

# PEDIATRIC ASTHMA

Estimated Time: 30 minutes • Debriefing Time: 60 minutes



Scan to Begin



Patient Name: Patrick A. Armstrong

## SCENARIO OVERVIEW

Patrick Armstrong is a 16-year-old patient who present to a clinic for a routine follow-up visit for asthma. EMR forms are consistent with information usually provided in a clinic setting. He is in stable condition, but in the “yellow zone” on the Asthma Action Plan. Students should perform a focused respiratory assessment using QR codes to simulate various anatomical locations, gather focused subjective data, and document their findings.

## LEARNING OBJECTIVES

1. Measure blood pressure and other vital signs
2. Obtain a health history
3. Perform a general survey assessment
4. Perform a basic respiratory assessment
5. Recognize and report deviation from norms
6. Accurately document findings

## CURRICULUM MAPPING

### WTCS NURSING PROGRAM OUTCOMES

- Implement one's role as a nurse in ways that reflect integrity, responsibility, ethical practices, and an evolving professional identity as a nurse committed to evidence-based practice, caring, advocacy and quality care
- Demonstrate appropriate written, verbal, and nonverbal communication in a variety of clinical contexts
- Provide patient centered care by utilizing the nursing process across diverse populations and health care settings
- Use information and technology to communicate, manage data, mitigate error, and support decision-making

### BASIC SKILLS

- Obtain a health history
- Perform a general survey assessment
- Measure blood pressure and other vital signs
- Perform a basic respiratory assessment

### NURSING FUNDAMENTALS

- Maintain a safe, effective care environment for adults of all ages

- Use appropriate communication techniques
- Use the nursing process
- Provide nursing care for patients with alterations in oxygenation
- Adapt nursing practice to meet the needs of diverse patients in a variety of settings

## SIMULATION LEARNING ENVIRONMENT & SET-UP

### PATIENT PROFILE

Name: Patrick A. Armstrong

Height: 177.5 cm (5 ft 11 in)

DOB: 11/16/20xx

Weight: 109 kg (240 lbs)

Age: 16

Code Status: Full code

MR#: 1116

Primary Language spoken: English

Gender: Male

Allergies: NKDA

### EQUIPMENT/SUPPLIES/SETTINGS

#### Patient

- Street clothes, ball cap, phone
- Jewelry can be present
- Has his albuterol inhaler with him
- QR codes in various anatomical locations on chest. See Appendix A for placement.

#### Monitor Settings

- Vitals: HR 64, RR 14, BP 108/64, Temp 36.8, O2 sat 100% on RA, Pain 0/10






#### Supplies

- General
- Equipment to obtain vitals including oxygen saturation
- Peak Flow Meter (if available)

**Medications**

- Albuterol inhaler

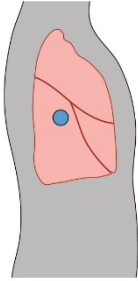
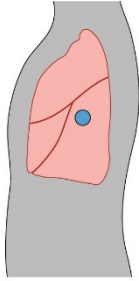


QR CODES

<p>REPORT</p> 	<p>PATIENT</p> 	<p>ASTHMA ACTION PLAN</p> 	<p>PEAK FLOW METER</p> 
<p>ASTHMA PROTOCOL</p> 			

## CHEST QR CODES

Cut along the dotted lines. Fold along the solid line to create a bi-fold of the diagram and QR code.

			
<b>ANTERIOR 2</b>	<b>ANTERIOR 3</b>	<b>ANTERIOR 6</b>	<b>ANTERIOR 7</b>
			
			
<b>POSTERIOR 0</b>	<b>POSTERIOR 1</b>	<b>POSTERIOR 4</b>	<b>POSTERIOR 5</b>
			

	
<b>RIGHT AXILLARY 1</b>	<b>LEFT AXILLARY 1</b>
	

# 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:
  - Explain how to use the iPad scanner and QR codes. Remind students that there are multiple QR codes in the simulation, but they should only scan them if they think it will provide data necessary for their assessment and evaluation of the patient.
  - Describe how a QR Code sound will work in the scenario. For the most authentic sound experience, student should use ear buds or the ARISE “stethoscope” for all QR Codes with the following symbol: □. Example: **QR Code: Chest Anterior 1** □
  - Medication Hyperlinks – Medications are underlined and hyperlinked to DailyMed, which is a medication reference housed by the National Library of Medicine. Students can click on these links during the simulation for up-to-date medication content, labels, and package insert information.
  - View a sample Protocol that is typically found in this setting
- Discuss the simulation “Learning Objective(s)” (on iPad) as well as any other Prebrief materials
- Get “Report” on iPad
  - Possible Facilitator Question
    - What are your clinical concerns when you hear that a patient has asthma?
- Play the “Patient” video on iPad
  - Possible Facilitator Question
    - Based the patient’s subjective history, what focused assessments do you plan to perform?
- Review initial tabbed content



## ASTHMA PROTOCOL

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See Asthma Severity Protocol in Appendix A

## VITAL SIGNS

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- Screen is open for entry; entries are verified against the following values (+/- 5):  
HR 74, RR 16, BP 109/68, Temp 37, O2 Sat 100% on RA, Pain 0/10

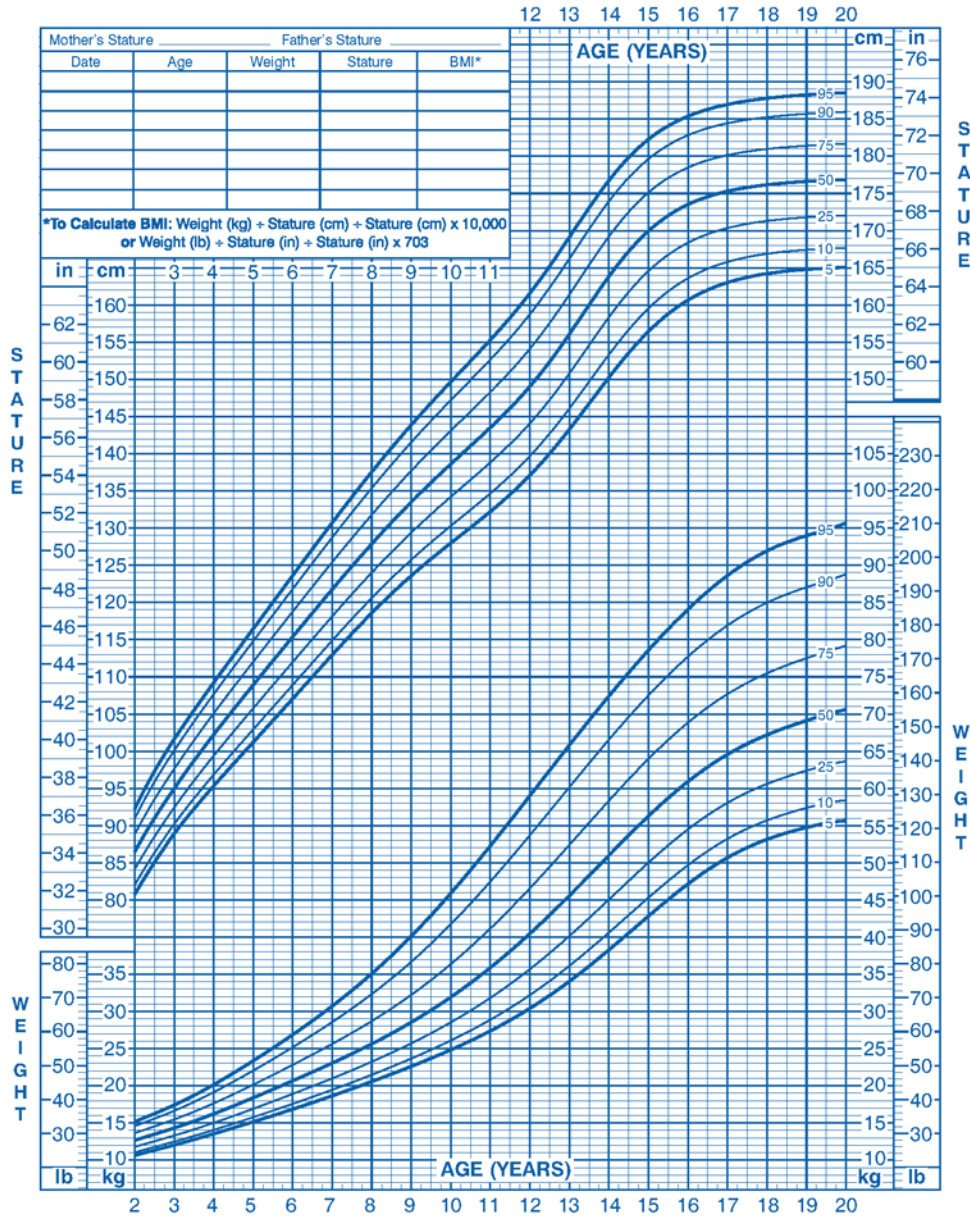
# GROWTH CHART

2 to 20 years: Boys

NAME \_\_\_\_\_

Stature-for-age and Weight-for-age percentiles

RECORD # \_\_\_\_\_



Published May 30, 2000 (modified 11/21/00).  
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).  
<http://www.cdc.gov/growthcharts>



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## PROBLEM LIST

### Currently Known Medical Problem(s)

1. Asthma

## CURRENT MEDICATION LIST

Medication	Description
<a href="#">Albuterol Inhaler</a>	2 puffs q4 hours PRN for shortness of breath

Facilitator Note: hyperlinked medication can be tapped for medication information

## ASTHMA ACTION PLAN

See Appendix B for Patrick's current Asthma Action Plan

## EMERGENCY CONTACT INFORMATION

Contact	Contact Information
Father: Martin Armstrong	Phone: 555-555-0155 Address: 202 South Main Street Anytown, WI

## LEVEL 1

The iPad reads, "The iPad is at Level 1."

## SCANNER

Use this to scan available QR Codes.

## EXIT

Students may exit after viewing the Asthma Action Plan

## STATE 1

# PATIENT ASSESSMENT

- Patient Overview
  - Patient is returning to the clinic for a follow-up visit after being diagnosed with asthma last month.
- Expected Student Behaviors
  - Introduce themselves to the patient
  - Verify patient identity with name and date of birth
  - Communicate therapeutically with an adolescent patient
  - Obtain vital signs and enter them accurately in iPad
  - Obtain a focused health history on respiratory concerns
  - Perform a general survey assessment on primary concerns
  - Perform a focused respiratory physical assessment by scanning **QR codes: Chest** □ at various anatomical locations on anterior, medial and posterior chest
  - Document findings accurately
  - View patient's Asthma Action Plan and relate to his condition
  - (Optional): Scan the **QR Code: Peak Flow Meter** to view a picture of the device
- Technician Prompts
  - Patient is distracted by the messages coming in on his phone. He doesn't really want to be at the appointment and is not motivated to learn more about his asthma.
  - Initial patient responses can include:
    - "I'm not sure why I have to be here again."
    - "They told me I have asthma... But I don't know what that means."
    - If students ask the following questions, provide these responses:
      - Do you feel short of breath today?
        - Answer: "A little."

- Do you have a cough?
  - Answer: “At night sometimes.”
- Do you take any other medications?
  - Answer: “Just Advil when I’m sore from football practice.”
- Do you smoke?
  - Answer: “Sometimes”
- Does anyone in your household smoke?
  - Answer: “Yes”
- Are you following an asthma action plan?
  - Answer: “Not sure?”
- Do you have your inhaler with you?
  - Answer: “Yes”
- **Suggested Facilitator Questions:**
  - What are general questions to ask when a patient has a respiratory disorder?
  - How will you modify your approach to the developmental level of teenager?
  - How would you describe the lungs sounds you are hearing?
  - Analyze the lungs sounds and how they relate to what is occurring in the patient’s lungs?
  - View the Asthma Severity Protocol that is often used in a clinic setting. How would you rate Patrick’s current respiratory status using this protocol?
  - How is the Asthma Action Plan used to help the patients self-manage their asthma?
  - What is a peak flow meter and how is it used with the Asthma Action Plan?

## DEBRIEF

Nothing needed from the iPad.

## QUESTIONS

1. Reaction: “How do you feel this scenario went?” (Allow students to vent their emotional reactions before delving into learning objectives.)
2. Review understanding of learning objectives: Measure blood pressure and other vital signs; Obtain a health history; Perform a general survey assessment; Perform a basic respiratory assessment; Recognize and report deviation from norms
  - a. What questions did you ask to assess his respiratory status? Are there any other subjective history questions that could be asked?
  - b. What did you discover on your assessment that was outside of normal range?
  - c. What symptoms/signs are correlated with asthma?
  - d. Relate Patrick’s respiratory status to his Asthma Action Plan
3. Review understanding of learning objective: Accurately document findings
  - a. Ask students to create a narrative note outlining their assessment findings for Patrick. As a group, compare and create an “overall best response.”
4. Summarize/Take Away Points:
  - a. “In this scenario you assessed a patient with asthma. What is one thing you learned from participating in this scenario that you will take into your nursing practice?” (Ask each student to share something unique from what the other students share.)

NOTE: Debriefing technique is based on INASCL Standard for Debriefing and NLN Theory-Based Debriefing by Dreifuerst.

## APPENDIX A: ASTHMA SEVERITY PROTOCOL

### PROTOCOL FOR REFERRAL OF A PATIENT EXPERIENCING AN ACUTE ASTHMA ATTACK

Use the severity scale below to evaluate the severity of asthma symptoms.

**If signs/symptoms occur in the "Severe" or "Respiratory Arrest Imminent" columns:** The Medical Assistant should immediately activate medical services, notify the provider, and administer a STAT DuoNeb nebulizer treatment while waiting for EMS to arrive. Someone should stay with the patient AT ALL TIMES.

#### FORMAL EVALUATION OF ASTHMA EXACERBATION SEVERITY

SIGNS/SYMPTOMS	Mild	Moderate	Severe	Respiratory Arrest Imminent
Breathlessness	While walking; can lie down	While at rest; prefers sitting (infant: shorter cry, difficulty feeding)	While at rest; Sits upright (Infant: stops feeding)	
Talks in...	Sentences	Phrases	Words	None
Alertness	May be agitated	Usually agitated	Usually agitated	Drowsy or confused
Respiratory Rate	Increased  Guide to rates of breathing in awake children: <2 months: <60/min 2-12 months: <50/min 1-5 years: <40/min 6-8 years: <30/min	Increased	Often greater than 30 in adults	
Use of accessory muscles: suprasternal retractions	Usually not	Commonly	Usually	Paradoxical thoracoabdominal movement
Pulse/minute	<100  Guide to normal pulse rates in children: 2-12 months: <160/min 1-2 years: <120/min 2-8 years: <110/min	100-120	>120	Bradycardia
PEF Of percent predicted or percent personal best	≥70%	40-69%	<40%	<25%
SaO <sub>2</sub>	≥95%	90-95%	<90%	

(based on National Heart, Lung, Blood Institute (2007) The Expert Panel Report 3 (EPR-3) Guidelines for the Diagnosis and Management of Asthma. Downloaded from: <http://www.nhlbi.nih.gov/health-pro/guidelines/current/asthma-guidelines>)



APPENDIX B: ASTHMA ACTION PLAN

**Asthma Action Plan**

For: Patrick Armstrong Doctor: Anibas Date: xx/xx/20xx  
 Doctor's Phone Number: 855-555-0155 Hospital/Emergency Department Phone Number: 855-555-0156

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**GREEN ZONE**

**Doing Well**

- No cough, wheeze, chest tightness, or shortness of breath during the day or night.
- Can do usual activities.

And, if a peak flow meter is used,  
**Peak flow:** more than 384 (80 percent or more of my best peak flow)  
 My best peak flow is: 480

Take these long-term control medicines each day (include an anti-inflammatory).

Medicine	How much to take	When to take it
<input checked="" type="checkbox"/> <u>Albuterol</u>	<input checked="" type="checkbox"/> 2 or <input type="checkbox"/> 4 puffs	5 minutes before exercise

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**YELLOW ZONE**

**Asthma Is Getting Worse**

- Cough, wheeze, chest tightness, or shortness of breath, or
- Waking at night due to asthma, or
- Can do some, but not all, usual activities.

-Or-  
**Peak flow:** 240 to 384 (50 to 79 percent of my best peak flow)

**First:** Add: quick-relief medicine—and keep taking your GREEN ZONE medicine.  
 Albuterol  2 or  4 puffs every 20 minutes for up to 1 hour  
(short-acting beta<sub>2</sub>-agonist)  Nebulizer, once

**Second:** If your symptoms (and peak flow, if used) return to GREEN ZONE after 1 hour of above treatment:  
 Continuous monitoring to be sure you stay in the green zone.  
 -Or-  
 If your symptoms (and peak flow, if used) do not return to GREEN ZONE after 1 hour of above treatment:  
 Take: \_\_\_\_\_  2 or  4 puffs or  Nebulizer  
(short-acting beta<sub>2</sub>-agonist)  
 Add: \_\_\_\_\_ mg per day For \_\_\_\_\_ (3–10) days  
(oral steroid)  
 Call the doctor  before/  within \_\_\_\_\_ hours after taking the oral steroid.

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**RED ZONE**

**Medical Alert!**

- Very short of breath, or
- Quick-relief medicines have not helped, or
- Cannot do usual activities, or
- Symptoms are same or get worse after 24 hours in Yellow Zone.

-Or-  
**Peak flow:** less than 240 (50 percent of my best peak flow)

Take this medicine:  
 Albuterol  4 or  6 puffs or  Nebulizer  
(short-acting beta<sub>2</sub>-agonist)  
 \_\_\_\_\_ mg  
(oral steroid)

Then call your doctor NOW. Go to the hospital or call an ambulance if:  
 • You are still in the red zone after 15 minutes AND  
 • You have not reached your doctor.

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**DANGER SIGNS**    ■ **Trouble walking and talking due to shortness of breath**    ■ **Take  4 or  6 puffs of your quick-relief medicine AND**  
 ■ **Lips or fingernails are blue**    ■ **Go to the hospital or call for an ambulance \_\_\_\_\_ NOW!**  
(phone)

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**How To Control Things That Make Your Asthma Worse**

This guide suggests things you can do to avoid your asthma triggers. Put a check next to the triggers that you know make your asthma worse and ask your doctor to help you find out if you have other triggers as well. Then decide with your doctor what steps you will take.

**Allergens**

**Animal Dander**  
 Some people are allergic to the flakes of skin or dried saliva from animals with fur or feathers.  
 The best thing to do:  
 • Keep furred or feathered pets out of your home.  
 If you can't keep the pet outdoors, then:  
 • Keep the pet out of your bedroom and other sleeping areas at all times, and keep the door closed.  
 • Remove carpets and furniture covered with cloth from your home.  
 If that is not possible, keep the pet away from fabric-covered furniture and carpets.

**Dust Mites**  
 Many people with asthma are allergic to dust mites. Dust mites are tiny bugs that are found in every home—in mattresses, pillows, carpets, upholstered furniture, bedcovers, clothes, stuffed toys, and fabric or other fabric-covered items.  
 Things that can help:  
 • Encase your mattress in a special dust-proof cover.  
 • Encase your pillow in a special dust-proof cover or wash the pillow each week in hot water. Water must be hotter than 130° F to kill the mites. Cold or warm water used with detergent and bleach can also be effective.  
 • Wash the sheets and blankets on your bed each week in hot water.  
 • Reduce indoor humidity to below 60 percent (ideally between 30–50 percent). Dehumidifiers or central air conditioners can do this.  
 • Try not to sleep or lie on cloth-covered cushions.  
 • Remove carpets from your bedroom and those laid on concrete, if you can.  
 • Keep stuffed toys out of the bed or wash the toys weekly in hot water or cooler water with detergent and bleach.

**Cockroaches**  
 Many people with asthma are allergic to the dried droppings and remains of cockroaches.  
 The best thing to do:  
 • Keep food and garbage in closed containers. Never leave food out.  
 • Use poison baits, powders, gels, or paste (for example, boric acid). You can also use traps.  
 • If a spray is used to kill roaches, stay out of the room until the odor goes away.

**Indoor Mold**

- Fix leaky faucets, pipes, or other sources of water that have mold around them.
- Clean moldy surfaces with a cleaner that has bleach in it.

**Pollen and Outdoor Mold**  
 What to do during your allergy season (when pollen or mold spore counts are high):  
 • Try to keep your windows closed.  
 • Stay indoors with windows closed from late morning to afternoon, if you can. Pollen and some mold spore counts are highest at that time.  
 • Ask your doctor whether you need to take or increase anti-inflammatory medicine before your allergy season starts.

**Irritants**

**Tobacco Smoke**

- If you smoke, ask your doctor for ways to help you quit. Ask family members to quit smoking, too.
- Do not allow smoking in your home or car.

**Smoke, Strong Odors, and Sprays**

- If possible, do not use a wood-burning stove, kerosene heater, or fireplace.
- Try to stay away from strong odors and sprays, such as perfume, talcum powder, hair spray, and paints.

Other things that bring on asthma symptoms in some people include:

**Vacuum Cleaning**

- Try to get someone else to vacuum for you once or twice a week, if you can. Stay out of rooms while they are being vacuumed and for a short while afterward.
- If you vacuum, use a dust mask (from a hardware store), a double-layered or microfilter vacuum cleaner bag, or a vacuum cleaner with a HEPA filter.

**Other Things That Can Make Asthma Worse**

- Sulfites in foods and beverages: Do not drink beer or wine or eat dried fruit, processed potatoes, or shrimp if they cause asthma symptoms.
- Cold air: Cover your nose and mouth with a scarf on cold or windy days.
- Other medicines: Tell your doctor about all the medicines you take. Include cold medicines, aspirin, vitamins and other supplements, and nonselective beta-blockers (including those in eye drops).

U.S. Department of Health and Human Services  
 National Institutes of Health

National Heart Lung and Blood Institute

For More Information, go to: [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)  
 NHL Publication No. 07-5251  
 April 2007



## CREDITS

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Asthma action plan from National Heart, Lung and Blood Institute at

<https://www.nhlbi.nih.gov/health/resources/lung/asthma-action-plan>

Asthma severity protocol from: National Heart, Lung, Blood Institute (2007) The Expert Panel Report 3 (EPR–3) Guidelines for the Diagnosis and Management of Asthma.

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Normal lung sound from Thinklabs Medical, LLC, Centennial, CO at

<http://www.thinklabs.com/lung-sounds>

Patient education files adapted from OSCE Skills and wikiHow at <http://www.osceskills.com/e-learning/subjects/explaining-the-peak-expiratory-flow-rate-technique/> and

<http://www.wikihow.com/Use-a-Peak-Flow-Meter>

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