Asthma Scenarios

Jacqueline Rodriguez-Louis, M.Ed., M.P.H.

Mass General Brigham Asthma Center

Harvard Medical School

Asthma Educators' Institute

Mass General Brigham Asthma Center

Disclosure of Conflicts of Interest

- I have no financial conflicts of interest to disclose.

Mass General Brigham
Asthma Center

Scenario #1

A 22-year-old man has moved out from his parents' home and is living alone in a newly-renovated one-bedroom apartment. His asthma seems well-controlled since his move 6 months ago – he rarely needs his quick-relief bronchodilator inhaler (albuterol) and wonders if maybe his asthma has gone away.

Mass General Brigham
Asthma Center

Scenario #1 (cont.)

He would very much like to get a dog; he misses his parents' dog. He knows that he was allergic to their dog, but it was a long-haired sheepdog.

He asks your advice: he is thinking of getting a bichon frise, which he has heard has hair and not fur and is non-allergenic.

Mass General Brigham
Asthma Center

Scenario #1: Question

You advise him that:

A. No dog is truly non-allergenic.

B. It would likely be safe to get a bichon frise if he agrees to bathe it every week.

C. It would likely be safe to get a bichon frise if he will keep it out of the bedroom.

D. He can safely get a new dog if he is willing to take a steroid inhaler daily.

Mass General Brigham
Asthma Center

Scenario #1: Correct Answer

You advise him that:

A. No dog is truly non-allergenic.

B. It would likely be safe to get a bichon frise if he agrees to bathe it every week.

C. It would likely be safe to get a bichon frise if he will keep it out of the bedroom.

D. He can safely get a new dog if he is willing to take a steroid inhaler daily.

Mass General Brigham Asthma Center

Scenario #1: Discussion

- No dog is non-allergenic. Humans make allergic reactions to animal dander (brushings), which includes skin cells and saliva.
- Bathing the dog and keeping it out of the bedroom will reduce but not eliminate allergen exposure.
- No guarantee that daily inhaled corticosteroids would control asthma made worse by dog allergen exposure in a dog-allergic patient.

Mass General Brigham
Asthma Center

Scenario #2

A 7-year-old boy with asthma asks you why he gets so short of breath after exercising outside, especially in the cold air.

Mass General Brigham
Asthma Center

Scenario #2: Question

You explain to him that because of his asthma:

A. Exercise puts a strain on his heart.

B. He has smaller than normal lungs.

C. Exercise causes his bronchial tubes to narrow, making it difficult to get air in and out of his lungs.

D. Because he does not exercise regularly, he is probably just out of shape.

Mass General Brigham
Asthma Center

Scenario #2: Correct Answer

You explain to him that because of his asthma:

A. Exercise puts a strain on his heart.

B. He has smaller than normal lungs.

C. Exercise causes his bronchial tubes to narrow, making it difficult to get air in and out of his lungs.

D. Because he does not exercise regularly, he is probably just out of shape.

Mass General Brigham
Asthma Center

Scenario #2: Discussion

- Exercise can provoke bronchial tube narrowing in persons with asthma, especially when the air that is breathed is cold.
- There is no reason to think that this 7-year-old boy has heart disease or is out of shape.
- In general, asthma does not cause small lungs. When well, a person with asthma can be expected to have normal lung function.

Mass General Brigham
Asthma Center

Scenario #3

A 32-year-old veterinarian has been prescribed a peak flow meter but not instructed in its use. She has found that her best peak flow value when feeling well is 400 liters/min. She asks you where along the scale of numbers she should place the two indicators (green-yellow and yellow-red) along the side of the device.

Mass General Brigham
Asthma Center

Scenario #3: Question

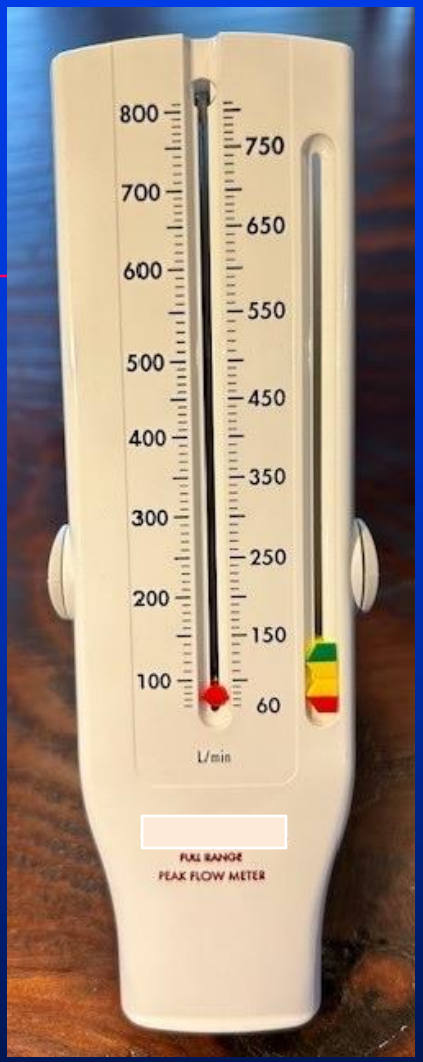
You start with the yellow-red indicator (separating the yellow zone from the red zone), which you place along the side at which of the following settings?

A. 400 liters/min

B. 300 liters/min

C. 200 liters/min

D. 100 liters/min



Mass General Brigham
Asthma Center

Scenario #3: Correct Answer

You start with the yellow-red indicator (separating the yellow zone from the red zone), which you place along the side at which of the following settings?

A. 400 liters/min

B. 300 liters/min

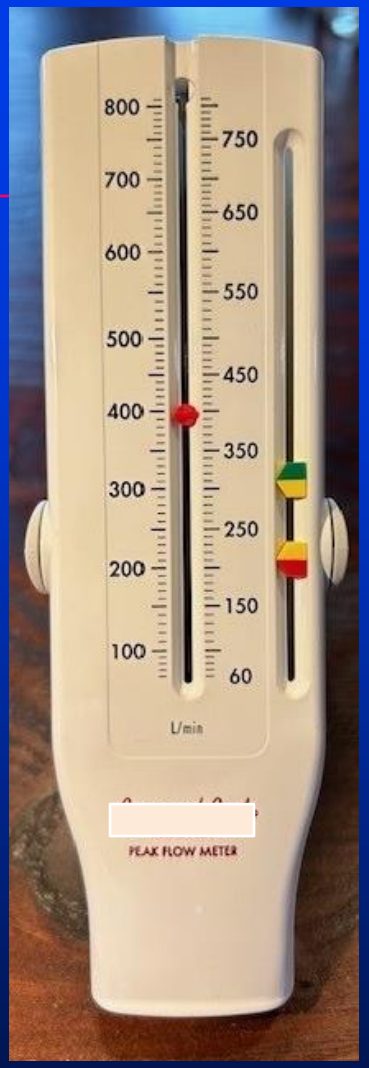
C. 200 liters/min

D. 100 liters/min

Mass General Brigham
Asthma Center

Scenario #3: Discussion

- Recall that the indicators are based on the "traffic light" model of asthma zones, with
  - Green = "good to go" or 80-100% of her best value;
  - Yellow = "caution," a mild-to-moderate asthma attack or 50-80% of her best value; and
  - Red = "stop, take action," a severe asthma attack or less than 50% of her best value.
- Set the yellow-red indicator at 50% of her best value or 200 liters/min.



Mass General Brigham
Asthma Center

Scenario #4

A 41-year-old construction worker with long-standing asthma tells you that his asthma is made worse by exposure to cigarette smoke; hot, humid weather; strong chemical odors; and horses.

Mass General Brigham
Asthma Center

Scenario #4: Question

Which of his asthma triggers would you consider an allergic trigger?

A. Cigarette smoke
B. Hot, humid weather
C. Strong chemical odors
D. Horses

Mass General Brigham
Asthma Center

Scenario #4: Correct Answer

Which of his asthma triggers would you consider an allergic trigger?

A. Cigarette smoke
B. Hot, humid weather
C. Strong chemical odors
D. Horses

Mass General Brigham
Asthma Center

Scenario #4: Discussion

- Some people make allergic reactions (make IgE antibodies) to proteins in horse dander, similar to cat or dog allergy.
- Cigarette smoke; hot, humid weather; and strong chemical odors may cause worsening of asthma, but they do not contain proteins, and one cannot make IgE-type allergy antibodies to them.

Mass General Brigham
Asthma Center

Scenario #5

A 28-year-old woman has two children (aged 7 and 9 years) with asthma. Between them, they are taking 4 different HFA metered-dose inhalers: each child has a steroid-containing inhaler and a quick-acting bronchodilator inhaler. She asks you how she can tell when one of the inhalers is empty?

Mass General Brigham
Asthma Center

Scenario #5: Question

Which of the following do you advise her?

A. Wait until no spray comes out from the mouthpiece.

B. Check the numeric indicator on the top or the back of the inhaler.

C. An empty canister will float horizontally in a tub of water.

D. Each inhaler is meant to last exactly 30 days.

Mass General Brigham
Asthma Center

Scenario #5: Correct Answer

Which of the following do you advise her?

A. Wait until no spray comes out from the mouthpiece.

B. Check the numeric indicator on the top or the back of the inhaler.

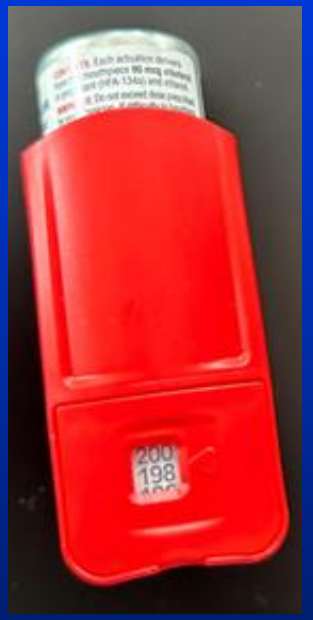
C. An empty canister will float horizontally in a tub of water.

D. Each inhaler is meant to last exactly 30 days.

Mass General Brigham Asthma Center

Scenario #5: Discussion

- All inhalers now have a numeric indicator to show exactly how many doses are left in the device and when it is empty.
- Spray may come out of a metered-dose inhaler even after it contains no medication.



Mass General Brigham
Asthma Center

Scenario #5: Discussion (cont.)

- Floating the metal canister of a metered-dose inhaler in water to see at what angle it bobs was an old and not very accurate technique to estimate when the inhaler was empty.
- Depending on the frequency of use, some inhalers will last more and some less than 30 days.

Mass General Brigham
Asthma Center

Scenario #6

A 45-year-old man has noticed that he gets short of breath when he plays basketball with his children or whenever he gets a respiratory infection (“chest cold”). His shortness of breath is not severe, but it doesn’t feel normal to him. His son and daughter have asthma, and he wonders if he might have recently developed it as well.

Mass General Brigham
Asthma Center

Scenario #6: Question

Which of the following do you tell him would be the best test to evaluate for asthma?

A. A breathing test (pulmonary function test) when he is short of breath.

B. Blood tests for immunoglobulin E and eosinophils.

C. A chest X-ray.

D. Allergy skin tests.

Mass General Brigham
Asthma Center

Scenario #6: Correct Answer

Which of the following do you tell him would be the best test to evaluate for asthma?

A. A breathing test (pulmonary function test) when he is short of breath.

B. A blood test for immunoglobulin E and eosinophils.

C. A chest X-ray.

D. Allergy skin tests.

Mass General Brigham
Asthma Center

Scenario #6: Discussion

- A breathing test that shows evidence for slowing of the speed of exhalation (due to narrowing of the breathing tubes) that then gets immediately better after administration of a bronchodilator would indicate asthma.
- A chest X-ray is typically normal in asthma and does not help in making a diagnosis.

Mass General Brigham
Asthma Center

Scenario #6: Discussion (cont.)

- Blood tests for immunoglobulin E (IgE) and eosinophils, like allergy skin tests, might point to the presence of allergy, but they cannot tell if there is allergic inflammation in the bronchial tubes (as in asthma). It is possible to have allergies but not asthma.

Mass General Brigham
Asthma Center

Scenario #7

A 78-year-old woman struggles with using her HFA metered-dose inhaler, never sure if she is getting a full dose. She has trouble matching the timing of her breath in to the release of the medication spray, feeling that half the time she breathes in too soon and half the time too late.

Mass General Brigham
Asthma Center

Scenario #7: Question

You suggest to her that she might benefit from doing which of the following?

A. Practice using the inhaler in the mirror.

B. Rest longer between each inhalation.

C. Use a spacer with her metered-dose inhaler.

D. Rinse her mouth after each use of her metered-dose inhaler.

Mass General Brigham
Asthma Center

Scenario #7: Correct Answer

You suggest to her that she might benefit from doing which of the following:

A. Practice using the inhaler in the mirror.

B. Rest longer between each inhalation.

C. Use a spacer with her metered-dose inhaler.

D. Rinse her mouth after each use of her metered-dose inhaler.

Mass General Brigham
Asthma Center

Scenario #7: Discussion

- A big advantage to the use of a spacer with one's metered-dose inhaler is that medication is trapped inside the spacer and can be inhaled from the spacer chamber "leisurely" in the few seconds after its release.

Mass General Brigham
Asthma Center

Scenario #7: Discussion (cont.)

- Practicing in the mirror might help – a distant second-choice answer.
- Enough rest is not our patient's problem!
- Rinsing one's mouth after each dose of medication is good advice when the inhaled medication is a steroid – to reduce the chances of developing a yeast infection in the mouth ("thrush") -- but it won't help with her inhaler technique.

Mass General Brigham
Asthma Center

Scenario #8

A 14-year-old boy with asthma asks you how he can tell if he is having a serious flare-up (attack) of his asthma. He notes that every time he gets a chest cold, he feels miserable, with lots of coughing, achiness, and fatigue. He doesn't think that these are signs of a severe asthma attack, but he wonders what is.

Mass General Brigham
Asthma Center

Scenario #8: Question

Which of the following do you tell him would be a sign that he is having a severe asthma attack?

A. Waking up coughing at night.
B. Coughing up yellow sputum.
C. Fever above 101°.
D. Shortness of breath while climbing a flight of stairs.

Mass General Brigham
Asthma Center

Scenario #8: Correct Answer

Which of the following do you tell him would be a sign that he is having a severe asthma attack?

A. Waking up coughing at night.

B. Coughing up yellow sputum.

C. Fever above 101°.

D. Shortness of breath while climbing a flight of stairs.

Mass General Brigham
Asthma Center

Scenario #8: Discussion

- A head or chest cold should not cause one to become short of breath with light exertion. In a person with asthma, it might indicate severe worsening of his breathing capacity – a severe asthma attack.
- Coughing at night, coughing up yellow sputum, and a high fever may be signs of a chest infection in the absence of worsened asthma (that is, worse narrowing of the breathing tubes.)

Mass General Brigham
Asthma Center

Scenario #9

The mother of a 10-year-old boy is worried about her son's newly diagnosed asthma. She wonders if it would be best to keep him out of sports, because exercise might make his disease worse. She asks you how severe you think her son's asthma is.

Mass General Brigham
Asthma Center

Scenario #9: Question

Which of the following do you tell her is used to judge how severe or well-controlled her son's asthma is?

A. How often he coughs each week.

B. How often he needs to use a quick-acting bronchodilator for relief of symptoms of asthma.

C. How frequently he needs to yawn.

D. Whether or not he has symptoms of asthma when around a cat or dog.

Mass General Brigham Asthma Center

Scenario #9: Correct Answer

Which of the following do you tell her is used to judge how severe or well-controlled her son's asthma is?

A. How often he coughs each week.

B. How often he needs to use a quick-acting bronchodilator for relief of symptoms of asthma.

C. How frequently he needs to yawn.

D. Whether or not he has symptoms of asthma when around a cat or dog.

Mass General Brigham Asthma Center

Scenario #9: Discussion

- The frequency of his cough may be due to many things besides asthma; the frequency of yawning is irrelevant to asthma.
- His reaction to cats or dogs may give information as to his allergic sensitivities, but it won't clarify the severity of his asthma or how well it is controlled.
- Remember to tell his mother that exercise is good for her son and that our goal is to not have asthma interfere with participation in any sports.

Mass General Brigham
Asthma Center

Scenario #10

A 33-year-old part-time personal care attendant has recently moved into a new apartment in a multi-unit housing complex. Ever since moving, her asthma has been "acting up." She asks if you think that she might be allergic to something in her new apartment.

Mass General Brigham
Asthma Center

Scenario #10: Question

You suggest that she might benefit from an asthma home visit, for which of the following reasons?

A. Inspection of her home for possible allergens.

B. Education/review regarding her asthma medications and their proper use.

C. Discuss possible asthma-related services/supplies available to her in public housing.

D. All of the above.

Mass General Brigham
Asthma Center

Scenario #10: Question

You suggest that she might benefit from an asthma home visit, for which of the following reasons?

A. Inspection of her home for possible allergens.

B. Education/review regarding her asthma medications and their proper use.

C. Discuss possible asthma-related services/supplies available to her in public housing.

All of the above.

Mass General Brigham
Asthma Center

Scenario #10: Discussion

At an asthma home visit, one might:

- Find hidden triggers to her asthma;
- Help reduce her exposure to her asthma triggers;
- Review her medications and ensure proper use of her inhalers;
- Help her understand her asthma action plan;
- Discover community resources and services/programs offered through her medical insurance;
- Provide emotional support.

Mass General Brigham
Asthma Center