The child with a troublesome cough

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Cough is the most common symptom in children

Inability to cough results in serious lung disease
Recurrent or ‘nasty’ viral infections account for most children with isolated recurrent, prolonged or chronic coughs.
The main purpose of investigating a chronic/recurrent cough is to exclude any treatable or serious underlying condition.
10 things you **must** exclude

1. Post infectious eg pertussis, viral
2. Chronic or undiagnosed infection eg TB, persistent bronchitis, HIV
3. Allergy eg asthma, allergic rhinitis, sinusitis
4. Environmental exposures eg cigarette smoke, Household fuels
5. Aspiration syndromes eg GOR, laryngeal incompetence, TOF
6. Chronic lung diseases due to many causes eg bronchiectasis, CF, post infectious BO, Interstitial lung diseases
7. Foreign body aspiration
8. Cardiac failure
9. Habit cough (physcogenic cough)
10. Medication eg ACE inhibitors
Cough duration

- Acute (< 3 weeks)
- Sub-acute (3-8 weeks)
- Chronic (> 8 weeks)
Children under 5 years experience ± 4-7 colds per year.

It takes approximately 3 weeks to recover from each cold

7 X 3 weeks = 21 weeks of blocked/runny nose and cough per YEAR
Symptom duration with viral RTI

- Average cough duration 1-3 weeks
- Persistent cough and mucopurulent secretions common for weeks after URTI
- Cough is first and last symptom to resolve
- No effective Rx
Mechanisms of Coughing in viral RTI

Cough generator in brainstem

Vagus nerve

Increased sensitivity of Cough receptors: URTI, Larynx, LRTI, oesophagus

Virus infection

Increased neural receptors and afferent nerve stimulation

Increased neurotransmitter levels eg Substance P > vasodilation, mucous production

Cytokine release eg IL-1

Leukotriene release

Mucosal inflammation

Mucous production

Cholinergic stimulation of muscarinic receptors

Mucous production
Taking and detailed and accurate history is essential
Cough patterns

Figure 1  Illustration of how patterns of cough intensity vary over time. Reproduced with permission of the publishers from Marais et al.²¹.
Recurrent vs persistent cough
Things you need to ask about the cough

• When did it start?
• How did it start?
• What “air does the child” breath everyday
• Attending crèche or not?
• Did or does it always start with a cold/fever?
• What kind of cough? Wet/dry/paroxysmal
• Productive or not?
• What is the pattern day-day and over time?
• Does it go away and then recur? (recurrent vs persistent)
• What are the triggers and what helps?
When is a cough significant or not isolated?

- > 8 weeks present *most* days
- Getting progressively worse ie non-remitting
- Keeps child awake at night or disrupts family and daily activities
- Productive, purulent or haemoptysis
- NOT isolated
  - Onset with choking incident
  - Associated with noisy breathing
  - Associated with persistent hyperinflation
  - Associated with signs of underlying chronic illness eg FTT, CLD, clubbing
  - Associated with feeds
  - Abnormal Chest x-ray
When should you investigate or refer a troublesome cough?

- Chronic persistent (> 8 weeks) or chronic productive
- Frequently Recurrent (e.g. every month)
- Associated with noisy breathing
- Suspected pneumonia or TB
- Not isolated i.e. suspicion of chronic lung disease or systemic illness e.g. weight loss, prolonged fever
- Choking onset
- Abnormal clinical findings or signs
- Haemoptysis
Specific pointers identified from history, examination, chest x-ray, spirometry (≥ 5 years)

- Yes
  - (Wheezy episodes, other atopy)
  - Asthma
- No
  - Isolated cough, otherwise well child

- Yes
  - (Clearing throat, allergic salute)
  - Post nasal drip/allergic rhinitis
- No
  - (Wet/productive cough)
    - Persistent endobronchial infection
      - CF
      - PCD
      - PBB
      - ID

- No
  - (Choking with feeds, chesty after feeds)
  - Recurrent aspiration
- Yes
  - (Brassy or barking cough)
    - Tracheo/bronchomalacia, airways compression

- No response
  - Cough bizarre, disappears when asleep, "la belle indifference"
  - Psychogenic cough
- Yes
  - (Dry cough, breathless restrictive spirometry)
  - Interstitial lung disease
- (Progressive cough, weight loss, fevers)
  - TB

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BTS guidelines 2008
Treating significant isolated chronic cough

- *post infective dry cough* (viral/pertussis), watch and see.
- Chronic purulent rhinosinusitis
- Persistent bronchitis/wet cough
- Atopy, PAR or possible asthma
- Environmental exposures eg Smokers, crèche
- Habit cough

**Treatment**

- Antihistamines. Macrolide if *pertussis* suspected
- Antibiotics if >10 days; topical nasal decongestants
- Antibiotics 10-14 days and review
- Trial of asthma Rx: oral (5 days) or 3 months ICS. Stop Rx if well: Rx AR if present; nasal steroids, anti-histamine
- Smoking lecture. Consider removing from crèche
- Counsel, behavioural interventions, chlorpromazine or pholcodeine.
OTC medications and Antibiotics for treating the COUGH

- **Antibiotics**: chronic bronchitis, purulent rhinosinusitis, tonsillitis (Strep), otitis
- **Mucolytics**: no evidence
- **Antitussives**: ineffective
- **Anti-histamines**: chronic allergic rhinitis
- **Decongestants**: no evidence
- **Topical /nasal steroids**: allergic rhinitis
- **Systemic or inhaled steroids**: asthma, viral triggered cough/wheeze
- **LTRA e.g. Singulair®**: mild asthma, viral-triggered cough/wheeze
OTC s: symptomatic relief only
Concluding remarks...

- A careful detailed history is essential
- Cough as *only* symptom is not asthma
- Identify coughing patterns
- Evaluate the patient *WHEN THEY ARE WELL*
- Investigations are mostly indicated for persistent symptoms or serious underlying illness a consideration
- Parents must be counselled that OTCs, antibiotics will not cure a cough
- Trials of therapies must be stopped if no benefit or unlikely the reason for symptom improvement.
- **Re-assure, re-assure and re-assure....**