# PEDIATRIC ASTHMA

Estimated Time: 40 minutes • Debriefing Time: 30 minutes

Scan to Begin

Patient Name: Patrick A. Armstrong



## SCENARIO OVERVIEW

Patrick A. Armstrong is a 16-year-old male patient who presents to the emergency department with a moderate exacerbation of his known asthma. His asthma is normally well-controlled, but he was at a friend's house today and there was unintended exposure to a cat. Patrick drove himself to the hospital as both of his parents are working. He was evaluated and received two nebulizer treatments 20 minutes apart. Both Peak Flow and FEV1 readings improved and are near normal. The provider wants to discharge him home with a dose-pack of prednisone, an albuterol MDI, an Advair DPI, and a new peak flow meter. The provider also wants an updated Asthma Action Plan. Students will assess the patient and provide education on Peak Flow, MDI administration, and DPI administration. They will evaluate the effectiveness of the teaching by watching included videos. The scenario concludes after students develop an Asthma Action Plan with the patient.

# LEARNING OBJECTIVES

1. Obtain vital signs and interpret for a pediatric patient
2. Perform a focused respiratory assessment
3. Provide patient education – Peak Flow procedure, MDI/DPI administration
4. Develop an Asthma Action Plan for a pediatric patient
5. Evaluate the effectiveness of patient education
6. Recognize and respond to abnormal findings
7. Safely administer inhaled medications
8. Demonstrate appropriate communication
9. Document accurately

# CURRICULUM MAPPING

## WTCS RESPIRATORY THERAPY PROGRAM OUTCOMES

- Apply respiratory therapy concepts to patient care situations
- Demonstrate technical proficiency required to fulfill the role of a respiratory therapist
- Practice respiratory therapy according to established professional and ethical standards

## RESPIRATORY AND CIRCULATORY PHYSIOLOGY

- Apply principles of ventilatory mechanics

## RESPIRATORY DISEASE

- Interpret results of simple spirometry
- Analyze signs, symptoms, etiology, pathogenesis and treatment for obstructive lung disorders

## RESPIRATORY PHARMACOLOGY

- Compare and contrast drug forms, routes of administration and vehicles

- Examine the pharmacodynamics of bronchodilators

## RESPIRATORY SURVEY

- Perform pulse oximetry
- Adapt communication strategies to a diverse patient population
- Review the medical record utilizing medical record keeping and charting methods consistent with hospital policy and procedures
- Utilize infection control principles
- Obtain a focused health history
- Evaluate patient data
- Perform a respiratory assessment
- Obtain vital signs

## RESPIRATORY THERAPEUTICS 1

- Develop a care plan
- Evaluate oxygenation
- Assess the need for medical gas therapy
- Demonstrate medication delivery devices

## RESPIRATORY NEONATAL/PEDIATRICS

- Differentiate cardiopulmonary diseases/disorders of the neonatal/pediatric patient
- Develop a therapeutic care plan for the neonatal/pediatric patient

## RESPIRATORY CLINICAL COMPETENCIES

- Apply standard precautions
- Assess vital signs
- Perform pulse oximetry
- Perform chart review
- Perform a pulmonary exam

- Administer aerosolized medication therapy
- Educate a patient in inhaler use

# SIMULATION LEARNING ENVIRONMENT & SET-UP

## ENVIRONMENT

Inside room: Patient in chair or, if in bed, as close to fowlers position as possible

Inside or outside room: Hand sanitizer and/or sink

Outside room: Computer or form(s) for documentation

## PATIENT PROFILE

Name:  Patrick A. Armstrong

DOB: 11/16/20XX

Age: 16

MR#: 1116

Gender: Male

Height: 177.5 cm (5 ft 11 in)

Weight: 109 kg (240 lbs)

Code Status: Full Code

Admitting Diagnosis: shortness of breath (R06.02)

Medical History: asthma, unspecified (493.90)

Allergies: NKDA

Surgical History: None

Ethnicity: African American

Spiritual Practice: Unknown

Primary Language: English

## EQUIPMENT/SUPPLIES/SETTINGS

**Patient**

- In a white t-shirt, pants, and baseball cap
- No moulage
- ID band present with QR code

**Monitor Settings**

- No monitor
- Simulator vitals: HR 110, RR 24, BP 122/88, Temp 37, O2 Sat 96% on RA, Pain 0/10

**Supplies**

- General

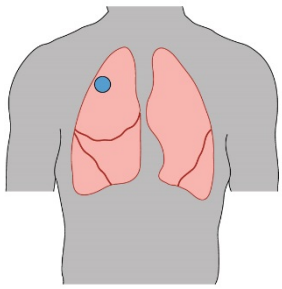
    - Respiratory Equipment
        - Device to measure Peak Flow
        - MDI Spacer
    - Optional:
        - Cell Phone
- Medications (realistic labels are available by scanning the QR code)
    - Albuterol MDI
    - Advair DPI – 250/50
    - Both MDI and DPI placebos should be available

# QR CODES

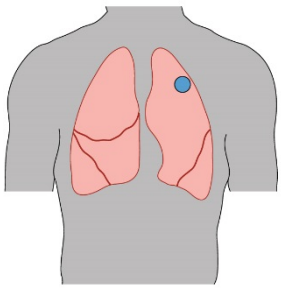
| | | | |
|---|---|---|---|
| START | PATIENT | REPORT | PATIENT ID |
| MDI A | MDI B | DPI A | DPI B |
| PEAK FLOW A | ALBUTEROL MDI | ADVAIR DPI | |

# CHEST QR CODES

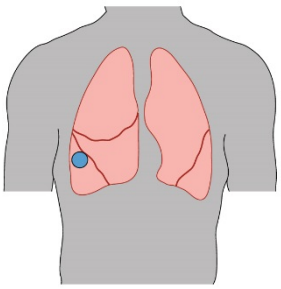
Cut along the dotted lines. Fold along the solid line to create a bi-fold of the diagram and QR code.



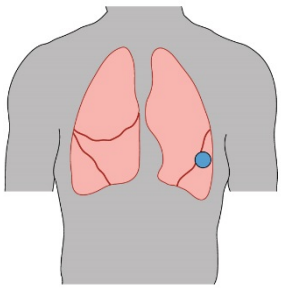
ANTERIOR 2



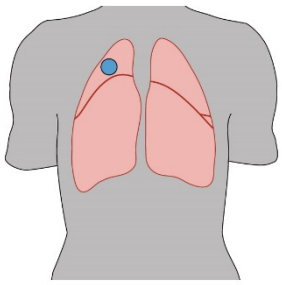
ANTERIOR 3



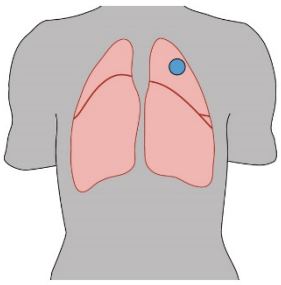
ANTERIOR 6



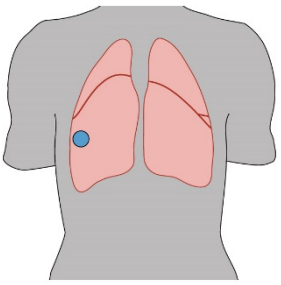
ANTERIOR 7



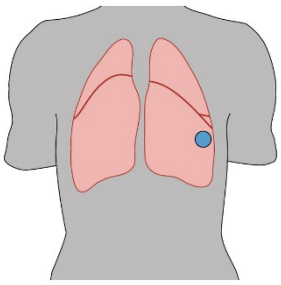
POSTERIOR 0



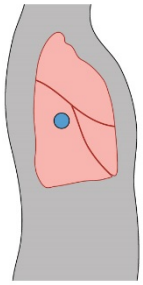
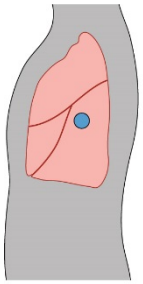
POSTERIOR 1



POSTERIOR 4



POSTERIOR 5

| | |
|---|---|
|  |  |
| RIGHT AXILLARY 1 | LEFT AXILLARY 1 |

# 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.
    - For some scenarios, it may be helpful to tell students where the QR code are located. For others, you may want students to "find" the QR codes during their assessments. This is your choice.
    - 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** □
    - As the facilitator, you should be aware that throughout the simulation some QR codes are necessary to the programming of the iPad content. Directions for which QR codes are required (to be scanned) in each state are listed under each state of the documentation below. The QR codes are also in **BOLD** type.
    - Level Up tab – This tab "tells" the content in the iPad to change to what is needed for the next state of a simulation. It is used a few times in this scenario after the provider is notified to display new orders (those just given over the phone) and lab results, etc...
    - Medication QR Codes – The student(s) must scan **QR Code: Patient ID** prior to scanning any medication. That scan is valid for 2 minutes and then it "times out." The student(s) will need to scan **QR Code: Patient ID** again to give more medications.
    - MAR Hyperlinks – On the MAR, all 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.

- Discuss the simulation "Learning Objective(s)" (on iPad) as well as any other Prebrief materials
- Get "Report" on iPad
    - Possible Facilitator Questions
        - What are your priorities for this patient?
        - How will you modify your approach for a pediatric patient?
- View "Patient" video on iPad
    - Possible Facilitator Questions
        - What communication strategies could you employ when you assess and evaluate Patrick?
- Advance to the "Patient Profile" screen (on iPad). This will act as a simulated patient chart.
- Students can view the tabbed content on the iPad (see below) prior to entering the patient's room and throughout the simulation as needed.
    - You should give student some time (5 minutes) to review this content now, prior to entering the patient's room.

# H&P

No reports available.

# ORDERS

| Patient Name | DOB | MR# |
|---|---|---|
| *Patrick A. Armstrong* | *11/16/20XX* | *1116* |
| **Allergies** | **Height (cm)** | **Admission Weight (kg)** |
| *NKDA* | *177.5* | *109* |

## Provider Orders

| Date | Time | Order |
|---|---|---|
| Today | 5 hours ago | STAT Duoneb now with peak flow and FEV1 pre- and post- |
| | | treatment; May repeat with 2.5 mg Albuterol Q20 minutes x 2 |
| | | Notify MD if peak flow or FEV1 < 40% of predicted |
| | | Monitor vital signs and alertness at least every 2o minutes |
| | | Electronically signed, James Emerson, M.D. |
| Today | 15 minutes | Discharge home with: |
| | ago | Peak flow meter and updated asthma action plan |
| | | 2 puffs Albuterol now, then 4 x/day & Q2 hours PRN for SOB |
| | | and/or wheezing |
| | | 2 puffs Advair (250/50) now, then Q12 hours (AM & PM) |
| | | RT to provide education on all of the above |
| | | Schedule follow-up appointment with Primary MD in 1 week |
| | | Electronically signed, James Emerson, M.D. |

# MAR

| Patient Name | DOB | MR# |
|---|---|---|
| *Patrick A. Armstrong* | *11/16/20XX* | *1116* |
| **Allergies** | **Height (cm)** | **Admission Weight (kg)** |
| *NKDA* | *177.5* | *109* |

# Medication Administration Record

| Scheduled | | |
|---|---|---|
| 2 puffs Albuterol now, then 4 x/day & Q2 hours PRN for SOB and/or wheezing | **Due Today** | **Last Given** |
| | | |
| 2 puffs Advair (250/50) now, then Q12 hours (AM & PM) | **Due Today** | **Last Given** |
| | | |
| | | |
| **PRN** | | |
| 2.5 mg Albuterol, may repeat Q20 minutes x 2 | | **Last Given** |
| | | 2.5 hours ago |
| | | |
| **Discontinued** | | |
| Duoneb (unit dose vial), STAT | Discontinued | Last Given |
| | 3 hours ago | 3 hours ago |



# DAILY RECORD

| Patient Name | DOB | MR# |
|---|---|---|
| *Patrick A. Armstrong* | *11/16/20XX* | *1116* |
| **Allergies** | **Height (cm)** | **Admission Weight (kg)** |
| *NKDA* | *177.5* | *109* |

## Daily Record

| Vitals | Today – 3 hours ago | Today – 2 hours ago | Today – 1 hours ago | | |
|---|---|---|---|---|---|
| Pulse | 112 | 106 | 108 | | |
| Resp. Rate | 28 | 24 | 20 | | |
| BP Systolic | 128 | 124 | 118 | | |
| BP Diastolic | 88 | 82 | 78 | | |
| Temp (°C) | 37.2 | 37 | 36.8 | | |
| O2 Saturation (%) | 95% | 100% | 95% | | |
| Applied Oxygen | 2 lpm | 2 lpm | RA | | |
| Pain | 4 | 4 | 2 | | |

# VITALS

The iPad shows the "enterable" vitals screen.

# PROGRESS NOTES

| Patient Name | DOB | MR# |
|---|---|---|
| *Patrick A. Armstrong* | *11/16/20XX* | *1116* |
| **Allergies** | **Height (cm)** | **Admission Weight (kg)** |
| *NKDA* | *177.5* | *109* |

## Progress Notes

| Date/Time | Note |
|---|---|
| Today – 3 hours ago | Respiratory Therapy Note: Patient presents with a presumed exacerbation of his known asthma which was most likely caused by an unintended exposure to a cat. He presents without a parent as both are at work, but his dad is on his way in. He used his Albuterol inhaler en route, but when examined, it expired over a year ago. He denies using any other inhalers or respiratory related medications and only uses the Albuterol "occasionally" during football practice. He denies smoking or exposure to second-hand smoke. HR = 112, RR = 28, Sat = 95% on 2 lpm NC. BBS are diminished with scattered inspiratory and expiratory wheezes throughout all lung fields – upper > than lower. He is using some abdominal accessory muscles and appears short of breath. His cough is strong and spasmodic and non-productive. Pre-Peak Flow = 265 lpm and FEV1 = 62% of predicted. Duoneb was given via mouthpiece with no appreciable change in vitals or BBS. Will continue to monitor and administer an Albuterol nebulizer in about 15-30 minutes.<br>Electronically Signed Eric Shinutch, RRT |
| Today – 2.5 hours ago | Respiratory Therapy Note: Patient continues to be diminished and a little wheezy throughout with a strong, non-productive, spasmodic cough. HR = 106, RR = 24, Sat = 100% on 2 lpm NC. Albuterol nebulizer administered without issue via mouthpiece. No appreciable change in vitals. However, his BBS have increased in aeration with less wheezes throughout. Post-Peak Flow = 360 lpm and FEV1 = 74% of predicted. Patient states he has not seen a doctor for his asthma in over a year. When asked about his Asthma Action Plan, he asked, "What is that?" RN informed of patient's progress and told to call if another Neb is needed. Also, I mentioned that if his Sats remained good, the O2 could be removed. MD informed that patient will need a new Asthma Action Plan and education upon discharge. Also, recommended adding Advair to his discharge medications.<br>Electronically Signed Eric Shinutch, RRT |

## LABS-DIAGNOSTICS

No reports available.

## IMAGING

No reports available.

## PATIENT EDUCATION

The iPad reads, “Patient education is a critical component of patient-centered care. In fact, it is both a patient’s right and a health care provider’s responsibility. Please use the following content to guide the patient education process.”

The following patient education forms are located in this tab:

- Peak Flow Rate (Appendix A)
- Normal Peak Flow (Appendix B)
- MDI administration (Appendix C)
- DPI administration (Appendix D)
- Asthma Management (Appendix E)
- Asthma Action Plan (Appendix F)

A printable version of each form is located in the corresponding Appendix.

## LEVEL 1

The iPad reads, “The iPad is at Level 1.”

## SCANNER

Use this to scan available QR Codes.

# EXIT

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.

STATE 1

# PATIENT ASSESSMENT

- Patient Overview
    - The patient is in bed in a fowler's position. He looks comfortable and is anxious to be discharged. He is a "typical" teenager and is disinterested in everything that is happening. Students should perform a respiratory assessment.
- Expected Student Behaviors
    - Perform appropriate hand hygiene and infection control
    - Introduce themselves and verify the patient (can scan **QR Code: Patient ID**)
    - Obtain vital signs and interpret for a pediatric patient
        - This patient would have vitals similar to an adult of his size.
    - Perform a focused respiratory assessment
        - Inspection – Students will not find any abnormalities.
        - Palpation – Students will not find any abnormalities.
        - Percussion – Students will not find any abnormalities.
        - Auscultation – Scan **QR Code: Chest** 
            - There are ten QR codes to apply to the chest – see above Chest QR Code chart for locations
            - Student will hear mild wheezing in anterior and posterior upper lobes and clear breath sounds in the remaining locations
        - Students may ask questions as part of this assessment
            - Questioning may continue into State 2 of the scenario
            - Questions can include:
                - How long have you had asthma?
                    - Answer: "All my life, I guess."

- Have you ever been admitted to the hospital for your asthma?
  - Answer: “I don’t remember it, but my mom said I was in the hospital for a few days with pneumonia when I was a baby.”
- What are your triggers?
  - Answer: “What are triggers?” (He is confused and doesn’t know what this means.)
  - When the student(s) explains “triggers,” he says, “Cats, spring allergies, sometimes, and when I get a bad cold or exercise really hard.”
- What medications do you take for your breathing?
  - Answer: “Just my albuterol inhaler.”
- How often do you take them?
  - Answer: “Not that often. I haven’t had to take it in a few months or so.”
- Do you take any other medications?
  - Answer: “Just some ibuprofen sometimes.”
- Do you smoke?
  - Answer: “No!!! Coach would kill me! And so would my mom!”
- Does anyone in your household smoke?
  - Answer: “Nope.”
- Do you own/use a peak flow meter?
  - Answer: “I have before, but not in a really long time.”
- Do you have an asthma action plan?
  - Answer: “I don’t think so. What does it look like?”

- Recognize and respond to abnormal findings
- Demonstrate appropriate communication

- Technician Prompts
  - Patient is comfortable and ready to go home. He is a typical teenager and often disinterested in what is going on. He is also very concerned about how this will affect his ability to play football. He starts on both the offensive and defensive line.
  - Patient responses can include:
    - "I am so mad! I can't believe my friend didn't tell me he got a cat!"
    - "Am I going to be able to play football tonight?"
    - "Can you hand me my phone? The nurse took it away, but I really want a pic of this."
  - When asked patient history questions responses can include:
    - How long have you had asthma?
      - Answer: "All my life, I guess."
    - Have you ever been admitted to the hospital for your asthma?
      - Answer: "I don't remember it, but my mom said I was in the hospital for a few days with pneumonia when I was a baby."
    - What are your triggers?
      - Answer: "What are triggers?" (He is confused and doesn't know what this means.)
      - When the student(s) explains "triggers," he says, "Cats, spring allergies, sometimes, and when I get a bad cold or exercise really hard."
    - What medications do you take for your breathing?
      - Answer: "Just my albuterol inhaler."
    - How often do you take them?
      - Answer: "Not that often. I haven't had to take it in a few months or so."

- Do you take any other medications?
  - Answer: “Just some ibuprofen sometimes.”
- Do you smoke?
  - Answer: “No!!! Coach would kill me! And so would me mom!”
- Does anyone in your household smoke?
  - Answer: “Nope.”
- Do you own/use a peak flow meter?
  - Answer: “I have before, but not in a really long time.”
- Do you have an asthma action plan?
  - Answer: “I don’t think so. What does it look like?”

- Possible Facilitator Questions
  - Analyze the vital signs: are they within normal limits for his age?
  - Analyze the findings from your physical assessment: do you have any concerns?
- Tabbed iPad Prompts & Content
  - If the Albuterol MDI or Advair DPI are scanned in this state, the student(s) will see a message on the iPad that reads, “Complete patient assessment prior to medication administration.”

## LEVEL 1 / 2

- When the Level 1 tab is tapped, the iPad reads, “The iPad is at Level 1.”
- After the student(s) scan ANY **QR Code: Chest** □, the Level 1 tab will automatically change to a Level 2 tab (students are not prompted about this).
- When the Level 2 tab is tapped, the iPad reads, “The iPad is at Level 2.”

STATE 2

# PATIENT EDUCATION

- Patient Overview
    - The patient is disinterested in performing the Peak Flow, but will do so with encouragement. He is also annoyed that students are teaching him to use an inhaler since he's used one for years. Student must evaluate the effectiveness of the MDI and DPI teaching. They should also provide asthma-related education and complete an Asthma Action Plan with the patient.
- Expected Student Behaviors
    - Provide patient education: Peak Flow Rate
        - Facilitator Note:
            - Peak Flow Rate and Normal Peak Flow education is located under the Patient Education tab on the iPad.
            - A printable version of each is located in Appendix A & B, respectively.
            - After student instructs the patient on the Peak Flow procedure, instruct them to scan **QR Code: Peak Flow A**. This is an image of the Peak Flow result which is about 370 lpm.
            - In the interest of time, we are assuming the student instructs the patient correctly. If students do not instruct the patient correctly, this can be addressed immediately by pausing the scenario and/or not allowing them to scan **QR Code: Peak Flow A** until adequate instructions are provided. This could also be addressed in debriefing.
    - Provide patient education: MDI administration
        - Facilitator Note:
            - MDI education is located under the Patient Education tab on the iPad.
            - A printable version is located in Appendix c.

- If students give correct directions to the patient, the facilitator should instruct students to scan **QR Code: MDI A**. This is a video of the patient performing the procedure correctly
- If student give incorrect directions to the patient, the facilitator should instruct students to scan **QR Code: MDI B**. This is a video of the patient performing the procedure incorrectly

- Evaluate the effectiveness of patient education: MDI administration
  - After watching either the correct or incorrect videos (**QR Code: MDI A** or **B**), students should evaluate the effectiveness of the MDI administration and decide if reeducation and repeating is required.
  - Facilitator Note:
    - **QR Code: MDI A** or **B** can be scanned until students are satisfied the patient's performance.
    - If multiple attempts are needed and students are using the actual medication and not a placebo, the facilitator should intervene and discuss medication side effects, cost, etc., with the students.
- Provide patient education: DPI administration
  - Facilitator Note:
    - DPI education is located under the Patient Education tab on the iPad.
    - A printable version is located in Appendix D.
    - If students give correct directions to the patient, the facilitator should instruct students to scan **QR Code: DPI A**. This is a video of the patient performing the procedure correctly
    - If student give incorrect directions to the patient, the facilitator should instruct students to scan **QR Code: DPI B**. This is a video of the patient performing the procedure incorrectly
- Evaluate the effectiveness of patient education: DPI administration

        - After watching either the correct or incorrect videos (**QR Code: DPI A** or **B**), students should evaluate the effectiveness of the DPI administration and decide if reeducation and repeating is required.
        - Facilitator Note:
            - **QR Code: DPI A** or **B** can be scanned until students are satisfied the patients performance.
            - If multiple attempts are needed and students are using the actual medication and not a placebo, the facilitator should intervene and discuss medication side effects, cost, etc., with the students.
    - Provide asthma education and develop an Asthma Action Plan for a pediatric patient
        - Facilitator Note:
            - Asthma Management education and a blank Asthma Action Plan are both located under the patient education tab on the iPad.
            - There are also printable versions of each form located in Appendix E and F, retrospectively.
    - Demonstrate appropriate communication
    - Document accurately
- Technician Prompts
    - The patient is disinterested, but will perform the procedures when encouraged. The patient will become annoyed every time a procedure needs to be explained and repeated.
    - As this state revolves around multiple aspects of patient education, the technician should ask many questions associated with what the students are saying/asking during each educational activity.
- Possible Facilitator Questions
    - How will you address Patrick's questions about the Peak Flow, MDI, DPI and/or Asthma Action Plan?
- Tabbed iPad Prompts & Content

# LEVEL 2/EXIT

- When the Level 2 tab is tapped, the iPad reads, “The iPad is at Level 2.”
- The Level 2 tab will automatically disappear (Students are not prompted about this) when:
    - Students access the patient education tab

      AND

    - Students scan either **QR Code: DPI A** or **QR Code: DPI B**
- When the Exit 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.

### DEBRIEF

Nothing needed from the iPad.

## QUESTIONS

1. How did you feel this scenario went?
2. What were the main issues you had to deal with when caring for Patrick?
3. Review understanding of learning objective: Obtain vital signs and interpret for a pediatric patient.
    a. What vital signs are within normal range for a 16-year-old male?
    b. Interpret Patrick's vital signs: were they in range? What could be affecting Patrick's vital signs?
4. Review understanding of learning objective: Perform a focused respiratory assessment.
    a. What concerns did you find during your initial assessment and evaluation?
    b. How would your assessment of Patrick compare to what you would expect of an asthmatic patient?
    c. Did you alter your assessment for this pediatric patient? Why or why not?
    d. What pieces of data were significant in Patrick's health history?
    e. If you could "do over" any part of getting Patrick's history, what would it be and why?
5. Review understanding of learning objective: Provide patient education – Peak Flow procedure, MDI administration, and DPI administration.
    a. Did you modify your education technique based on Patrick's age? Why or why not?
6. Review understanding of learning objective: Develop an Asthma Action Plan for a pediatric patient.
    a. How did the provided Asthma Action Plan worksheet enhance the provided patient education?
    b. Did you modify your education technique and/or the provided Asthma Action Plan worksheet? Why or Why not?
7. Review understanding of learning objective: Evaluate the effectiveness of patient education.

   a. Did the Peak Flow, MDI and/or DPI education you provided achieve the desired results? Why or why not?

   b. Did you have to modify your education techniques? Why or Why not?

   c. If you could "do over" how you provided education to Patrick, what would it be and why?

8. Review understanding of learning objective: Recognize and respond to abnormal findings.

   a. What abnormal findings did you find in the vital signs and/or physical assessment? How did you respond to these findings?

9. Review understanding of learning objective: Safely administer inhaled medications.

   a. Did you have any concerns about administering the medications that were ordered? Why or why not?

   b. Would you change anything about how you administered the medication?

10. Review understanding of learning objective: Demonstrate appropriate communication

   a. Were the communication techniques you used with Patrick effective? Why or Why not?

   b. If Patrick's parents had been with him, how would you have communicated with them in comparison to how you communicated with Patrick?

   c. If you could "do over," how would you change your communication with Patrick?

11. Review understanding of learning objective: Document accurately.

   a. What is important to document in your assessments and interventions?

12. Summary/Take Away Points

   a. "Today you cared for a pediatric patient who was being discharged after experiencing a moderate exacerbation of his known asthma. What is one thing you learned from participating in this scenario that you will take with you into your respiratory therapy practice?" (Each student must share something different from what the others' share.)

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

# 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

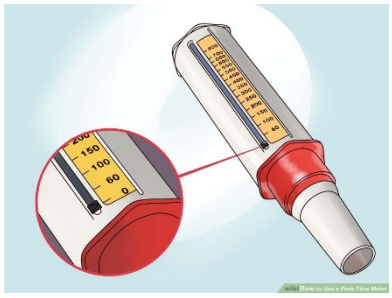
# PEAK FLOW RATE

Peak flow rate (or peak expiratory flow rate) is the measurement of how much air you can blow out of your lungs in one breath. It is useful for you to measure and track this because it will help you know when your asthma is flaring up and/or when you should seek medical attention.

## STEPS FOR PERFORMING THE PEAK FLOW RATE PROCEDURE:

1. Ensure the mouthpiece is clean and free of obstructions.

2. Ensure the marker is set to zero.




3. Stand up or sit upright.

4. Take as deep a breath in as you can and hold it.

5. Place the mouthpiece in your mouth and form as tight a seal as possible around it with your lips.

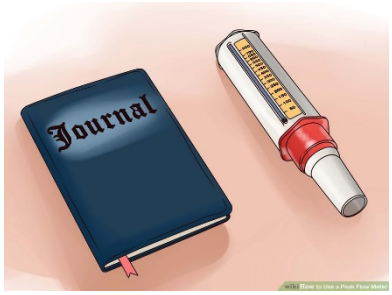
6. Breathe out as hard as you can through your mouth. Plug your nose if you have to.

7. Observe and record the reading.

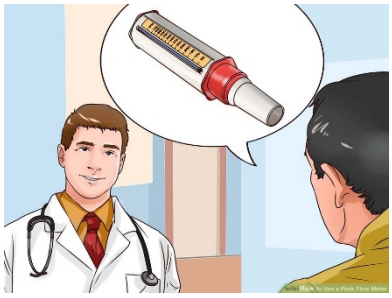
8. Repeat the process at least 2 more times and record the highest reading.

9. Take your readings every day. If possible, your readings should be taken about the same time every day.

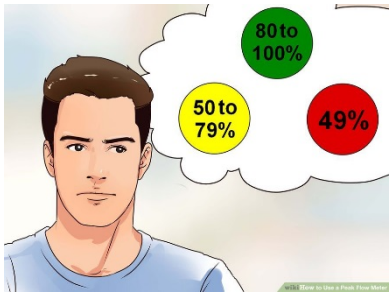

10. Keep a daily journal of your peak flow rates as well as any other asthma-like symptoms you experience (such as coughing or wheezing).




11. Bring your journal to doctors' appointments. This will help him/her make sure you are taking the proper asthma medications.



12. Find your "normal" peak flow rate and track your peak flow zone.




Related patient education handouts: NORMAL PEAK FLOW RATE, ASTHMA ACTION PLAN

Content adapted from: http://www.osceskills.com/e-learning/subjects/explaining-the-peak-expiratory-flow-rate-technique/ and http://www.wikihow.com/Use-a-Peak-Flow-Meter

APPENDIX B

# NORMAL PEAK FLOW RATE

To create your asthma action plan, you need to find your "normal" peak flow rate. This is done by recording your peak flow rate for two weeks at about the same time of day when your asthma is under control. Then, you and your doctor will determine what a normal peak flow rate is for you.

Once you know your normal peak flow rate, follow the "zone" system on your "Asthma Action Plan." This system helps you and your doctor decide how to treat your asthma.

The zone system can be compared to the colors of a traffic light.

### Green Zone

**80% to 100%** of your normal peak flow rate signals go. Your asthma is under good control. Continue to follow the green zone of your asthma action plan.

### Yellow Zone

**50% to 80%** percent of your normal peak flow rate signals caution. Your symptoms could get better or worse. Follow the yellow zone of your asthma action plan.

### Red Zone

**Less than 50%** of your normal peak flow rate signals stop. This a Medical Alert! Contact your healthcare provider now and follow the red zone of your asthma action plan.

Related patient education handouts: PEAK FLOW METER, ASTHMA ACTION PLAN

Content adapted from: http://www.lung.org/lung-health-and-diseases/lung-disease-lookup/asthma/living-with-asthma/managing-asthma/measuring-your-peak-flow-rate.html and https://www.aaaai.org/conditions-and-treatments/library/at-a-glance/peak-flow-meter

APPENDIX C

# USING AN MDI WITH A SPACER

If you have been diagnosed with a lung disease such as asthma or COPD, the use of an MDI (metered dose inhaler), like Albuterol or Flovent, may be indicated. These instruction will ensure you are using the MDI and Spacer correctly.

## STEPS FOR USING AN MDI WITH A SPACER:

1. Take off the MDI cap.

The cap is a small covering located over the mouthpiece to prevent foreign objects from getting in the MDI. Ensure the mouthpiece and spray hole are clean.

2. Shake the MDI.

Hold the inhaler in a vertical position with one hand and shake it 10 to 15 times.


3. Prime the MDI.

If this is the first time you've used the MDI or if you have not used it in more than a week, you need to prime it. This ensures the inhaler delivers the correct amount of medicine when used. You prime the MDI by squeezing the canister down into the plastic mouthpiece, emitting a single spray.

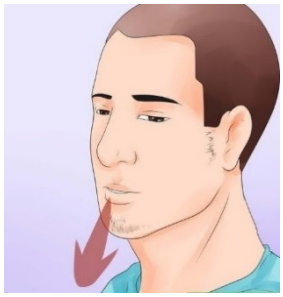
IMPORTANT: After you prime the MDI, you need to repeat Step 2 – Shake the MDI.

4. Connect the MDI and the spacer.

Connect the MDI mouthpiece to the back end of the spacer. Depending on the spacer and mouthpiece you have, they may click together neatly, or the mouth piece might simply slide in through a narrow rubber slit.

5. Breathe out as much as you can.

Ideally, you want to empty your lungs as much as possible.



6. Place the spacer's mouthpiece in your mouth.

It should sit just above your tongue. Keep your lips closed around it. Lift your chin up slightly. Hold the inhaler between your pointer finger and thumb.

7. Squeeze the inhaler once then breathe in the medication slowly and deeply.

Pull air into your lungs through your mouth until you reach your peak capacity. Some spacers have a whistle on them. Listen for the whistle. If you hear it, you are breathing in too rapidly. If you don't hear it, you are breathing in at an acceptable rate.

8. Remove the spacer mouthpiece from your mouth.

Hold your breath for about 10 seconds. Then, exhale slowly and deeply through your mouth.

9. Shake the MDI.


If you are prescribed a second “puff” of the MDI, you must shake the MDI again (like in Step 2) before repeating Steps 4-8.

Content adapted from: http://www.wikihow.com/Use-an-Asthma-Inhaler

APPENDIX D

# USING A DISKUS INHALER

Several breathing medications (including Advair and Salmeterol) come in a diskus delivery system. These instruction will ensure you are using the diskus correctly.

## STEPS FOR USING A DISKUS INHALER:

1. Expose the mouthpiece.

Hold the discus horizontal in one hand. With your other hand, put your thumb on the small curved section. Slide it away from you. The inner part of the diskus should turn and click into place. The mouthpiece is now exposed. Turn the mouthpiece towards you.

2. Push the lever to prepare the dose.

Hold the inhaler flat and level with the mouthpiece facing you. Use your finger to slide the lever until you feel it click into place. The dose is now ready.

3. Breathe out as much as you can.

Ideally, you want to empty your lungs completely.

4. Inhale deeply.

Bring the diskus to your mouth. Place your lips on the mouthpiece. Breathe in deeply. Take your entire breath through your mouth in order to inhale the complete dose. Don't breathe through your nose. Keep the inhaler flat and level as you breathe. This ensures the medicine is dispensed properly.

5. Hold it in.


Hold your breath for at least 10 seconds (or as long as you can) after inhaling. The medicine needs a short amount of time to be fully absorbed. After 10 seconds (or as long as you're able to hold your breath), breathe out slowly, smoothly and evenly. You can start breathing normally.

6. Rinse your mouth.

If your diskus contains a steroid medication, like Advair, rinse your mouth out with clean water. Do this each time you take a dose. Finish by gargling before your spit the water out. Do not swallow the water you use to rinse. You can also brush your teeth right after using the diskus to achieve the same results.

This is to prevent a fungal infection of the throat called Thrush. Steroid medications can cause an imbalance of the organisms in your mouth which allows this fungus to take hold.

Content adapted from: http://www.wikihow.com/Use-Advair

APPENDIX E

# MANAGING YOUR ASTHMA

If you suffer from asthma, an obstructive disease of that affects lungs, you're not alone. Over 26 million people in the U.S. are affected by asthma. With asthma, the airways in the lungs are narrowed, inflamed, or twitchy. The obstruction of the airways can make it difficult to breathe. Asthma symptoms can be well managed using the following guidelines:

## LIFESTYLE MODIFICATIONS

1. Be aware of your asthma symptoms.

Learn about your symptoms of asthma. One of the most common symptom of asthma is wheezing. It is a musical, high-pitched, whistling sound made when airflow is blocked in the lungs. Sometimes, the only symptom of asthma is coughing. The cough is usually non-productive, chronic, and mostly at night. You may also notice shortness of breath, difficulty breathing or chest tightness.

2. Know your Asthma Action Plan.


Follow the advice provided by your health care provider. Every person with asthma is different, and your Asthma Action Plan will give you specifics for your particular asthma symptoms and lifestyle. This can take the guess-work out if you experience an asthma attack and can be shared with others if you need assistance.

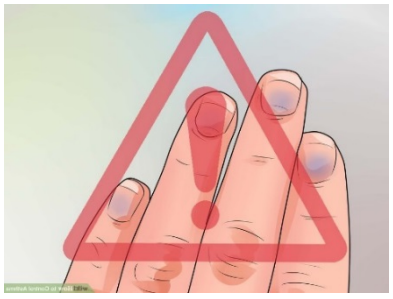
3. Use your peak flow meter.

Track your asthma using a peak flow meter. The peak flow meter measures how fast you can push air out of the lungs. Decreases in peak flow meter results can signal an upcoming asthma attack, so it's important to monitor your results.

4. Know when to see your provider.

If you notice an increase in episodes, severity, or symptoms at night you should talk with your provider. Also, if you're limiting your normal activities, missing a lot of work or school, or feel like you're not reaching your personal best on a regular basis you should see your doctor. A visit is also a good idea if your asthma medications don't seem to work anymore, or you're using quick-relief inhalers more than twice per week. You should also see your doctor at least once a year for new prescriptions for your medication.

5. Seek emergency treatment when necessary.



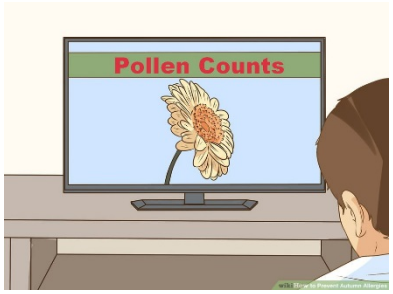
Asthma can become a serious, life-threatening condition very quickly, so you should seek immediate assistance if you have the following symptoms:

- Severe difficulty breathing
- Lips, fingers, or fingernails turning blue
- Feeling as though you are about to pass out
- Not being able to walk or talk in full sentences

6. Recognize the medications used to treat your asthma.

The goal of asthma treatment is to control your symptoms and maintain your lung function over time. Albuterol is a "quick-relief" medicine to help open your airways. It is also used during a severe asthma attack. Advair is a long-term "control" medicines used to reduce inflammation of your lungs and to decrease the frequency and severity of asthma attacks. However, Advair is not useful during an acute asthma attack.

7. Avoid allergic triggers.




Identify allergens that trigger your asthma. Allergens are substances that cause allergic reactions. Common outdoor allergens include pollens from grass, trees, and weeds. Common indoor allergens include dust mites, cockroaches, mold, and pets. While it may not always be possible to avoid allergens, you can talk to your doctor about allergy treatments or medications. You can also try to decrease the effects of allergens on asthma by:

- Avoiding yard work
- Tracking the pollen report
- Covering mattresses and pillows with hypoallergenic covers
- Using HEPA air filters
- Replacing carpet with wood or tile floors
- Removing garbage from the home daily
- Using bait stations or traps to control roaches (or calling an exterminator)
- Cleaning damp areas weekly to prevent mold growth
- Avoiding the use of vaporizers and humidifiers
- Avoiding pets with fur or feathers

8. Other triggers to avoid.

Watch for medicine or illness triggers. Colds, flu, and sinus infections are some upper respiratory illnesses that can irritate your airways and cause asthma attacks. To fight these illnesses, frequently wash your hands and get a flu shot every year. Note: some aspirin and anti-inflammatory medicines like ibuprofen and naproxen are responsible for some asthma flare-ups. Check labels on over-the-counter and prescription medications to avoid these substances.

9. Avoid smoke.

If you smoke, stop smoking. Smoking irritates the mucous linings of the airways which stimulates them to produce more mucus than normal. It also greatly increases your risk of other lung problems and cancer. If you have asthma, you should quit smoking to give your sensitive lungs a chance to recover. Avoid being around smoke in general. Second hand smoke can also wreak havoc on the linings of your airways so try to avoid being around cigarette smoke as much as possible.

10. Exercise

Strengthen your lungs through moderate exercise. While strenuous exercise when your lungs are weak could lead to an asthma attack, moderate exercise can actually strengthen your lungs. Start with light or moderate exercises, like walking, and work your way into a more challenging workout regimen. Exercise most days of the week for at least 30 minutes. Talk with your provider to tailor an exercise routine that fits the limitations of your asthma.

Content adapted from: http://www.wikihow.com/Control-Asthma

# APPENDIX F

## Asthma Action Plan

For: _____ Doctor: _____ Date: _____

Doctor's Phone Number _____ Hospital/Emergency Department Phone Number _____

**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 _____ (80 percent or more of my best peak flow)

My best peak flow is: _____

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

| Medicine | How much to take | When to take it |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

| | | | |
|---|---|---|---|
| Before exercise | ❒ _____ | ❒ 2 or ❒ 4 puffs | 5 minutes before exercise |

**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:** _____ to _____ (50 to 79 percent of my best peak flow)

**First** **Add: quick-relief medicine—and keep taking your GREEN ZONE medicine.**

_____ (short-acting beta$_2$-agonist) ❒ 2 or ❒ 4 puffs, every 20 minutes for up to 1 hour ❒ Nebulizer, once

**Second** **If your symptoms (and peak flow, if used) return to GREEN ZONE after 1 hour of above treatment:**

❒ Continue 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: _____ (short-acting beta$_2$-agonist) ❒ 2 or ❒ 4 puffs or ❒ Nebulizer

❒ Add: _____ (oral steroid) mg per day For _____(3–10) days

❒ Call the doctor ❒ before/ ❒ within _____ hours after taking the oral steroid.

**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 _____ (50 percent of my best peak flow)

**Take this medicine:**

❒ _____ (short-acting beta$_2$-agonist) ❒ 4 or ❒ 6 puffs or ❒ Nebulizer

❒ _____ (oral steroid) mg

**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.

**DANGER SIGNS**

- **Trouble walking and talking due to shortness of breath**
- **Lips or fingernails are blue**

- **Take ❒ 4 or ❒ 6 puffs of your quick-relief medicine AND**
- **Go to the hospital or call for an ambulance _____ (phone) NOW!**

## 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

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# CREDITS

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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 and http://www.wikihow.com/Control-Asthma and http://www.wikihow.com/Use-Advair and http://www.wikihow.com/Use-an-Asthma-Inhaler

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