

Cough

Non-Prescription Drugs and Parapharmaceuticals

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Cough

Coughing is a protective reflex action caused when the airway is being irritated or obstructed.

Its purpose is to clear the airway so that breathing can continue normally.

The majority of coughs presenting in the pharmacy will be caused by a viral respiratory tract infection. They will often be associated with other symptoms of a cold.



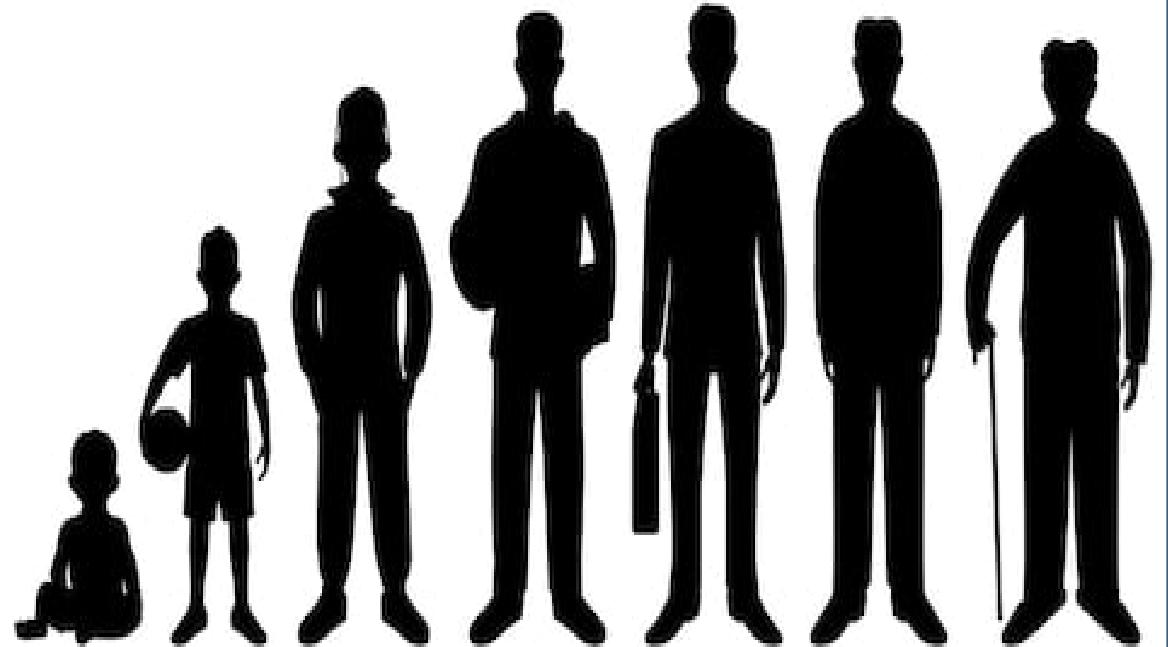
Cough

What you need to know

Cough

Significance of questions and answers/ 1. Age

Establishing who the patient is – child or adult – will influence the pharmacist's decision about the necessity of referral to the doctor and choice of treatment.



Cough

Significance of questions and answers / 2. Duration

Patients are often concerned when a cough has lasted for, what seems to them, a long time. They may be worried that because the cough has not resolved, it may have a serious cause.

Most coughs are self-limiting and will get better with or without treatment.

Cough can often **go on for 3 weeks or more after** a bad cold but usually slowly subsides over this time

When to refer to GP:

A cough of longer than 2-3 weeks' duration that has showed no improvement, or is getting worse. This is particularly so if accompanied by feelings of tiredness, malaise or fever.

Significance of questions and answers / 2. Duration and Etiology

- Cough is classified as:
 1. **Acute** (duration **less than 3 weeks**), most commonly caused by:
 1. Viral URTI (e.g., Common cold).
 2. **Subacute** (duration of **3-8 weeks**), commonly caused by:
 1. bacterial sinusitis
 2. asthma.
 3. **Chronic** (duration of **longer than 8 weeks**), most commonly caused by:
 1. UACS (upper airway cough syndrome, also known as postnasal drip syndrome)
 1. COPD
 2. GERD.



Cough

Significance of questions and answers / 3. Nature of cough

Unproductive (dry, tickly or tight)

In an unproductive cough, no sputum is produced.

These coughs are usually caused by viral infection that temporarily damages and irritates the airway and are self-limiting.

It is associated with, atypical bacterial infections, GERD, cardiac disease, and some medications such as.....

Cough

Significance of questions and answers / 3. Nature of cough

Productive (chesty or loose)

Sputum is normally produced by the body and it is an oversecretion that leads to coughing.

Oversecretion may be caused by irritation of the airways due to infection, allergy, etc., or when the cilia are not working properly (e.g. in smokers).

Non-colored (clear or whitish) sputum is uninfected.

Green sputum is common in asthma and is thought to be due to eosinophils.

Chronic cough with haemoptysis associated with chronic fever and night sweats is a classical symptom of Tuberculosis

Cough

Significance of questions and answers / 4. Previous History

COPD	Asthma	Cardiovascular	Gastro-oesophageal Reflux
<p>Questioning may reveal a history of COPD, which is being treated by the doctor with antibiotics.</p> <p>In this situation, further symptom relief may be possible with an appropriate cough medicine.</p>	<p>A recurrent night-time cough can indicate asthma, especially in children, and should be referred.</p> <p>Asthma may sometimes present as a chronic cough without wheezing.</p> <p>A family history of eczema, hay fever and asthma is worth asking about.</p> <p>Patients with such a family history appear to be more prone to extended episodes of coughing following a simple respiratory tract infection.</p>	<p>Coughing can be a symptom of heart failure.</p> <p>If there is a history of heart disease, especially with a persisting cough, then referral is advisable.</p>	<p>can cause coughing. Sometimes such reflux is asymptomatic apart from coughing.</p> <p>Some patients are aware of acid coming up into their throat at night when they are in bed.</p> <p>It may also be suggested by cough that is worse during or after eating, with talking and with bending.</p>

Cough

Significance of questions and answers / 4. Previous History

Smoking Habit

Smoking will exacerbate a cough and can cause coughing since it is irritating to the lungs.

The cough is usually worse in the mornings.

If coughing is recurrent and persistent, the pharmacist is in a good position to offer health education advice about the benefits of stopping smoking, suggesting nicotine replacement therapy when appropriate.

However, on stopping, the cough may initially become worse as the cleaning action of the cilia is re-established during the first few days, and it is worth mentioning this.

Smokers may assume their cough is harmless, and it is always important to mention that smoking is a serious cause of COPD and lung cancer.

Cough

Significance of questions and answers / 5. Present Medications

This includes:

- Those prescribed by a doctor
- Any bought OTC
- Borrowed from a friend or neighbor
- Any herbal remedies.

It is important to remember the possibility of interactions with cough medicine.

It is also useful to know which cough medicines have been tried already:

- The pharmacist may decide that an inappropriate preparation has been taken, for example, a cough suppressant for a productive cough.
- If one or more remedies have been tried for an appropriate length of time without success, then referral may be advisable.

Cough

Significance of questions and answers / 5. Present Medications

Angiotensin-Converting Enzyme (ACE) Inhibitors

Examples: *enalapril, captopril, lisinopril* and *ramipril*.

Chronic coughing may occur in patients taking ACE-I.

Patients may develop the cough within days of starting treatment or after a period of a few weeks or even months.

Typically, the cough is irritating, non-productive and persistent.

The cough may resolve or may persist; in some patients, the cough is so troublesome and distressing that ACE inhibitor therapy may have to be discontinued.

Any patients in whom medication is suspected as the cause of a cough, should be referred to the prescriber.

Mechanism of Cough

Stimulation of mechano-or chemoreceptors
(throat, respiratory passages or stretch
receptors in lungs)



Afferent impulses to cough centre (medulla)



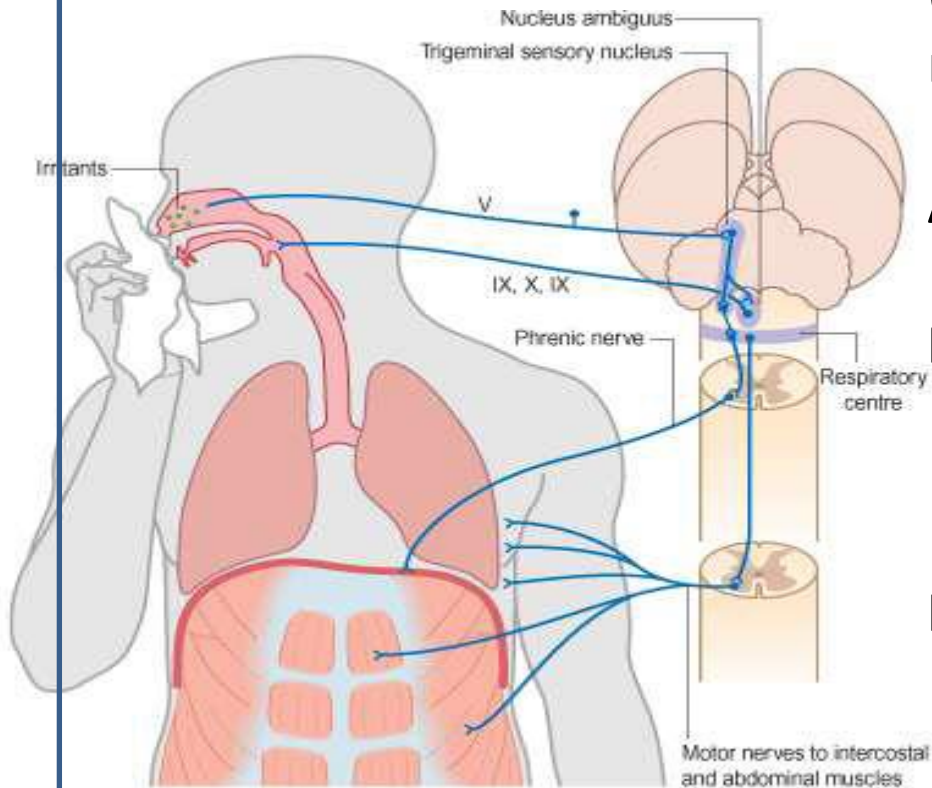
Efferent impulses via parasympathetic & motor
(nerves to diaphragm, intercostal muscles & lung)



**Increased contraction of diaphragmatic, abdominal &
intercostal (ribs) muscles**



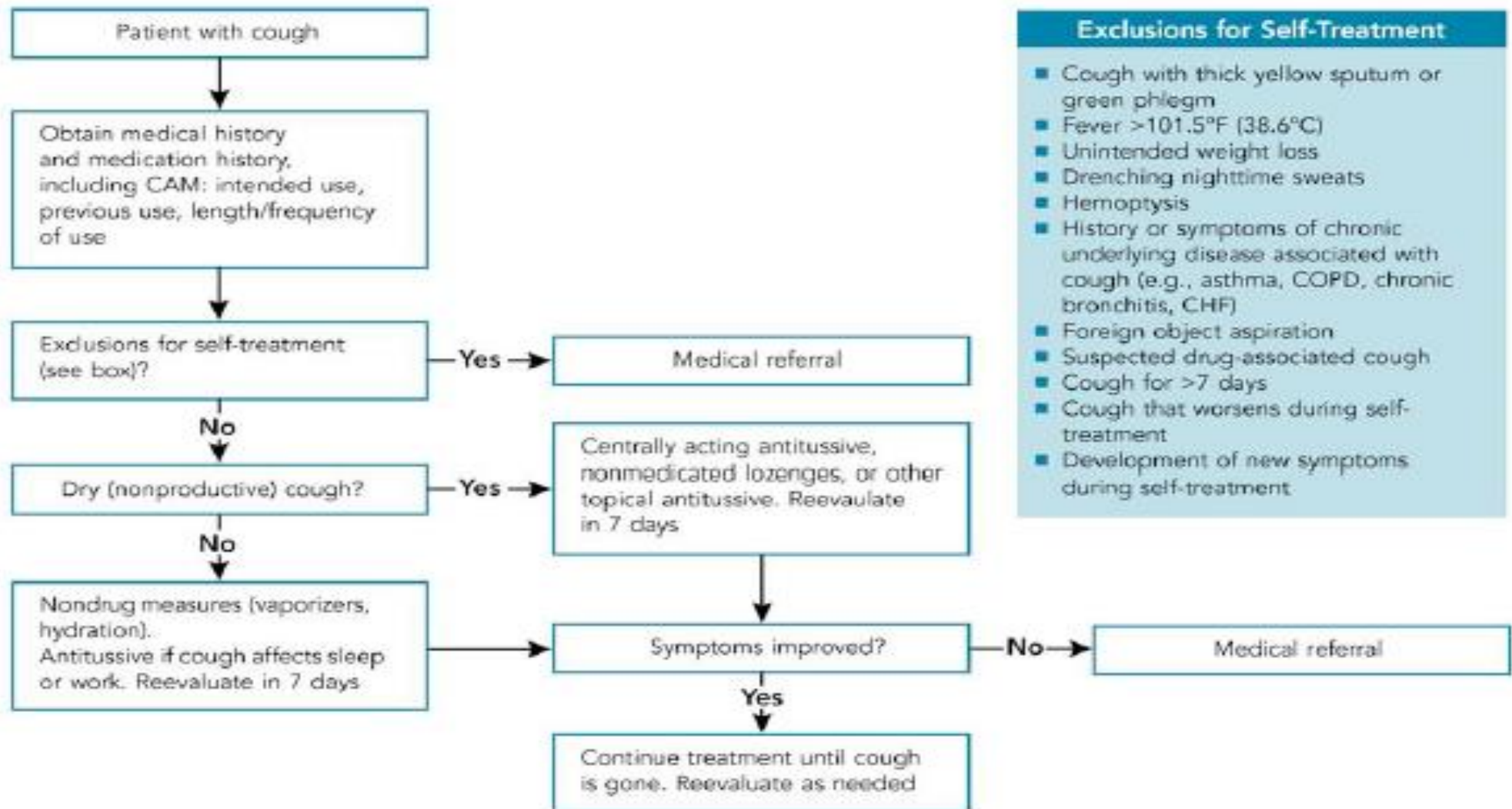
Cough



Goals of treatment

- Reduce the number and severity of cough episodes.
- Prevent complications.
- The underlying disorder must be treated to stop the cause of cough

Self care of cough



Non-pharmacological treatment

1. Using non-medicated lozenges to reduce throat irritation.
2. Hydration
3. Humidification using humidifiers(ultrasonic, evaporative) to increase the amount of moisture in inspired air , thus soothe irritated air
4. Treat the underlying cause of cough.



Practical Points

☐ Steam inhalations

These can be useful, although a systematic review found insufficient evidence to judge whether there might be a benefit.

The steam helps to liquefy lung secretions and patients find the warm moist air comforting.

Some may prefer to add a preparation such as *menthol* and *eucalyptus* inhalant.

One teaspoonful of inhalant should be added to a pint of hot (not boiling) water and the steam inhaled. A towel can be put over the head to trap the steam.



Practical Points

☐ Fluid Intake

Maintaining a good fluid intake helps to hydrate the lungs, and hot drinks can have a soothing effect.

For children a warm drink of honey and lemon can also be soothing.

General advice to patients with coughs and colds should be to increase fluid intake.



Cough

Management

The BNF gives the following guidance:

Suppressants	Demulcent cough preparations	Expectorants
<p>Used to treat unproductive coughs.</p> <p>When there is no identifiable cause, cough suppressants may be useful, for example, if sleep is disturbed.</p> <p>They may cause sputum retention and this may be harmful in patients with chronic bronchitis</p>	<p>contain soothing substances such as syrup or glycerol.</p> <p>Some patients believe that such preparations relieve a dry irritating cough.</p> <p>Preparations such as simple linctus have the advantage of being harmless and inexpensive;</p> <p>Paediatric simple linctus is particularly useful in children.</p>	<p>Used in the treatment of productive coughs.</p> <p>Claimed to promote expulsion of bronchial secretions,</p>

There is no logic in using expectorants (which promote coughing) and suppressants (which reduce coughing) together as they have opposing effects.

Treatment of cough

Systemic antitussives

- Nonprescription systemic antitussives approved by the FDA include:
 1. Codeine
 2. Dextromethorphan
 3. Diphenhydramine

Antitussives drugs: Codeine

- Codeine is the cold standard antitussive indicated for the suppression of **nonproductive** cough caused chemical or mechanical respiratory tract irritation.
- OTC codeine-containing antitussive must no more than 200 mg of codeine per 100 ml.
- Hydrocodone and hydromorphone have similar efficacy but they are associated with a greater risk of dependency and are available only by prescription.
- Codeine acts centrally on the medulla to increase the cough threshold.

Antitussives drugs: Codeine

- Not recommended for children less than 2 years.
- Available as oral solution and syrups.
- Lethal dose in adults is 0.5 to 1 gm.
- Usual antitussive dose have low toxicity and little risk of addiction.
- Concomitant use of codeine and CNS depressants (e.g., sedatives and alcohol) cause additive CNS depression.
- Patients with asthma or COPD, addicts, and those who take other respiratory depressants or sedatives, should use codeine with caution.



Antitussives drugs: **Dextromethorphan**

- Considered approximately equipotent with codeine, dextromethorphan is a opioid with no analgesic, sedative, respiratory depressant, or addictive properties at usual antitussive doses.
- Most popular cough suppressant
- *Dextromethorphan* can be given to children of age 6 years and over.
- Low potential for misuse. **However**, there have been rare reports of mania following misuse and consumption of very large quantities, and pharmacists should be aware of this possibility if regular purchases are made.

The combination of monoamine oxidase inhibitors (MAOIs) and dextromethorphan may cause serotonergic syndrome (e.g., increased blood pressure, hyperpyrexia, arrhythmias, and myoclonus).

Dextromethorphan should not be taken for at least 14 days after the MAOI is discontinued.



Treatment of cough

Diphenhydramine

- Diphenhydramine, a first-generation antihistamine with significant sedating and anticholinergic properties, acts centrally in the medulla to increase the cough threshold.
- Second-generation antihistamines (e.g., loratadine) lack antitussive activity.
- Diphenhydramine potentiates the depressant effects of narcotics, sedatives, and alcohol on the CNS.

Treatment of cough: Demulcents

Examples: *glycerine, lemon and honey* or *simple linctus*.

Popular remedies and are useful for their soothing effect.

They do not contain any active ingredient and are considered to be safe in children and pregnant women.

They are now the treatment recommended for children under 6 years old.



Protussives (Expectorants)

- Guaifenesin, the only FDA-approved expectorant, is indicated for the symptomatic relief of productive cough.
- Guaifenesin is thought to act as an expectorant by increasing the volume and reducing the viscosity of secretions in the trachea and bronchi.
- Guaifenesin is marketed as oral liquids, syrups, caplets.
- ***Guaifenesin*** Commonly found in cough remedies. In adults, the dose required to produce expectoration is **100–200 mg**.



Treatment of cough: Topical Antitussives

- **Camphor** and **menthol** are the only FDA-approved topical antitussives.
- Camphor and menthol vapors stimulate sensory nerve endings in the nose, creating local anesthetic sensation and sense of improved airflow.

