o **Max: 10 mg/dose**	**Fentanyl: 1 mcg/kg** IV/IO May repeat every 10 min as needed

*****PARALYTIC AGENTS ARE NOT TO BE ADMINISTERED UNLESS SEDATION AND PAIN CONTROL BOTH ARE OPTIMIZED!!!*****

Rocuronium 1mg/kg IV/IO may be administered 30 min after intubation of patient only if sedation and pain control are both optimized

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CREDITS

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