Chronic Cough - Whoop it
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Cough

- Protective reflex that keeps throat clear allowing for mucociliary clearance of airway secretion
- Intrathoracic process of air from a vigorous cough through nearly closed vocal cords can approach 300mmHg, the velocities tear off mucus from the airway walls. The velocity can be up to 500mph

Cough/Sputum

- Defense mechanism to prevent aspiration - cough center stimulated - cough begins with deep inspiration to 50% vital capacity - maximum expiratory flow increases cilia - decreasing airway resistance - glottis opens wide and takes in large amounts of air - glottis then rapidly closes - abdominal and intercostal muscles contract - increases intrapleural pressure - the glottis reopens - explosive release of air the tracheobronchial tree narrows rips the mucus off the walls = sputum

PULMONARY ANATOMY

- Upper Airway
  - Nasopharynx
  - Oropharynx
  - Laryngopharynx
- Lower
  - Larynx
  - Trachea
  - Bronchi
  - Bronchopulmonary segments
  - Terminal bronchioles
  - Alveoli (alveolar regions)
- Upper and Lower Airways are lined with cilia which propel mucus and trapped bacteria toward the oropharynx.

COUGH ACTION

Cough/Sputum

- Defense mechanism to prevent aspiration - cough center stimulated - cough begins with deep inspiration to 50% vital capacity - maximum expiratory flow increases cilia - decreasing airway resistance - glottis opens wide and takes in large amounts of air - glottis then rapidly closes - abdominal and intercostal muscles contract - increases intrapleural pressure - the glottis reopens - explosive release of air the tracheobronchial tree narrows rips the mucus off the walls = sputum

SPUTUM CHARACTERISTICS

<table>
<thead>
<tr>
<th>Type</th>
<th>Characteristics</th>
<th>Yellow/Green</th>
<th>Yellow/White</th>
<th>Green/White</th>
<th>Clear</th>
<th>Mucopus</th>
<th>Blood/Mucus</th>
<th>Mucus/Blood</th>
<th>Blood</th>
<th>Phlegm</th>
<th>Phlegm/Phlegm</th>
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</thead>
<tbody>
<tr>
<td>Pus</td>
<td>Yeast, white cells</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Mucopurulent</td>
<td>Both mucopus and pus</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Hemoptysis</td>
<td>Bright red, bloody</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current sputum</td>
<td>Bloody/white</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bloody</td>
<td>mucopurulent with red tinged</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bloody</td>
<td>dark brown, mucopurulent, offensive odor</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Blood/Phlegm</td>
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<tr>
<td>Phlegm/Phlegm</td>
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<td>X</td>
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</table>
Chronic Cough Defined (AACP, 2016)

<table>
<thead>
<tr>
<th>Acute</th>
<th>Sub-acute</th>
<th>Chronic</th>
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</thead>
<tbody>
<tr>
<td>Cough less than 3 weeks</td>
<td>Cough 3-8 weeks</td>
<td>Unexplained chronic cough (UCC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cough lasting greater than 8 weeks in 15 yo or older</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cough lasting greater than 4 weeks in those under the age of 15</td>
</tr>
</tbody>
</table>

Effects of cough that prompts visit Talierco & Umur, 2014

- Fatigue 57%
- Insomnia 45%
- Excessive perspiration 42%
- Incontinence 39%
- MSK pain 45%
- Inguinal herniation
- Dysrhythmias
- Headaches
- Quality of life questionnaires are recommended for adolescents and children (CQLQ)
- Work loss Data Institute (NCG) (2016)

Cough Referral to Pulmonology

- Most common symptom for PCP visits in the U.S.
- Common referral reason to pulmonologist
- Cost exceeds several billion dollars in the U.S. not including the cost of repeat testing
- Term used is UCC (unexplained chronic cough)

80%-90% chronic cough

- Post nasal drip (PND or UACS upper airway cough syndrome)
- Asthma
- GERD
- ACE cough

<table>
<thead>
<tr>
<th>Cause</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post nasal drip and sinups</td>
<td>Antihistamines, nasal decongestant, steroid nasal spray + antibiotics</td>
</tr>
<tr>
<td>Asthma</td>
<td>Steroid inhaler</td>
</tr>
<tr>
<td>Gastro-oesophageal reflux</td>
<td>Antacids, H2 antagonists, proton pump inhibitors</td>
</tr>
<tr>
<td>ACE inhibitors</td>
<td>stop treatment</td>
</tr>
</tbody>
</table>

Chronic Cough DDX

- PND
- GERD
- Allergies
- Asthma
- ACE cough
- COPD
- Infectious
- Inflammatory
- Viral
- ILD
- Pertussis
- RLD
- Foreign Object
- Tracheomalacia

- Heart failure
- Lung Cancer
- Neuro disorders (ALS)
- RSV
- Bronchitis
- Eosinophilic
- Tb
- Bronchospasm
- Bronchiectasis
- Psychogenic
- HIV
- Sensory neuropathy
- Elongated uvula

https://www.youtube.com/watch?v=nbCbOIs-mwo&feature=player_detailpage
https://youtu.be/nbCbOis-mwo

Common causes of chronic cough

- PND
- GERD
- Allergies
- Asthma
- ACE cough
- COPD
- Infectious
- Inflammatory
- Viral
- ILD
- Pertussis
- RLD
- Foreign Object
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- Heart failure
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- Psychogenic
- HIV
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- Elongated uvula
When is cough an emergency?

- Hemoptysis - ddx:
  - minor mucosal erosion, bronchiectasis, TB, sarcoidosis, lung abscess, Klebsiella, aspergillomas, infarction due to embolism, anticoagulation, pulmonary edema, mitral stenosis, Wegener's granulomatosis, Goodpasture syndrome, arteriovenous malformations, chest trauma, lung tumor
  - Children: foreign object, CF, heart or lung defects, epiglottitis

OBSTRUCTIVE

- Epiglottitis - cellulitis of epiglottis.
- Painful swallowing, drooling, inspiratory stridor, H. influenzae is often the cause. "Sniffing dog" position. Oropharynx cherry red.
- Dx: fiberoptic view, lateral neck radiography "thumbprint sign"

History of Present Illness (HPI)

- OLDCART (onset, location, duration, character, aggravating factors, alleviating factors, treatment)
- Is cough dry/wet, am or pm, identify patterns, related to meals
- Describe sputum - characteristics
- Impact on ADLS, quality of life
- Cough questionnaires

Hemoptysis

- R/o epistaxis, hematemesis, nasopharyngeal
- R/o anticoagulation - PT/PTT, CBC, plt count
- Bronchiectasis - occ, foul smelling, chronic, worse at night (work up, sputum, CT)
- PNA: red-brown, red-green, ? fever, malaise, pleuritic pain (CXR)
- Embolism - sudden onset, painful, diaphoresis, tachypnea, tachycardia, fever, cyanosis, often with h/o phlebitis, calf pain, immobilization, hypoxic (D-dimer, BNP, CT with contrast or VQ scan, dopplers)
- Pulm edema - pink, frothy, tachypnea, tachycardia, JVD distention, ankle edema, crackles
- If suspect TB - get PPD, interferon-gold CT, consider bronchoscopy

Smoking

- Smokers have a harder time recovering
- 1 "puff" causes temporary damage to the cilia
- Smokers cough is a protective reaction to the toxins
- Tobacco use # of yrs. x # PPD, start age
- Efforts of smoking cessation used in the past
- Leads to chronic bronchitis
- STOP SMOKING

Personal/Social

- Employment - work, hazards, chemicals, protective gear
- Exposure others, dust, chemicals
- Home environment - allergens, type of air and heating, mold
- Tobacco use # of yrs. x # PPD, age started
- Travel (exposure)
- Diet/Exercise, alternative medicine
- Hobbies - painting, welding, wood work, gardening
- Pets / Pet birds / poultry
- ETOH/Recreational drugs
- Exercise tolerance
Family History

- TB
- CF
- Lung disorders: emphysema, asthma, allergies
- Malignancy
- Bronchitis, bronchiectasis
- Clotting disorders (PE)
- Atopic dermatitis

PAST MEDICAL HISTORY

- Trauma
- Hospitalizations/Exacerbations/diagnostics
- Pulmonary/Cardiac disorders
- TB (exposure)
- Bronchiectasis/# of bronchitis/abx use
- Asthma/COPD
- CF
- Cancer
- Clotting disorders
- Immunizations

PEDIATRICS/Children

- LBW or Prematurity
- Coughing, cough at night, cough at rest, positional cough
- Difficulty breathing, dysphagia, choking with feedings/meals
- Ingestion of agent
- Cyanosis, apnea
- Hx of SIDs of sibling
- Vaccines
- # of missed school days
- Exposure to ETS

Subjective Data ROS

- General: wt. loss, wt. gain, night sweats, fever, chills
- HEENT: PND, throat clearing, difficulty swallowing
- Heart: chest pain, non cardiac CP, chest tightness
- Lungs: cough, productive, color, consistency, nonproductive, hemoptysis, worse in am or pm, triggers, shortness of breath, positional
- Gastrointestinal: n/v, hematemesis
- Lymph: any swollen lymph nodes
- Neuro: ALS, muscular dystrophy, poliomyelitis
- Skin: any rashes
- Psych: depression, anxiety, bipolar

Physical Exam Objective Data

- General:
- HEENT: conjunctiva, turbinates, pharyngeal erythema, mallempati, sinus tenderness
- Heart: rate, rhythm, cyanosis, edema
- Lungs: CTAB (wheeze, rhonchi, crackles, egophony)
- Gastrointestinal: hepatosplenomegaly
- Lymph: anterior and posterior cervical chain, supraclavicular
- Neuro: CN
- Skin: rashes, clubbing nails
- Psych: status

Landmarks
**BREATH-SOUNDS**

- Fine Crackles = high pitched, heard at end of expiration, not cleared with a cough
- Medium Crackles = lower, moist sound, heard mid sound NOT cleared with cough
- Coarse Crackles = loud, bubbly sound, during inspiration NOT cleared with cough
- Rhonchi = sonorous wheeze, loud like a snore, continuous heard inspiration or expiration, may clear with cough
- Wheeze = musical noise, continuous, inspiration or expiration
- Friction rub = dry, rubbing, grating, loudest of lower lateral anterior surface
- Mediastinal crunch = sound sync with heartbeat, heard easiest when pt. leans forward or lays on left side

**Assessment Continues**

- Egophony ("ee" sounds like "ay" = consolidation)
- Bronchophony- voice sounds loud
- Percussion
- Tactile fremitus "ninety nine"

**Diagnostics**

- PFT or spiro (age 6+, 3+ if trained)
- Methacholine Challenge Test (MCT)
- CXR
- CT (HRCT) Sinus CT
- Pulse oximetry, ONPO
- 24hr probe test
- MBSS
- ECHO
- Bronchoscopy
- ECHO
- PPD
- Immunoassay
- IGE, allergy testing
- Alpha 1

**Post Nasal Drip**

- PND- now termed UACS (upper airway cough syndrome)
- Allergic or viral rhinitis sinusitis r/o sinusitis
- Clinical manifestations: turbinatea enlarged, erythemic boggy, cobblestone oropharyngeal, clearing throat, sensations of drip, frequent swallowing
- DX: symptoms, CT sinuses, pH, often will have normal spiro and normal CXR
- Treatment: antitusives, decongestants, first generation antihistamines, ibuprofen, naproxen, nasal corticosteroids 2-14 days
Severe sinus drip

- Head injuries - severe and rare - presents with constant large amount of clear sinus drainage could dip with urine dip stick in office if + glucose
  - CSF leak = EMERGENCY

<table>
<thead>
<tr>
<th>CSF Rhinorrhea</th>
<th>Allergic rhinitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>History</td>
<td>Head injury, nasal or sinus trauma, Ex: nasal surger</td>
</tr>
<tr>
<td>Flow</td>
<td>Immediate, Tar, or draining, Persistent, can be bloody / thick</td>
</tr>
<tr>
<td>Taste</td>
<td>Sweet</td>
</tr>
<tr>
<td>Character</td>
<td>Watery</td>
</tr>
<tr>
<td>Sugar present</td>
<td>+ 10 mg/dL</td>
</tr>
<tr>
<td>U-2 Transurena</td>
<td>Present</td>
</tr>
</tbody>
</table>

ASTHMA

- Allergic (extrinsic) - specific allergens (IgE mediated inflammation) OR Non-allergic (intrinsic) i.e. exercise-induced
  - Pathogenesis
    - Denudation of airway epithelium, collagen deposits, edema, mast cell activation, inflammatory cell response, bronchoconstriction, swelling of the airways
  - Clinical manifestations: nighttime cough, laughing and exercise induced cough, cold air, cough can be productive or non productive, wheezing and intercostal retractions
  - Diagnosis PFT/MCT - high-sensitivity - hyperresponsiveness to methacholine
  - Treatment - avoid triggers, ICS, SABA, LABA, leukotrienes Xolair, bronchothermoplasty, action plan, peak flow

Asthma Documentation

- Diagnosis: Date: PFT/MCT:
- Prior allergy testing
- Regimen:
- Triggers:
- IgE (specifics)
- Frequency of rescue inhaler use
- Action plan
- Reminder of age specific dosing ex: Singulair 2+, accolate 7+, Zyflo 12+)

GERD

- Back flow of gastric contents via the LES, alteration of closure strength & efficiency of LES or increased abdominal pressure - vomiting, coughing, lifting, bending
- Meds, pregnancy, fatty foods, caffeine, alcohol, positioning, drugs, smoking, sleep position, obesity
- Clinical Manifestations
  - Heartburn, regurgitation, chest pain, dysphagia, reflux esophagitis, hoarseness, wt. loss, throat clearing
- Diagnosis: symptoms, pH-probe, EGD, TTE, MIBI
- Treatment: Diet and behavioral changes, stop smoking, elevate HOB, acidics, H2 blockers, proton pump inhibitors, surgery - Nissan fundoplication (long term use of PPI controversial)
- 80% Asthma patients with uncontrolled asthma have + pH-probe
GERD COUGH

- Cerebral cortex
- Brainstem
- Lower airway
- Upper airway

 GERD

- Cough
- Hypersensitivity
- GERD

Medication-induced cough

- Angiotensin-converting enzyme inhibitors (20%), beta-blockers, calcium channel blockers, sitagliptin (6%)
- Commonly women, non-smokers, Chinese
- Dry, tickly cough
- Starts 1 week to 6 months after initiating
- Resolves 1 day - 4 weeks after stopping

Acute Bronchitis

Most common diagnosis given in patients presenting with a cough, viral or a variety of pathogens
- Often in smokers, elderly and winter
- Airways inflamed, increased mucus
- Clinical manifestations: Cough productive/non productive, PND, chest discomfort, low grade temp
- Dx: cough, symptom, CXR (r/o pneumonia), cbc nasopharyngeal swab r/o Bordetella pertussis/influenza
- Rx: viral - no ABT, bacterial responds well to ABT, antitussives, last 7-21 days
- If recurrent consider sputum to determine organism
- Refer to as “chest cold” is recommended to help offset public expectation of antibiotic therapy

Obstructive Disorders

- Chronic Bronchitis
  - Hyperssecretion of mucus and chronic cough > 3 months for 2 consecutive Years, chronic inflammation and swelling
  - Most common in smokers and chemical exposures
  - “Blue Bloater” (Type B COPD)
  - Often leads to right sided heart failure because of increased pulmonary vascular resistance
  - Clinical manifestations: orthopnea, productive
  - Dx: ONPO, sputum, CXR, PFT
  - Tx – slow progression, increase pulmonary function, support ADLs, ICS, LABA, SABA

Infectious/Inflammatory

- PNA - unlikely without consolidation, tachycardia, tachypnea, fever, rusty sputum
- RLD
- ILD/Fibrosis - hx radiation, drug use, r/o autoimmune, RF, ANA, HIV
- Hypersensitivity pneumonia (Bird Fanciers lung) caused by bird droppings, Farmers lung, cheese makers lung, grain handlers lung, fish/meat workers lung
INFLAMMATORY / INFECTION PNEUMONIA

- Etiology – aspiration, inhalation, systemic circulation.
- Pathogenesis – bacteria, inflammation, exudate.
- Clinical manifestations – bacterial vs viral – key difference is that the patient with a productive cough and localized area of infiltrate on x-ray is most likely to have bacterial pneumonia, crackles, tachypnea, tachycardia, pleuritic pain, rusty/blood tinged sputum.
- Dx: CXR, CBC, sputum culture, egophony, + tactile fremitus, consolidation.
- Treatment
  - Antibiotic therapy, steroids, supportive.
  - Avoid suppressants.

Recurrent PNA/URI

- Immunoassay/Vaccine Challenge
- Last episode: # of occurrences
- CXR - follow up CXR for PNA
- HRCT
- Vaccines: Pneumococcal vaccine/Prevnar
- Determine etiology/source – sputum culture, CT, bronchoscopy with BAL

Bronchiectasis

- Destruction of bronchial walls lead to dilation of the airways – confirmed on CT.
- Clinical manifestations: wet or dry cough.
- # of infections.
- DX: CT obtain sputum culture, immunoassay/vaccine challenge.
- Treatment: Nebulizer treatments, Acapella/Flutter valve, Chest PT, Percussion Vest.
- For vest approval: pt. must have demonstrated failed mucous secretion efforts including flutter valve, chest physiotherapy or neuro reasons.

BRONCHIECTASIS TREATMENT

- Allergies
  - Triggers
  - Season
  - Allergy testing or Skin testing
  - IgE (obtain in asthmatics)
  - IgE specifics (zones to include aspergillus)
EMPHYSEMA

- **Etiology:** smoking, air pollution, occupations, genetic Alpha 1 deficiency
- **Pathogenesis:** alveolar and small airway destruction – results in decreased air exchange and decreased lung sounds. Those with COPD (emphysema & chronic bronchitis) who retain CO2 depress central chemoreceptors – thus ventilation is stimulated by decreased PaO2 levels.
- **Clinical manifestations:** exertional dyspnea, expiratory wheeze, pursed lip breathing, clubbing, cyanosis
- **Dx:** WHO COPD GOLD guidelines, PFT, CXR, CT
- **Treatment:** ICS, LABA, inhaled anticholinergic, combo, Daliresp, Theophylline, corticosteroids

COPD

- **Dx:** CXR, CT, PFT
- **Class:** (staging) GOLD
- **Regimen:**
  - Alpha 1: (free testing kits)
  - Exacerbations:
    - Smoking cessation:
    - Pulmonary rehab
    - Lung volume reduction
    - Lung transplant

CHF

- Most common Medicare DRG
- **Clinical manifestations:** dyspnea, fatigue, crackles, orthopnea, white frothy sputum, JVD, wt. gain
- **Dx:** BNP, ECHO, CHF workup
- **Treatment:** Improve CO, minimize congestive symptoms, decrease cardiac workload. manage preload Furosemide (Lasix), manage afterload Vasodilators – Hydralazine, Nitroglycerine, manage contractility Digoxin

CAUTION

- Dextromethorphan- s/e psychosis (there is a physician on trial in Seattle for murder, stabbing of wife and child while on cough syrup)
- Codeine - addiction issues in all ages, affects healthcare workers as well
- Tesselon Pearles - On the streets is known as the “Hooker pill” This med has an anesthesia component and has been used for topical pain as well as pharyngeal in small amounts- Used on the streets to numb the throat for activities in a particular working group
Chronic Cough NEWER TREATMENT

- CHEST(2016) cough expert panel guidelines includes a therapeutic trial of gabapentin in cases where benefits out weigh the risk. Often when the cough is affecting quality of life
- Dose escalation begin at 300mg qd and can go up to 1800mg in two divided doses
- Reevaluate after 6 months of therapy, evaluating side effects

INFLAMMATORY / INFECTION TUBERCULOSIS

- Etiology – Mycobacterium tuberculosis
- Pathogenesis – granulomas, fibrosis, calcification
- Clinical manifestations – chronic productive cough, low grade fever and night sweats.
- Homeless population are at great risk
- Diagnosis - 3 consecutive a.m. sputum’s, Mantoux test
- Treatment – multiple drug therapy, antibiotic therapy for 9-12 months

Psychogenic

- Disappears during sleep/play
- Worsens with attention
- Worsens with stress
- Lacks other associated symptoms
- Habit cough
- Tic cough
- Behavior modification/ psych

Lung Cancer

- Very few chronic coughs are related to lung cancer. 85% smoke If a smoker and cough changes, hemoptysis
- Cough lasting more than 1 month
- Squamous cell carcinoma 20-35%
- Adenocarcinoma 35-40%
- Large cell carcinoma 5-20%
- Small cell (oat cell) carcinoma 15-20% (most aggressive, widespread metastasis at diagnosis, poorest prognosis)
- CT lung screening
- PET scan/ bronchoscopy, biopsies

Peds

- Approach to a child ≤ 14 years of age with chronic specific cough (ie, cough associated with other features suggestive of an underlying pulmonary and/or systemic abnormality). Children > 14 years of age should be managed as outlined in adult guidelines, but there is no good evidence concerning where the age cutoff for treatment should be.

Figure Legend:
- Approach is in a child ≤ 14 years of age with chronic specific cough (cough associated with other features suggestive of an underlying pulmonary and/or systemic abnormality). 
- Children > 14 years of age should be managed as outlined in adult guidelines, but there is no good evidence concerning where the age cutoff for treatment should be.
Whooping Cough - Pertussis
- Starts like a cold for 1-2 weeks
- Develops intense episodes of coughing
- Can last 6-12 weeks total
- Contagious as soon as the cough begins
- Should be suspected if child has had known contact - even if immunized
- Can be fatal in infants
- Vaccinations
- An increase in cases d/t vaccine controversy

Vaccine Exemption

Croup
- Laryngeal obstruction from subglottic edema, acute, viral inflammation of larynx (RSV, influenza) fall and early winter. ages 6 months - 3yrs. Barking cough with stridor.
- Influenza and mycoplasma pneumonia less than age 5
- ages 3 months to 5 years peaks at age 2
- Clinical manifestations: stridor, barking cough, hoarseness worse at night, cyanosis, rales, hypoxic = hospitalization, steeple sign on x-ray of neck

The Whooping Cough Rap
- https://youtu.be/V2TIcQvrGfE
- https://www.youtube.com/watch?feature=player_embedded&v=50wwGxuH6qY

Croup
- If increased work of breathing = corticosteroids
- Nebulized epinephrine (observe for 3 hrs. d/t risk of rebound)
- O2 if hypoxic, cool mist, Tylenol and fluids
- RTC 48 hrs.
Rare Causes

- Arnold nerve (ear)
- Bipolar Asthma
- Aspiration (pills)
- Eosinophilic bronchitis (sputum or biopsy high in eosinophils)
- Hyperthyroidism, goiter
- Hodgkin’s
- Retained suture
- Rule out sleep apnea
- Elongated uvula

Cough Management

- Etiology based
- Asthma: avoid irritants/triggers, treat asthma
- ACE: stop ACE
- PND- rinses, nasal hygiene antihistamines
- Gerd- manage
- Pediatric specific guidelines
- AAP- advises against use of codeine and dextromethorphan for treating any type of cough
- Refer- UCC

Home Remedies

- Cough drops
- Hard candies
- Moisturized air
- Honey (with hot tea)
- Moonshine
- Rock N Rye
- Pineapple juice
- Vicks vapor rub
- Vapor rub feet and apply socks
- Almonds (peel brown skin, soak overnight, add butter and sugar)
- Reflexology

Education

- Avoid triggers
- Smoking cessation
- Vaccinations
- Cough Hygiene
- Avoid sick people

SUMMARY

- Rule out common causes of chronic cough- PND (UACS), GERD, Asthma, ACE cough
- If vial – use term “chest congestion” versus bronchitis
- Review CHEST cough guidelines, Asthma and COPD guidelines
- Consider PFT and CXR prior to pulmonary referral
- Caution with cough suppressants
- Caution with tessalon pearls

Simple Guide
EBP References

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