

Approach to Cough

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Duration of cough

- Acute cough: less than 3 weeks
- Subacute cough: 3 to 8 weeks
- Chronic cough: greater than 8 weeks

Acute cough

- Most common etiologies:
 - Viral upper respiratory tract infections (URIs) - rhinosinusitis, pharyngitis
 - Acute bronchitis
- Other causes: pneumonia, COPD, asthma, allergic rhinitis, left ventricular failure, medications, aspiration

Acute cough, cont.

- Rhinosinusitis and acute bronchitis
 - Viral: influenza types A and B, parainfluenza, coronavirus, rhinovirus, and respiratory syncytial virus
 - Nonviral: *Streptococcus pneumoniae*, *Moraxella catarrhalis*, *Mycoplasma pneumoniae*, *Chlamydophila pneumoniae*. More recently, *Bordetella pertussis* (whooping cough)
- Cannot differentiate reliably between viral or bacterial causes based on presence of purulent sputum.
- Cough may persist for up to 8 weeks with acute bronchitis from bronchial hyperreactivity

Acute cough, cont.

- Influenza - cough, fever, myalgia, and headache during fall to early spring
- Lower respiratory tract infections – cough, fever, constitutional symptoms, adventitious breath sounds
 - Obtain CXR, treat with antibiotics
- ACE inhibitor – 15% develop nonproductive cough
 - can occur within 1 week of initiating therapy
 - Can take up to 4 weeks to resolve
 - Substitute angiotensin receptor blocker

Treatment of acute cough

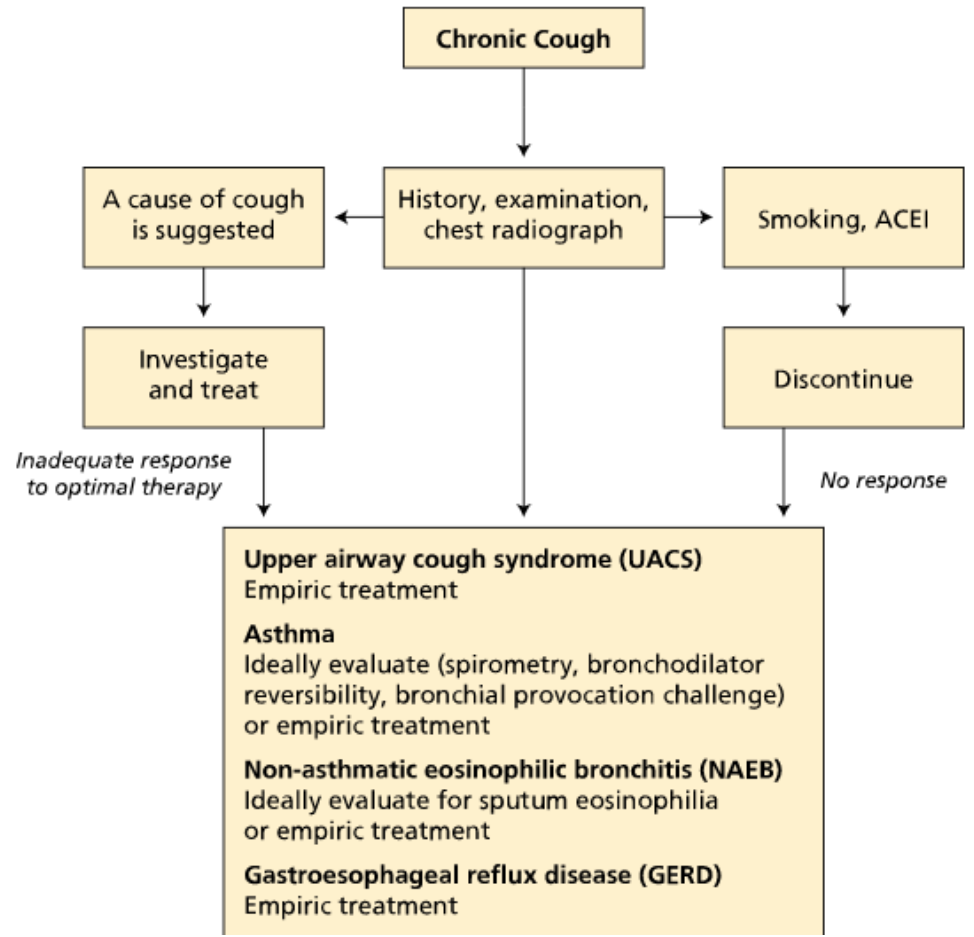
- Symptomatic treatment for viral URI, acute bronchitis
 - Sneezing and rhinorrhea: inhaled ipratropium, cromolyn, first-generation antihistamine-decongestants (e.g. brompheniramine, sustained-release pseudoephedrine), and naproxen
 - Wheezing: inhaled beta agonist
- Antitussives not as effective to treat cough, e.g. codeine, dextromethorphan, moguisteine
- Caution: elderly patients with first-generation antihistamines and decongestants

Subacute cough

- Within 3 to 8 weeks
- Most often develops after an infection
- *Bordetella pertussis* - cough lasting at least 2 weeks plus at least one other clinical finding: paroxysms of coughing, inspiratory “whoop,” or post-tussive emesis with no other apparent cause
- In general, if no airway hyperreactivity, may benefit from inhaled ipratropium
- If etiology unlikely infectious, consider common causes of chronic cough

Chronic cough

- Lasts greater than 8 weeks
- Consider cough secondary to:
 - Medications, e.g. ACE Inhibitors
 - Smoking – offer smoking cessation counseling
- A majority of patients with chronic cough, excluding above causes (~90%)*:
 - Upper airway cough syndrome (UACS, post nasal drip syndrome)
 - GERD
 - Asthma
- Not as common: chronic bronchitis, bronchiectasis, lung cancer, aspiration, irritation of the external auditory canal, and psychogenic causes



Chronic cough – common causes

- CXR unrevealing for a cause of cough > empiric therapy for UACS is begun for 2 to 3 weeks
 - UACS due to allergic rhinitis: intranasal glucocorticoids
 - UACS due to nonallergic rhinitis: first-generation antihistamines (chlorpheniramine, brompheniramine, diphenhydramine) and decongestants (pseudoephedrine)
- If no response to above treatment, evaluate for asthma, non-asthmatic eosinophilic bronchitis, and GERD
- With asthma, ideally obtained spirometry, show bronchodilator reversibility and methacholine challenge; can treat empirically
 - Because false positives, diagnose asthma only if symptoms resolve after treatment with inhaled bronchidilator and glucocorticoids
- GERD can be diagnosed in patients with reflux symptoms and resolution of symptoms with empiric treatment - lifestyle modification and proton pump inhibitor therapy for 1 to 3 months
- If ruled out/failed empiric treatment for UACS and GERD and PFTs are normal, consider sputum testing for eosinophils for non-asthmatic eosinophilic bronchitis, especially if there is a history of atopy
 - If sputum eosinophilia present, treat with inhaled glucocorticoids

Unexplained chronic cough

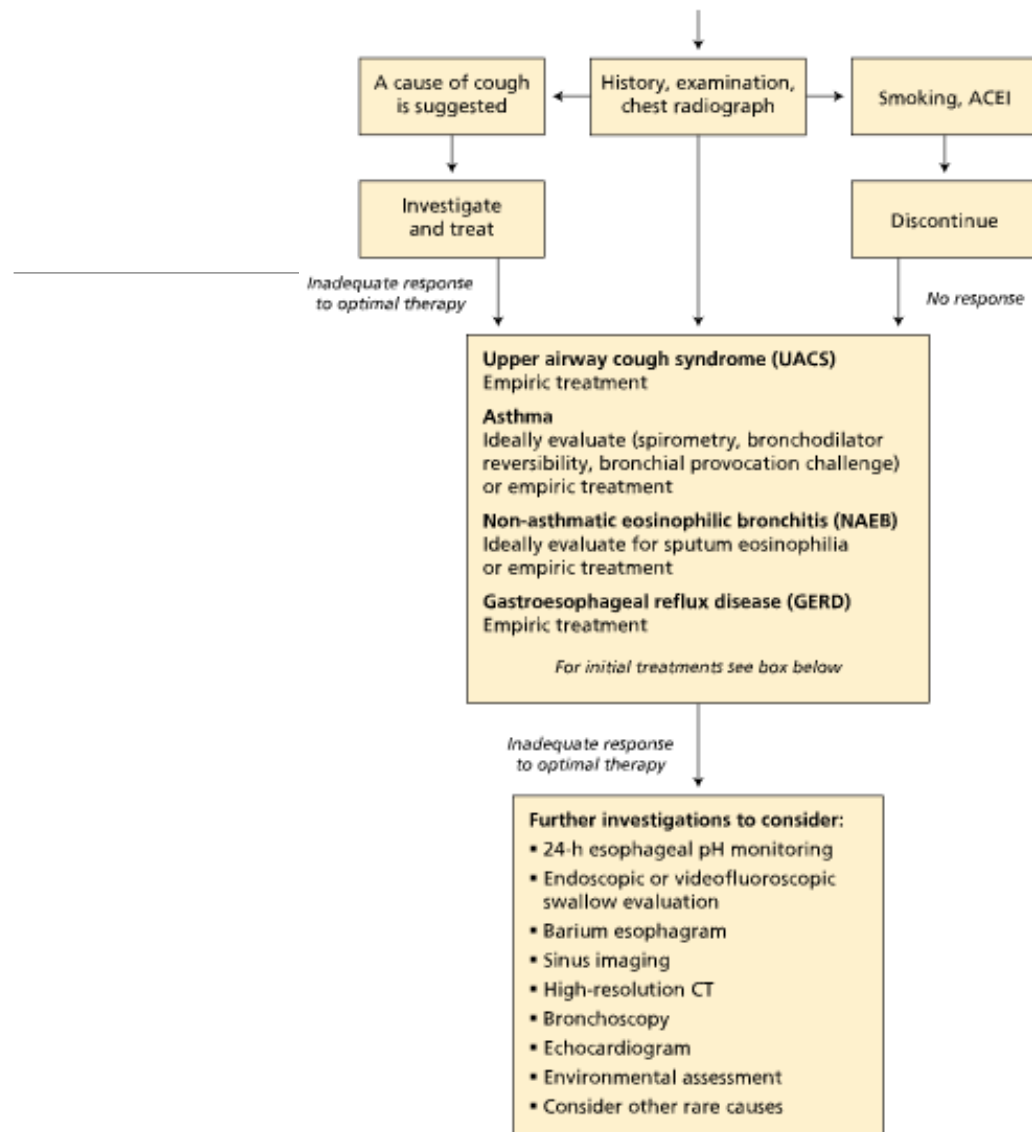
- After workup and patient adherent to medication trials, consider:
 - multimodality speech pathology: education sessions, cough suppression techniques, breathing exercises, and counseling
 - gabapentin: at 6 months reassess benefit to determine if continue
- Both shown to improve cough severity, frequency, and quality of life

Symptomatic treatment for chronic cough

- antitussive
 - Anesthetics (local): benzonatate
 - Dextromethorphan
 - Opioids: more effective than placebo in decreasing cough frequency and severity and improving quality of life, not recommended
- protussive
 - Guaifenesin: improve mucus clearance in patients with copious sputum production and decrease irritation of cough reflexes

Immunocompromised patients

- Bacterial, viral, parasitic infections
- Tuberculosis, *Pneumocystis jirovecii*, *Aspergillus* species, *Cryptococcus* species, cytomegalovirus, varicella, herpes simplex, parasitic infections



Initial treatments:
 UACS: antihistamine/decongestant
 Asthma: inhaled glucocorticoid, bronchodilator, LTRA
 NAEB: inhaled glucocorticoid
 GERD: proton pump inhibitor, diet/lifestyle