PEDIATRIC ASTHMA

Estimated Time: 15 minutes • Debriefing Time: 15 minutes



Scan to Begin



Patient Name: Patrick Armstrong

SCENARIO OVERVIEW

Patrick Armstrong is a 16-year-old patient who presents to the clinic experiencing a severe exacerbation of his asthma. The provider has just stepped out for lunch and is not answering the phone. Students should utilize the Asthma Protocol, recognize that respiratory arrest is imminent, and call 911. State 1 requires collection of patient data. In state 2, students may attempt to perform a peak flow reading but realize he is too short of breath to do so. In state 3, students administer a nebulizer treatment per protocol while waiting for the ambulance to arrive. When paramedics arrive, students provide an SBAR report to the paramedics.

LEARNING OBJECTIVES

- 1) Demonstrate professionalism in a healthcare setting
- 2) Practice standard precautions
- 3) Obtain vital signs
- 4) Obtain patient history
- 5) Employ elements of the rapeutic communication based upon theories of psychology
- 6) Assist physician with patient care: specialty examinations in pediatrics
- 7) Perform pulmonary function testing
- 8) Coach patients related to health maintenance, disease prevention and treatment
- 9) Apply pharmacological principles to the preparation and administration of nonparenteral medications
- 10) Demonstrate safety and emergency practices in health care

CURRICULUM MAPPING

WTCS PROGRAM OUTCOMES

- Provide patient care in accordance with regulations, policies, laws, and patient rights
- Demonstrate professionalism in a healthcare setting
- Demonstrate safety and emergency practices in a healthcare setting

SIMULATION LEARNING ENVIRONMENT & SET UP

PATIENT PROFILE

Height: 177.5 cm (5 ft 11 in)

Name: Patrick Armstrong Admitting Diagnosis: shortness of breath

DOB: 11/16/20xx (R06.02)

Age: 16 Medical History: asthma, unspecified

MR#: 1116 (493.90)

Surgical History: none

Gender: Male Code Status: Full code

Ethnicity: African American

Weight: 109 kg (240 lbs)

Spiritual Practice: unknown

Allergies: NKDA
Primary Language spoken: English

EQUIPMENT/SUPPLIES/SETTINGS

Patient

- Street clothes, ball cap, phone, jewelry can be present
- Has his albuterol inhaler with him

Monitor Settings

• Vitals: HR 114, RR 38, BP 149/88, Temp 36.8, O2 sat 85% on RA, Pain 0/10

Supplies

- Equipment to obtain vitals including oxygen saturation
- Peak flow meter
- Nebulizer equipment
- Duoneb medication

QR CODES

| REPORT | PATIENT | DUONEB | FACILITATOR |
|-------------|---------|--------|-------------|
| PEAK FLOW D | | | |

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.
 - 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.
- 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 when you are rooming a pediatric patient experiencing an acute asthma attack?
 - How should peak flow readings be obtained?
 - What is the proper technique for administering a nebulizer treatment?
- Play the "Patient" video on iPad
 - Possible Facilitator Question
 - What are your priorities of data collection for Patrick?

- Review initial tabbed content
 - o Possible facilitator questions
 - What is the asthma action plan and how is it used to help patients to self-manage their asthma?
 - Review the protocol for referring a patient experiencing an acute asthma attack. Based on the initial video interaction with the patient, where do you anticipate the patient may fall in the mildmoderate-severe categories?

ASTHMA 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

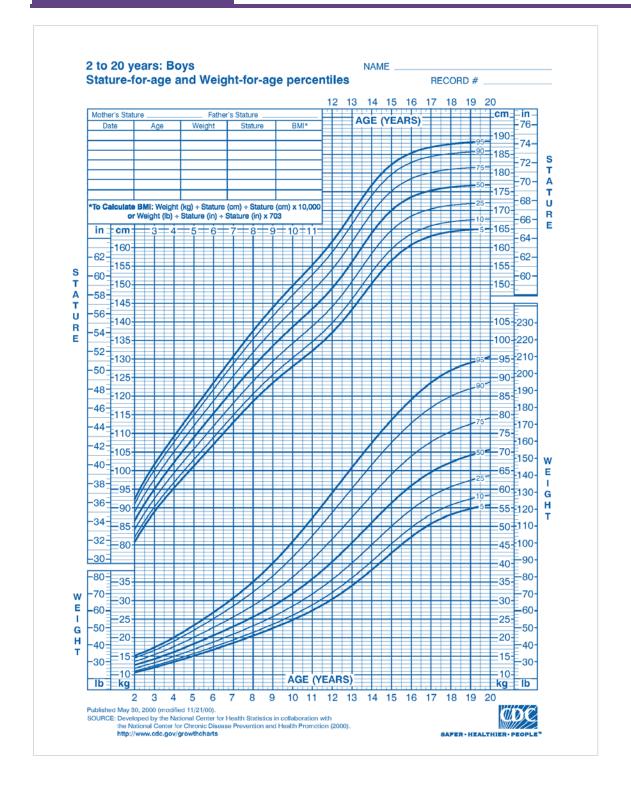
| SIGNS/SYMPTOMS | Mild | Moderate | Severe | Respiratory Arrest Imminent |
|---|--|---|---|---|
| Breathlessness | While walking; can lie down | While at rest; prefers sittig (infant: shorter cry, difficulty feeding) | While at rest; Sits upright (Infant: stops feeding) | |
| Talks in | Sentences | 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 musccles: 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_2 | ≥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)

VITALS

- The iPad shows the "enterable" vitals screen.
- Checked against following values: HR 134, RR 38, BP 149/88, Temp 36.8, O2 sat 85% on RA, Pain 0/10

GROWTH CHART



PROBLEM LIST

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

Problem List

| Currently Known Medical Problem(s) | |
|------------------------------------|--|
| 4 | |

CURRENT MEDICATION LIST

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

Current Medication List

| Medication | Description |
|--------------------------|--|
| <u>Albuterol Inhaler</u> | 2 puffs q4 hours PRN for shortness of breath |

ASTHMA ACTION PLAN

See Appendix A

PATIENT EDUCATION

See Appendix B for Patient Education handouts

EMERGENCY CONTACT INFORMATION

| Patient Name | DOB | MR# |
|----------------------|------------|------|
| Patrick A. Armstrong | 11/16/20XX | 1116 |

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| Allergies | Height (cm) | Admission Weight (kg) |
|-----------|-------------|-----------------------|
| NKDA | 177.5 | 109 |

Emergency Contact Information

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

LEVEL 1

When the Level 1 tab is tapped, 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

MEASURE AND RECORD PATIENT INFORMATION

Patient Overview

• Patient is experiencing an acute asthma attack. He is in the "red zone" and is becoming agitated, drowsy, and confused.

Expected Student Behaviors

- o Introduce themselves to the patient
- o Verify patient identity with name and date of birth
- Immediately obtain vital signs
- Obtain a brief patient history to establish respiratory status
- Establish current respiratory status by referring to asthma protocol
- May attempt to notify the provider, but the provider has stepped out for lunch and is not answering the phone.
- Recognize severity of attack; may elect to call 911 immediately or perform peak flow
- If students elect to perform a peak flow they should scan QR Code: Peak
 Flow D and recognize patient is too short of breath to perform the
 procedure.

Technician Prompts

- Patient speaking in two word sentences, breathing faster than once every two seconds, lots of accessory muscle use. Agitated, but becoming drowsy and confused. The provider has stepped out for lunch and is not answering the phone.
- Initial patient responses can include:
 - "Can't... catch... my breath..." (Pause for a few seconds while breaths heavily)
 - "So tired... from breathing... (breathes heaving and quickly)
 - "Where's my mom?" (drowsily, whiny)

- "Where's my dog? ... I brought... my dog... where is he?!" (or similar statements showing he is confused and becoming unaware where he is.)
- Facilitator Questions
 - Using the vital signs you obtained and the Asthma protocol, what is Patrick's current asthma status in terms of mild, moderate or severe?
 - What should you do when you cannot contact the provider and you are concerned about a patient's status?
- Tabbed iPad Prompts & Content Changes
 - The scenario automatically advances to Level 2 after the student(s) scans QR Code: Facilitator indicating they have successfully completed the Expected Student Behaviors.
 - o The iPad will read, "You have been approved to proceed."

LEVEL 1/2

- When the Level 1 tab is tapped, the iPad reads, "The iPad is at Level 1."
- After the student(s) scans QR Code: Facilitator, 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

ATTEMPT PEAK FLOW READING AND NEBULIZER

Patient Overview

 Students quickly instruct the patient on how to perform a Peak Flow reading. Students observe a video of the patient attempting the procedure but is so short of breath he can't breathe out. The reading is negligible. At this point the student should call 911 if has not done so already.

Expected Student Behaviors

- Accurately but rapidly instruct the patient on how to use a peak flow meter. (A handout on how to use a Peak Flow Meter is included under the Patient Education tab.)
- Students should scan QR Code: Peak Flow D and recognize that the
 patient is too short of breath to perform the peak flow reading.
- Determine the patient is in the red zone according to the Asthma Action Plan.
- o Apply oxygen if it is available.
- Call 911 and provide accurate information to the dispatcher.
- Administer a Duoneb while waiting for the ambulance. Scan QR Code:
 Duoneb to view the label and indicate the Duoneb was administered.
 (Note: this will set a 3-minute timer for ambulance arrival. See details below.)
- Attempt to call Patrick's parents. When they get voicemail, utilize patient confidentiality when leaving a professional message.

Technician Prompts

- Overview: Patient is extremely short of breath but tiring quickly from the work of breathing. He cannot forcibly breathe out or use peak flow meter correctly.
- Initial patient responses can include:
 - "I can't... breathe." (tired, drowsy)
 - "What?"

- "Who are you?"
- "Where... am I?"
- Students will be scanning a QR code to view a video of the patient unable to use the Peak Flow meter.
- When students call 911 and you play the role of the dispatcher ask the following questions if the students don't provide the information:
 - "What is the patient's name?"
 - "What is the patient's date of birth?"
 - "Have you contacted the parents?"
- When students attempt to call Patrick's parents, play a voicemail message.
- When EMS arrives, role play the part of the paramedic. Ask the following questions if the student does not provide these details in their handoff report:
 - "What is the patient's name?"
 - "What is the patient's date of birth?"
 - "Have you contacted the parents?"
 - "What is the emergency contact information?"
 - "Did you obtain a peak flow reading?"
 - "Did you administer a nebulizer treatment?"
 - "What is the provider's name?"
 - "What is the patient's medical history?"
 - "Is he on any medications?"
 - "Does he use drugs or alcohol?"
- Possible Facilitator Questions
 - What are your concerns?
 - Does Patrick fall in the green, yellow, or red zone right now?
 - o How will you respond?
 - o How will you administer the nebulizer?

- Describe how to utilize patient confidentiality while leaving a voicemail for the emergency contact person.
- What information should be included in the handoff report to the paramedics?
- Tabbed iPad Prompts & Content Changes
 - After the student(s) scans QR Code: Duoneb, a three-minute timer begins. After three minutes elapse, a message will display on the iPad that "EMS has arrived. Prepare to provide a handoff report to the paramedics."
 - After the students provide a handout report to someone roleplaying the part of an EMT, they may exit the scenario.

DEBRIEF

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: Demonstrate professionalism in a healthcare setting
 - a. If you could "do over" while communicating professionally with Patrick, the dispatcher, the emergency contact person, or the paramedics, is there anything you would do differently?
- 3. Review understanding of learning objectives: Assist physician with patient care: specialty examinations in pediatrics
 - a. When assisting with patient care of a pediatric patient experiencing an asthma attack, what data should be collected?
- 4. Review understanding of learning objectives: Perform pulmonary function testing
 - a. How did you coach Patrick to use the peak flow meter?
 - b. Was his attempt at using the peak flow meter successful? Why or why not?
 - c. How are the peak flow readings used in the Asthma Action Plan?
 - d. Using the Asthma Action Plan, what zone was Patrick's status?
- 5. Review understanding of learning objectives: Apply pharmacological principles to the preparation and administration of non-parenteral medications
 - a. How does a Duoneb help a patient experiencing an asthma attack?
 - b. Was oxygen required at this time? Why or why not?
- 6. Review understanding of learning objectives: Demonstrate safety and emergency practices in healthcare.
 - a. Describe what emergency measures you initiated to keep Patrick safe.
 - b. If you could "do over," is there anything different you would have done for Patrick?
- 12) Summarize/Take Away Points:

"In this scenario you assisted in caring for a pediatric patient experiencing a severe asthma attack. 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.

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.



- 2) Copy and paste the following survey link into your browser:
 - a) https://ircvtc.co1.qualtrics.com/SE/?SID=SV 6Mwfv98ShBfRnBX

APPENDIX A: ASTHMA ACTION PLAN

| tor's Phone Number 855-555- | Doctor: Anik Hospital/Emergence | XCS y Department Phone Number 855 - S | SS-0156 |
|--|--|---|--|
| Doing Well No cough, wheeze, chest tightness, or shortness of breath during the day or night Can do usual activities | | medicines each day (include an anti-ir How much to take | nflammatory). When to take it |
| 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 | | | |
| Before exercise | * Albutero C | 7⁄2 or □ 4 <u>puffs</u> | 5 minutes before exercise |
| Asthma Is Getting Worse Cough, wheeze, chest tightness, or shortness of breath, or Waking at right 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 peek flow) | Albuter (stort-acting b Second If your symptoms (and Cortinue monitoring Or- If your symptoms (and Take: Add: | otag-agonist) ip eak flow, if used) return to GREEN 2 to be sure you stay in the green zone. peak flow, if used) do not return to GF (snort-acting betag-agonist) (peak steroid) | s. every 20 minutes for up to 1 hour CONE after 1 hour of above treatment: IEEN ZONE after 1 hour of above treatment 2 or 114 puffs or 11 Nebulizer mg per day For(3-10) days |
| | Call the doctor X bef | ore/ a within hours after taking | the oral steroid. |
| Medical Alert! ■ Very short of breath, or ■ Culck-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 | □(ora | ng beta ₂ -agonist)mg il steroid)mg Go to the hospital or call an ambulance if: er 15 minutes AND | 0.6 <u>puffs</u> or ⊓ Nebulizer |
| This guide suggests things you can do to avoid | your asthma triggers. Put a check nex | | (phone) |
| This guide suggests things you can do to avoid and ask your doctor to help you find out if you hallergens Allergens Animal Dander | your asthma triggers. Put a check nex lave other triggers as well. Then decid | e with your doctor what steps you will take. Indoor Mold Fix leaky faucets, pipes, or | |
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| and ask your doctor to help you find out if you h Allergens Animal Dander Some people are allergic to the flakes of skin or with fur or feathers. | your asthma triggers. Put a check new awe other triggers as well. Then decid dried saliva from animals | e with your doctor what steps you will take. Indoor Mold Fix leaky faucets, pipes, or around them. Clean moldy surfaces with Pollen and Outdoor Mold What to do during your ellery | other sources of water that have mold |
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| This guide suggests things you can do to avoid and ask your doctor to help you find out if you hallergens Animal Dander Some people are alergic to the flakes of skin or with fur or feathers. The best thing to do: * Keep fured or feathered pets out of your hif you can't keep the pet outdoors, then: * Keep fured or feathered pets out of your hif you can't keep the pet outdoors, then: * Keep the pet out of your bedroom and other and keep the door closed. * Remove carpets and furniture covered with if that is not possible, keep the pet away frow and carpets. * Dust Mites Many people with asthma are alergic to dust mithat are found in every home—in mattresses, pifurniture, bedcovers, clothes, stuffed toys, and titems. Things that can help: * Encase your mattress in a special dust-production. | your asthma triggers. Put a check new ave other triggers as well. Then decide chief saliva from animals one. er sleeping areas at all times, cloth from your home. make the covered furniture littles. Dust mittes are tiny bugs litows, carpets, upholstered labric or other fabric-covered of cover. | a with your doctor what steps you will take. Indoor Mold Fix leaky faucets, pipes, or around hem. Clean moldy surfaces with Pollen and Outdoor Mold What to do during your allerg are high): Try to keep your windows Stay Indoors with window if you can. Pollen and son Ask your doctor whether y medicine before your allerg Irritants Tobacco Smoke | thma worse other sources of water that have mold a cleaner that has bleach in it. y season (when pollen or mold spore counts closed. s closed from late morning to afternoon, e mold spore counts are highest at that time, ou need to take or increase anti-inflammatory y season starts. |
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| This guide suggests things you can do to avoid and ask your doctor to help you find out if you hallergens Animal Dander Some people are alergic to the flakes of skin or with fur or feathers. The best thing to do: * Keep furred or feathered pets out of your hif you can't keep the pet outdoors, then: * Keep the pet out of your bedroom and other and keep the door closed. * Remove carpets and furniture covered with lif that is not possible, keep the pet away fire and carpets. * Dust Mites Many people with astimna are allergic to dust mattain are found in every home—in mattresses, pifurniture, bedcovers, clothes, stuffed toys, and fitems. Things that can help: * Encase your mattress in a special dust-prode teach of the control of the control of the cold or warm water used with detergent are water in the sheets and blankets on your bed Reduce indoor humidity to below 60 percer percent). Defundifiers or central air contidition. * Remove carpets from your bedroom and it is Keep stuffed toys out of the bed or wesh it ocoler water with detergent and bleach. | your asthma triggers. Put a check new other triggers as well. Then decide check new other new othe | a with your doctor what steps you will take. Indoor Mold Fix leafy faucets, pipes, or around them. Clean moldy surfaces with Pollen and Outdoor Mold What to do during your ellorg are high: Try to keep your windows Stay Indoors with window if you can. Pollen and son Ask your doctor whether y medicine before your allerg Irritants Tobacco Smoke Iryou smoke, ask your do members to gulf smoking, Do not allow smoking in yy Smoke, Strong Odors, and S If possible, do not use a w Try to stay away from strop powder, hair spray, and pe Other things that bring on ast Vacuum Cleaning Try to get someone else to if you can. Stay out of on a short while afterward. If you can. Stay out of on a short while afterward. | thma worse other sources of water that have mold a cleaner that has bleach in it, y season (when pollen or mold spore counts closed, closed from late morning to afternoon, e mold spore counts are highest at that time, ou need to take or increase anti-inflammatory y season starts. ctor for ways to help you quit. Ask family too, our home or car. sprays odd-burning stove, kerosene heater, or fireplac, g odors and sprays, such as perfurne, takcum ints. huma symptoms in some people include: vacuum for you once or twice a week, ms while they are being vacuumed and for mask (from a hardware store), a double-layere |
| This guide suggests things you can do to avoid and ask your doctor to help you find out if you in Allergens Animal Dander Some people are allergic to the flakes of skin or with fur or feathers. The best thing to do: * Keep furred or feathered pets out of your in fyou can tkeep the pet outdoors, then: * Keep the pet out of your bedroom and other and keep the door closed. Remove carpets and furniture covered with if that is not possible, keep the pet away fire and carpets. * Dust Mites Many people with asthma are allergic to dust mat are found in every home—in mattresses, pifurniture, bedcovers, clothes, stuffed toys, and fitems. Things that can help: * Encase your mattress in a special dust-proof of week in hot water. Water must be hotter the Oold or warm water used with detergent ar * Wash the sheets and blankets on your bed Reduce indoor huraridity to below 60 percer percent). Dehmurchiffers or central air condition. Tiny not to sleep or lie on doth-covered cust * Remove carpets from your bedroom and the Keep stuffed toye wash the Keep stuffed toys out of the bed or wash the Keep stuffed toys out of the bed or wash the Keep stuffed toys out of the bed or wash the Keep stuffed toys out of the bed or wash the Keep stuffed toys out of the bed or wash the Keep stuffed toys out of the bed or wash the selection and the Keep stuffed toys out of the bed or wash the selection and the sele | your asthma triggers. Put a check new awe other triggers as well. Then decide a check new are other triggers as well. Then decide check new are seen as a second of comments of the control of the control of cover. The cover of the covered furniture of the cover of | a with your doctor what steps you will take. Indoor Mold Fix leafy faucets, pipes, or around them. Clean moldy surfaces with Pollen and Outdoor Mold What to do during your allerg are high): Thy to keep your windows Stay indoors with windows if you can. Pollen and son Ask your doctor whether y medicine before your allerg threat to go the stay out do members to quit smoking. Do not allow smoking in yi Smoke, Strong Odors, and S If you smoke, ask your do members to quit smoking, Do not allow smoking in yi Smoke, Strong Odors, and S If you smoke, ask your do members to quit smoking, Do not allow smoking in yi Smoke, Strong Odors, and S If you save yrom stropowder, hars praya, and pot you can. Stay out of no a short while afterward. If you vacuum, use a dust or microfilter vacuum clear Other Things That Can Make Suffiss in foods and bever fruit, processed potatoes, Cold ein: Cover your nose Other medicines: fell your include ood medicines, sell your include ood medicines, sell your include ood medicines. | ithma worse other sources of water that have mold a cleaner that has bleach in it. y season (when pollen or mold spore counts closed. s closed from late morning to atternoon, the mold spore counts are highest at that time, ou need to take or increase anti-inflammatory and the season starts. ctor for ways to help you quit. Ask family too, our home or car. sprays ood-burning stove, kerosene heater, or fireplacing godors and sprays, such as perfurne, takoum into a symptoms in some people include: I vacuum for you once or twice a week, ms while they are being vacuumed and for mask (from a hardware store), a double-layereer beg, or a vacuum cleaner with a HEPA filter. |

APPENDIX B: PATIENT EDUCATION HANDOUTS

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

USING AN MDI WITH A SPACER

If you have been <u>diagnosed with a lung disease such as asthma or COPD</u>, the use of an MDI (metered dose inhaler), like Albuterol or Flovent, may be indicated. These instructions 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

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: NEW ASTHMA ACTION PLAN

| | Doctor: Anibo Hospital/Emergency D | Department Phone Number 855~55- | Date: XX X X 20 X X |
|--|--|--|--|
| Doing Well | | edicines each day (include an anti-inflammate | ory). |
| No cough, wheeze, chest tightness, or | Medicine | How much to take | When to take it |
| shortness of breath during the day or night Can do usual activities | Advair 250150 | I inhalation twice dollar | morning and ev |
| And, if a peak flow meter is used, | THE OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRES | | |
| Peak flow: more than 384 | Martin distribution and the promision for communicative department and more relative promising promising year of promising and analysis of promising analysis of promising and analysis of promising a | | |
| (80 percent or more of my best peak flow) | A PARTIE AND THE PROPERTY OF THE PROPERTY OF THE PARTIES AND T | | V |
| 480 | | | |
| My best peak flow is: 480 | | V0 | For the trade of the second |
| Before exercise | x Albuterol | X2 or □ 4 puffs | 5 minutes before exercise |
| Asthma Is Getting Worse | First Add: quick-relief medicir | ne—and keep taking your GREEN ZONE medi | cine. |
| Couch, wheeze, chest tightness, or | Albutero 1 | 2 or 4 puffs, every 20 | minutes for up to 1 hour |
| shortness of breath, or Waking at night due to asthma, or | (short-acting beta | | |
| Can do some, but not all, usual activities | Continue monitoring to | eak flow, if used) return to GREEN ZONE afte be sure you stay in the green zone. | r 1 nour of above treatment |
| -Or- | -Or- If your symptoms (and po | eak flow, if used) do not return to GREEN ZON | E after 1 hour of above treat |
| (50 to 79 percent of my best peak flow) | XTake: Albuserol | ≱ 2 or □ | 4 puffs or Nebulizer |
| (22 27 10 por contracting book poor now) | □ Add: | | y For(3-10) days |
| | Call the doctor defore | (oral steroid) a/ within hours after taking the oral st | eroid. |
| | , | - | |
| Medical Alert! | Take this medicine: | | |
| Very short of breath, or Quick-relief medicines have not helped, or | X Albuterol (short-acting | beta ₂ -agonist) X 4 or \circ 6 puffs of | r 🖪 Nebulizer |
| Cannot do usual activities, or Symptoms are same or get worse after | (oral st | ma | |
| 24 hours in Yellow Zone | | to the hospital or call an ambulance if: | |
| -Or- | You are still in the red zone after | 15 minutes AND | |
| Peak flow: less than 340 (50 percent of my best peak flow) | You have not reached your doctor | x. | |
| Lips or fingernalis are blue To Control Things That Make You | our Asithma Worse | ■ Go to the hospital or call for an ambulance | (phone) NOW |
| To Control Things That Make You This guide suggests things you can do to avoid and ask your dottor to help you find out if you halforgens | your asthma triggers. Put a check riext to | o the triggers that you know make your aethma worse ith your doctor what steps you will take. ☐ Indoor Mold | (phone) |
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