PEDIATRIC ASTHMA

Estimated Time: 20 minutes • Debriefing Time: 10 minutes

Scan to Begin

Patient Name: Patrick A. 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 3 requires a “Scene Size-Up,” “Primary Survey,” and “Secondary Assessment” based on the National Registry of Emergency Technicians 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” and “History Taking”
4. Make transport decision
5. Perform a “Secondary Assessment” and interpret vital signs
6. Verbalize proper interventions/treatment

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

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.”
- View the “En Route to the scene” message
- Preview the National Registry of EMT Psychomotor Examination form for Medical Assessment
- Possible Facilitator Question
    - “What are your plans based on the dispatch you received?”

STATE 2

SURVEY THE SCENE

- Play “Arrival On Scene” video
- View the plaque reminding students “Your transport decision must be made within 15 minutes.”
- View the plaque with the following questions:
    - Verbalize how you will perform a “scene size-up”
    - Verbalize appropriate body substance isolation precautions
- View the “Patient” video
- View the plaque entitled “Primary Survey and History Taking” with the following questions:
    - Verbalize how you perform a Primary Survey for this patient
    - What is your transport decision?
    - Verbalize the questions you would ask to obtain a “History of Present Illness”
    - Verbalize the questions you would ask to obtain “Past Medical History”
    - Facilitator Note: students may also replay the patient video
- View the plaque entitled “Indicate Transport Decision” with text stating “Indicate your transport decision by tapping the Transport tab.”
    - Students should then tap Transport Tab and make their decision (see instructions under the Transport Tab below.)
- Students should tap the Menu icon on the top left corner of the screen, then tap on the Transport tab to indicate their transport decision
- 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 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” then then will receive a message “Prepare to transport” and will progress to State 3.
    - If they select “No” then they will receive a message “Communicate your plan with dispatch.” They will then receive a message “Discuss your transport decision with your facilitator.” (The transport decision can be revised by tapping the Transport tab again.)
- 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 are 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 their transport decision using the Transport tab.

SCANNER

Use this to scan optional QR Codes.

EXIT

If the student taps the Exit tab 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.

When ALL of the objectives of the program HAVE been met at the end of the scenario, and this tab is tapped, the iPad reads, “Scenario objectives have been met. Are you sure you want to exit the game?”

- 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 plaque entitled “Secondary Assessment” with the following questions:
    - Verbalize how you would assess the affected body part(s)
- View the plaque entitled “Respiratory Assessment: Anterior” with instructions to “Tap on anatomical location(s) to listen to lung sounds.”
    - An image of a chest appears. When an anatomically correct location is tapped, lung sounds can be heard (best audio is heard using ear buds or headphones.)
- View the plaque entitled “Respiratory Assessment: Posterior” with instructions to “Tap on anatomical location(s) to listen to lung sounds.”
    - Students can listen to posterior lung sounds like above.
- View plaque entitled “Verbalize Interventions” and answer the associated questions:
    - Interpret Patrick’s vital signs:
        - Pulse 116, RR 35, BP 148/92, O2 sat 88%, End tidal CO2:32
    - Verbalize field impression of patient
    - Verbalize interventions/proper treatment based on the Protocol provided (see Protocol tab below)
- Tabbed iPad Content changes

VITAL SIGNS

Vital signs are displayed here.

PROTOCOL

See Protocol in Appendix A

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

Once the Protocol is reviewed, students will receive a message that “Learning objectives have been met. You may exit the scenario.”

SCANNER

QR Codes for DuoNeb or Epinephrine medications may be scanned at this time to view images of the labels of the medication.

EXIT

Students may exit after viewing the Protocol and verbalizing their planned interventions.

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. 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, and Secondary Assessment for a 16 year old patient 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

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PLACE AIRWAY:

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

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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 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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