Evaluation of Respiratory Symptoms in Adults

This edition of *FP Essentials™* will update family physicians on the evaluation of various respiratory symptoms in adults. The edition will cover the following four topics: chronic cough, wheezing, dyspnea, and hemoptysis.

This edition of *FP Essentials* should be approximately 10,000 words in length, divided into four sections of approximately 2,500 words each (each with an abstract of 200 words or less) plus key practice recommendations, a maximum of 15 tables and figures, recommended reading, and approximately 100 to 150 references. This edition should focus on what is new in each topic and should answer the key questions listed for each section. Each section should begin with an illustrative case, similar to the examples provided, with modifications to emphasize key points; each case should have a conclusion that demonstrates resolution of the clinical situation. The references here include information that should be considered in preparation of this edition of *FP Essentials*. However, these references are only a useful starting point that should be used to identify additional information to review.

**Needs assessment:** Respiratory symptoms are a common concern among primary care patients in the inpatient and outpatient settings. Causes of respiratory symptoms range from minor infections and other self-limited conditions to life-threatening conditions such as lung cancer and heart failure. Therefore, family physicians need to be skilled in differentiating between benign and serious causes of respiratory symptoms, and in evaluating patients with these symptoms. In a survey of members of the American Academy of Family Physicians (AAFP), respiratory symptoms (ie, cough, dyspnea, hemoptysis) ranked in the top third of topics for which there was a gap between family physicians’ knowledge and skill. This edition of *FP Essentials* is designed to address that gap.
Section 1: Chronic Cough

Example case: EW is a 48-year-old man with a dry cough of 3 months’ duration. It began insidiously and now worsens with outdoor activity. The cough has not improved with use of antitussives. EW denies fever, weight loss, night sweats, and dyspnea. He smokes 1/2 a pack of cigarettes daily. He takes over-the-counter omeprazole as needed for reflux, but no other drugs. How should this patient be evaluated?

Key questions to consider:

- What is the definition of chronic cough in adults? How common is chronic cough as a presenting symptom in adult patients in the United States?
- What are the most common etiologies of chronic cough in adults in the United States?
- What uncommon causes should family physicians consider in the differential diagnosis? Which causes are benign, and which are potentially life-threatening? Use tables as needed to summarize this information.
- Which history and physical examination findings may be helpful in the evaluation of patients with chronic cough? Which signs and symptoms suggest a serious etiology?
- Which drugs can cause chronic cough? How long does it take for cough to develop as an adverse effect of a drug? How soon should cough resolve after discontinuation of the drug?
- What environmental or occupational factors should be considered in the evaluation of patients with chronic cough? Which nonpharmacologic strategies are effective in minimizing the effects of these factors?
- What is the recommended diagnostic evaluation for adults with chronic cough? What are the roles of laboratory tests, routine and advanced imaging modalities, spirometry, and other tests? Use algorithms and tables as needed to guide readers as to when each of these should be used.
- Which pharmacologic and nonpharmacologic treatment strategies are effective for management of common and significant causes of chronic cough? What is the prognosis for symptom control, resolution, and recurrence?
- What is cough hypersensitivity syndrome? What neurogenic mechanisms have been proposed? Which treatments are effective?
- What are the recommended treatments for refractory or idiopathic chronic cough? Have any established treatments or novel treatments shown promise?
- What are the potential adverse physical, social, and psychological effects of chronic cough on patients?
- When should patients with chronic cough be referred to a pulmonology, otolaryngology, allergy, or other subspecialist for further evaluation and treatment?

Initial references to consider:


Section 2: Wheezing

Example case: AP is a 42-year-old woman who reports intermittent wheezing for the past 3 months. Symptoms began after an episode of viral bronchitis, the other symptoms of which have resolved. AP had asthma as a child, but it resolved during early adolescence. She is otherwise healthy, takes no drugs, does not smoke, and exercises regularly. On office spirometry, the forced expiratory volume in the first second of expiration (FEV₁)/forced vital capacity (FVC) ratio is 0.67. The FEV₁ is 75% of predicted, and the FVC is normal. Has the asthma returned?

Note: Treatment of asthma and chronic obstructive pulmonary disease (COPD) have been reviewed in recent editions of FP Essentials, so in-depth discussions of those conditions are not necessary. The discussion here should focus on the diagnostic evaluation and causes of wheezing.

Key questions to consider:

- How common is wheezing as a presenting symptom in adult patients in the United States?
- What is the pathophysiology of wheezing? What are the differences among expiratory wheeze, inspiratory wheeze, and stridor? Is wheezing ever considered normal? If so, when?
- Where in the airways is obstruction most likely to occur in adults? Can the acoustic characteristics of wheezing indicate the level of airway obstruction?
- Describe the differential diagnosis of acute and chronic wheezing in adults. Consider extrathoracic and intrathoracic causes as well as upper, central, and lower respiratory tract conditions. Use tables as needed to summarize this information.
- How are asthma and COPD defined according to current guidelines? What history and physical examination findings can help distinguish asthma from COPD in adults with wheezing?
- What is the recommended diagnostic evaluation for wheezing in adults? What are the roles of in-office spirometry, flow-volume loop measurement, imaging modalities, laryngoscopy, and bronchoscopy? Use algorithms and tables as needed to guide readers through the evaluation process.
- Why are asthma and COPD overdiagnosed? How can family physicians avoid this?
- What are the most significant causes of wheezing in adults other than asthma and COPD? Which pharmacologic and nonpharmacologic treatment strategies are effective for these conditions? What is the prognosis for symptom control, resolution, and recurrence?
- What is asthma-COPD overlap syndrome? What is recommended for management of patients with features of asthma and COPD?
- What are the recommendations for emergent, prehospital management of patients with severe respiratory distress and wheezing?
- When should patients with wheezing be referred to a pulmonology, otolaryngology, allergy, or other subspecialist for further evaluation and treatment?

Initial references to consider:


Section 3: Dyspnea

Example case: BH is a 56-year-old man who presents with persistent shortness of breath 2 months after hospitalization for COVID-19 pneumonia. He required hospitalization for 16 days, including 6 days in intensive care while receiving high-flow supplemental oxygen plus treatment with dexamethasone, tocilizumab (Actemra), remdesivir (Veklury), and low-molecular-weight heparin. After recovering, BH was discharged and discontinued use of supplemental oxygen therapy. Months later, he still has dyspnea with mild to moderate exertion and has been unable to return to work.

Key questions to consider:

- How common is dyspnea as a presenting symptom in adult patients in the United States? When is dyspnea considered chronic?
- What are the most common etiologies of acute and chronic dyspnea?
- What uncommon causes should be considered in the differential diagnosis? Which causes are benign, and which are potentially life-threatening? Use tables as needed to summarize this information.
- Which history and physical examination findings may be helpful in the evaluation of patients with dyspnea? Which signs and symptoms suggest a serious etiology? What findings may suggest that dyspnea is attributable to an etiology other than pulmonary or cardiac disease?
- Which drugs and environmental or occupational factors should be considered in the evaluation of patients with dyspnea?
- How often is dyspnea a result of deconditioning or obesity? How are these etiologies diagnosed?
- What is the recommended diagnostic evaluation for patients with dyspnea? What are the roles of laboratory tests, routine and advanced imaging modalities, spirometry, echocardiography, and other tests? Use algorithms and tables as needed to summarize this information.
- What are the most significant causes of dyspnea that family physicians should be able to recognize? Which pharmacologic and nonpharmacologic treatment strategies are effective for management of these conditions? What is the prognosis for symptom control, resolution, and recurrence?
- How long can dyspnea persist after COVID-19 pneumonia (ie, long COVID or post-acute sequelae of SARS coronavirus 2 infection) and other pulmonary infections? What are the recommended treatments for postinfection dyspnea?
- What is the role of supplemental oxygen therapy in patients with chronic dyspnea? What are the criteria required for a patient to qualify? Which prescribed uses of supplemental oxygen (eg, with activity, as needed, continuous, nocturnal) typically are covered by Medicare and private health insurance?
- What are the recommended treatments for refractory or idiopathic chronic dyspnea?
- What are breathlessness services? What is the potential role of such support models?
- When should patients with dyspnea be referred to a pulmonology, cardiology, or other specialist for further evaluation and treatment?
Initial references to consider:

Section 4: Hemoptysis

Example case: ZD is a 72-year-old man who presents with a cough with blood-tinged sputum that has occurred each morning for the past 4 days. He has a history of smoking and chronic bronchitis; ZD says he stopped smoking 5 years ago. There is no history of recent travel, fever, dyspnea, or night sweats, but he has experienced a 5-kg (11-lb) weight loss in the past 2 months. Physical examination findings are normal except for bibasilar crackles on lung auscultation, and chest x-ray results are normal.

Key questions to consider:

- How common is hemoptysis as a presenting symptom in adult patients in the United States and worldwide?
- What is the difference between hemoptysis and pseudohemoptysis? Which common conditions are associated with symptoms that mimic those of hemoptysis?
- What are the most common etiologies of hemoptysis in adults? Which uncommon causes should be considered in the differential diagnosis? Which causes are benign, and which are potentially life-threatening? Use tables as needed to summarize this information.
- Which history and physical examination findings may be helpful in the evaluation of patients with hemoptysis? Which signs and symptoms suggest a serious etiology? Can patients with a single episode of hemoptysis be monitored with watchful waiting? If so, when is this appropriate?
- What are the risk factors for active pulmonary tuberculosis in the United States? What are the risk factors for respiratory tract malignancy? Should these conditions always be considered in patients with hemoptysis?
- What is the recommended diagnostic evaluation for patients with hemoptysis? What are the roles of laboratory tests, imaging modalities, bronchoscopy, and other tests? Use algorithms and tables as needed to summarize this information.
- What are the most significant causes of hemoptysis that family physicians should be able to recognize? Which pharmacologic and nonpharmacologic treatment strategies are effective for these conditions? What is the prognosis for symptom control, resolution, and recurrence?
- When should patients with hemoptysis be referred to a pulmonology or other subspecialist for further evaluation and treatment?
- When should a patient with hemoptysis be hospitalized? What are the indications for admission to an intensive care unit? Should the patient automatically be identified as requiring respiratory isolation precautions?
- What defines massive hemoptysis? What is the recommended initial treatment?

Initial references to consider:


