Case #1: Allan

Allan, a 40 year old man, who started working in an auto body shop 18 months ago presents to your clinic because of episodic breathlessness, wheezing and dry cough. He notes that his respiratory symptoms are often better over weekends, and that they disappeared completely when he had 2 weeks off over the Christmas holidays. He has been smoking a pack of cigarettes for the past 20 years, and wonders if his smoking habit is affecting his lungs? The respiratory educator meets with Allan prior to him meeting with the respiratory physician.

1. Provide examples of open-ended history taking questions you might ask Allan to gain information regarding the possibility of this being occupational asthma vs COPD.

2. What types of work are classically associated with occupational asthma?

3. Describe objective measurements that are used to establish the diagnosis of occupational asthma.

4. What advice would the respiratory educator provide to Allan regarding trigger avoidance?

Case #2: Joe

Joe, a 63 year old male, arrives at the pulmonary rehabilitation program for his first exercise and education session. He states that formerly he became short of breath only with heavy physical exertion, but now is having problems when walking a block. He finds that cold air makes him 'winded' and he has a low energy level. You also learn that he is divorced, lives alone and smokes 1 pack cigarettes per day. Joe shares with the respiratory educator that he worked for 40 years as a construction worker and enjoyed the work and friendships with fellow workers. He has no hobbies and was interested in attending the rehabilitation program as it would 'give him something to do'. You have received his spirometry results:

- FEV1- 68% predicted pre-BD; 74% predic ted post BD
- FEV1/FVC- 74% pre BD – 80%post BD

The respiratory education does a walk test with him, noting his saturations decreased to 76% while walking.

1. Describe factors that might be considered during Joe's rehabilitation program in these categories:
    a. Physiological factors
    b. Psychological factors
    c. Activities of daily living

2. How would you evaluate Joe's nutritional status?

3. What are the benefits of exercise training in COPD?

4. The respiratory educator wants to assess Joe's readiness to quit smoking. What are examples of closed-ended questions that might be used by the educator?

5. You find out that Joe is in the contemplation stage of quitting smoking. What processes of change would the educator consider using to assist him?

6. Joe asks about some of the therapies available to help him quit smoking.

Case #3: Ms. Prince

Ms Prince is a 56 year old female recently discharged from hospital after an acute exacerbation of COPD. This is her third admission in the past year. Prior to this admission she had been experiencing symptoms of increasing dyspnea, cough, sputum and fever for over 4 days. In the hospital she was given prednisone, antibiotics and was started on fulltime oxygen.
Ms. Prince has a 40 pack year smoking history. She has several co-morbid conditions including: osteopenia, hypothyroidism, and maniac depression. Her current medications include: Symbicort 200mcg 2 puffs BID, Spiriva 18 mcg 1 puff daily and Ventolin 100 mcg 1-2 puffs q4hr PRN.
She has been referred for pulmonary rehabilitation and guided exercise training. On her first visit to pulmonary rehabilitation you note the following: major withdrawal symptoms from smoking, increasing manic episodes, and difficulty with memory to the extent that she needs to write everything down. Ms. Prince has heard about self-management plans during her hospital STAY and would like to 'get a plan'.

1. What is the definition for acute exacerbation of COPD?

2. What prevention strategies (to reduce the frequency of acute exacerbations of COPD) might the respiratory educator discuss with Ms. Prince?

3. Ms. Prince asks the respiratory educator about the key benefit of a COPD self-management plan.

4. The respiratory educator recognizes that Ms. Prince has some predisposing factors that need to be considered. What are these? What are possible enabling and reinforcing factors that might be considered to assist Ms.Prince in managing her COPD?

5. Based on Ms. Prince's history what information could the respiratory educator highlight in these areas during her instruction on use of a self-management plan?
    a. Symptoms
    b. Medications

Case #44: Derek

The respiratory educator is working at a primary care office once per month and is booked to meet with a 17 year old teenager named Derek for the first time. According to his chart Derek has recently been diagnosed with asthma and feels quite confident in managing his asthma control. Prior to meeting with Derek, the respiratory educator reviews Derek's history with the family physician. The family physician informs the educator that Derek has come to see her 3 times in the last few months for renewal of his salbutamol inhaler, wakes up at night once per week and is quite short of breath when playing soccer. The physician also states that Derek's mom smokes in the house and the family has a cat named Sam that sleeps in Derek's bedroom.The physician would like you to perform spiromerty, check for medication compliance and review asthma control. His prescribed medications include salbutamol 100 mcg 1-2 puffs prn, and budesone/formoterol 200/6 mcg 1 puff BID. His spirometry results:

pre- FVC	4.00 90%	post FVC 4.50110%
FEV1	3.00 (59%)	post FEV1 4.00 (80%)
FEV1/FVC	.63	post FEV1/FVC .72

1. Identify the areas in which Derek is meeting guidelines for control.

2. Consider some of the general characteristics and learning styles of teenagers. What educational methods might appeal to Derek? How would a respiratory education determine his preference for learning?

3. Describe how to identify Derek's interest in gaining control of his asthma.

4. Based on the Precede Model what factors would be considered for Derek prior to implementing an education program?

5. What questions might be used to determine Derek's health beliefs about sleeping with his cat?

6. Discuss examples of open-ended question the respiratory educator could use to review medications with Derek.

Case #5: Travis

Travis, a 20 year old university student, is trying out for the track team. He tells his coach that he experiences some chest tightness during and after training runs. The coach suggests Travis see his family physician and get a referral to the asthma clinic.
One month later Travis meets with the respiratory physician and respiratory educator for for spirometry testing, evaluation and education. Travis states that that he 'thinks he may have mild asthma', but is reluctant to take any medications, as he has heard that 'steroids are bad news', in competitive track and field. He has seen the advertisement for montelukast on TV, and wonders if this is suitable for him. Physical examination is unremarkable, except for the fact that he has features of allergic rhinitis, with evidence of nasal polyps. Spirometry in your clinic is normal. The respiratory physician asks the educator to review the following issues with Travis: prevention of exercise induced bronchospasm, use of medications and use of a diary.

1. What questions might the respiratory educator use to determine Travis's self-efficacy in managing exercise-induced bronchospasm?

2. What information has been gained by the spirometry testing done today? What other objective measurements might be considered and why?

3. Describe what a follow-up appointment with Travis might reveal.

4. Describe what information the respiratory educator would provide regarding criteria needed for diagnosis of exercise-induced bronchospasm.

Case #6: Rod

The respiratory educator is asked to go to the emergency department to see Rod, a 21 year old male, who is being treated for breathlessness and wheezing. An accompanying family member states that the Rod ran out of his medications ten days ago. Physical examination confirms that he has signs of severe airflow obstruction, and you note that a peak flow reading attempted by the emergency department staff is recorded as being <100L/min.

1. The respiratory educator understands that the patient is quite short of breath and offers to provide education at a later time. Which ONE of the following educational principles is being used by the respiratory educator?

A. Situational specificity
B. Multiple methods
C. Participation
D. Professionalism

2. What is the recommended initial treatment of acute severe asthma in the emergency department?

A. Postpone treatment until objective measurements are completed
B. Initiate inhaled corticosteroids and short acting beta-agonist
C. Initiate short acting beta-agonist along with anticholinergic drugs
D. Administer supplemental oxygen and aminophylline immediately

3. After several hours in ED, Rod is feeling much less breathless and his peak flows have improved. He is keen to go home and is advised that he needs to have a written action plan prior to discharge. Which ONE of the following should the respiratory educator use to describe an action plan?

A. An action plan will enable you to avoid coming to the emergency department
B. An action plan provides you with the tools necessary to avoid exacerbations
C. An action plan will help you adjust your medications in response to symptoms
D. An action plan will guide your decisions in seeking help to manage your asthma

Case #7: Henrietta

Henrietta is a 71 year old woman from rural Alberta, who has had a troublesome cough for 23 years. She states that she remembers the exact time that her cough began; she was a real estate agent and was with a client when she began to get a strange sensation at the back of her throat and developed a cough that has persisted. She states that the frequency and intensity of her cough varies, but it always is provoked by the use of her voice. She does not experience chest tightness, sob or wheeze. The cough is productive for small amounts of whitish secretions only in the morning upon rising. She states she has a prescription for Ventolin and she uses it when she has a particularly severe episode of coughing as she feels it helps to relieve the coughing.

Triggers for her cough include: singing, laughing, exposure to paint or chemical smells, perfumes. She has a smoking history of 5 pack years and has not smoked for 30 years. You notice that Henrietta does quite a bit of throat clearing during her visit with you.

During spirometry testing, Henrietta suddenly begins coughing uncontrollably. Her cough is intense and she is distressed because it is difficult for her to take a breath in. When she does finally take a breath, there is an audible stridor. Her voice is quite hoarse for several minutes after the episode of coughing ends.

CXR is normal, spirometry results: Pre- FVC 90%, FEV1 80%, ratio 0.68, Post- FVC 100%, FEV1 85%, ratio 0.65, FEV1 change post bd 6%.

1. What are some of the key respiratory symptoms you would want to underline in this case?

2. What is the most likely differential diagnosis in this case? Why?

3. Henrietta asks the respiratory educator if her spirometry results are normal.

4. What are some important learning characteristics for older adults?

Case #8: Margaret

Margaret, a 42 year old former ICU nurse, is referred to your respiratory clinic because of marked breathlessness and chest tightness on minimal physical exertion. She was diagnosed as having asthma at age 39 during a visit to the walk-in clinic near her home. She uses her short-acting rescue bronchodilator (salbutamol) 4-6 times a day and she has been on long term disability for the past 2 years. In addition, another walk-in clinic physician has been treating her with combination therapy (fluticasone/salmeterol 500/50, 1 inhalation bid), montelukast 10 mg/day, and prednisone 10 mg/day. Nonetheless, her symptoms persist and significantly impair on her quality of life. In addition she is bothered by a hoarse voice. Spirometry done in the clinic is normal. The respiratory educator is asked to meet with Margaret to provide her with a diary to monitor her symptoms.

1. What is the most likely cause of Margaret's breathlessness?

2. Margaret does not believe the results of today's testing and is angry with the physician and respiratory educator. What educational interventions might be useful in this situation?

3. What investigations might help to establish the alternative diagnosis?

4. What factors from the Precede Theory might be important to consider in discussions with Margaret?

Case #9: Jason

Jason, a 4 year old boy, along with his divorced parents is meeting with the respiratory educator in the primary office setting. Jason, was diagnosed with asthma at age 2, has allergies (animal dander, pollen and mold) and experiences seasonal rhinitis. His parents have joint custody of Jason, and he spends weekdays with mom, and weekends with his dad. He is presently complaining of daytime symptoms of cough and wheezing and has woken every night in the past week due to coughing. He is currently using fluticasone 125 prn and salbutamol prn, both given with an MDI and spacer. He has needed his salbutamol several times daily over the last week. His mom is concerned about Jason using his steroid inhaler on a regular basis and is interested in any alternative therapy which you might suggest. Jason's dad states that he had asthma and allergies as a child, but 'outgrew' these. The family physician has asked you to meet with this family to provide education on proper management of asthma.

1. What are some of the general characteristics and learning styles of a 4 year old child?

2. Describe how the parent's health beliefs are impacting the care of Jason.

3. What are some other important predisposing, enabling and reinforcing factors that should be considered in this family's situation?

4. Describe educational tools that might be used by the educator in assisting this family.

Case #10: Ms. King

Ms. King a 59 year woman is referred to the community COPD rehabilitation program. She complains of shortness of breath, especially when climbing stairs and hills. She quit smoking 9 years ago and has a 35 pack year smoking history. Her referral letters states she has the following conditions: severe COPD, extensive cetrilobular emphysema, Raynaud's phenomenon, hypertension, heart murmur and anxiety. Her medications include Spiriva, Adalat, Mavik and Effexor (note that on national exam only generic names will be given for all medications and if non-respiratory medications are listed you would be given the category in most cases).

Her pulmonary function tests and walk test results:

	REF	PRE	%REF	POST	%REF	%CHG
FVC	2.96	3.72	126	3.96	134	6
FEV1	2.40	1.39	58	1.39	58	0
FEV1/FVC	83	37		35		

DIFFUSION CAPACITY:

DLCO	21.3	(11.6)	(54)

ABG'S:

FiO2	21%
PH	7.47
PCO2	32.0 mm Hg
PO2	60.5 mm Hg
HCO3	23.7
SaO2	91.8
Hb	14.2

WALK TEST:

Distance	444m
Min SpO2	78%
Mean SpO2	86%
Max HR	129

1. Explain the role of the following in the evaluation and management of COPD in Ms. King.
    a. Pulmonary Function Tests
    b. Pharmacotherapy
    c. 6 Minute Walk Test
    d. Arterial Blood Gases
    e. Oximetry
    f. Chest x-ray

2. Would Ms. King be eligible for oxygen therapy? Why or why not?

3. Ms. King asks the respiratory educator if pulmonary rehabilitation will benefit her.