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.

<u>Classification:</u>

Coughs can be classified according to:

• Nature of cough



• Productive cough (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 and known as mucoid. Green sputum is not uncommon in asthma and is thought to be due to eosinophils.

Colored sputum is common and in most cases does not signify the need for antibiotic therapy.

• 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 selflimiting.

However, many patients will say that they are not producing sputum, although they go on to say that they 'can feel it on their chest'. In these cases, the cough is probably productive in nature and should be treated as such.

• Duration

Acute cough	Sub-acute cough	Chronic cough	
less than 3 weeks	3-8 weeks	more than 8 weeks	
		(4 weeks in children)	

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.

Acute cough is usually caused by a viral upper respiratory tract infection. Acute viral URTIs exhibit seasonality, with higher incidence seen in the winter months.

In general, a cough of longer than 2-3 weeks' duration that has showed no improvement, or is getting worse, should be referred to the physician for further investigation.

Causes of cough

Frequency	Causes				
Most Likely	Viral infection				
Likely	Upper airways cough syndrome (postnasal drip)				
	Acute br	onchitis			
Unlikely	Croup, Chronic bronchitis, Asthma, Pneumonia				
	ACE inhibitor induced				
Very unlikely	Heart	failure,	bronchiectasis,	tuberculosis,	cancer,
	pneumothorax, lung abscess, gastroesophageal reflux disease				

Respiratory symptoms for direct referral

Chest pain	 Pain on inspiration of without inspiration.
	• It can be causes by respiratory or non-respiratory causes
	such as heart burn (gastric) or cardiac causes.
Wheezing	• It may be due to infection, asthma or cardiac causes.
Shortness	• It may be due to asthma or cardiac causes.
of breath	
Sputum	• It can be clear or colored.
	• Clear, thin (serous) sputum may be a feature of heart failure.
	• Colored sputum may be caused by an infection.
	Hemoptysis may be a sign of tuberculosis.
Duration	• Duration longer than 3 weeks or cough that recurs on a regular
	basis. This suggests non-acute cause of cough and requires
	further investigation.
Debilitating	• Debilitating symptoms in the elderly. This patient group at
symptoms	greater risk of complications.
Nocturnal	• Persistent nocturnal cough in children suggests possible
cough	asthma.

Treatment

The majority of coughs presenting in the pharmacy will be caused by a viral upper respiratory tract infection. They will often be associated with other symptoms of a cold. The evidence to support the use of cough suppressants and expectorants is not strong but some patients report finding them helpful.

Establishing who the patient is – child or adult – will influence the choice of treatment and whether referral is necessary.

Cough preparations for productive cough

• Expectorants

A number of active ingredients have been formulated to help expectoration, including guaifenesin, ammonium salts (e.g., ammonium chloride), and some plant products such as ipecacuanha. They increase the amount or hydration of secretions.

Guaifenesin (glyceryl guaiacolate) is the only expectorant with any evidence of effectiveness. However, trial results are not convincing and guaifenesin is probably little or no better than placebo.

• Mucolytics

A mucolytic agent is an agent which dissolves thick mucus and is usually used to help relieve respiratory difficulties.

Many mucolytic drugs are available, including acetylcysteine, ambroxol, carbocisteine and bromhexine.

Cough preparations for non-productive cough

• Cough suppressants (antitussives)

Cough suppressants act directly on the cough center to depress the cough reflex. Their effectiveness has been investigated in patients with acute and chronic cough. Of greatest interest to OTC medication are trials investigating acute cough, because patients suffering from chronic cough should be referred to the doctor.

• Opioids and related drugs

Codeine is generally accepted as a standard or benchmark antitussive against which all others are judged.

Dextromethorphan has been shown to be effective in chronic cough but studies assessing the efficacy of dextromethorphan in acute cough have shown it to be no better than placebo. It appears to have limited abuse potential and fewer side effects than codeine.

• Antihistamines

Antihistamines have been included in cough remedies for decades. Their mechanism of action is thought to be through the anticholinergic-like drying action on the mucous membranes and not via histamine.

For the relief of cough and cold symptoms, most notably with diphenhydramine. Less-sedating antihistamines, have not been shown to have any benefit in treating coughs compared to placebo.

Other preparations for both productive and non-productive cough

• Cough remedies

Simple cough remedies (such as those containing glycerin, honey or lemon) can be used in children. Alternatively, for children over the age of 1 year, a warm drink of honey and lemon could be given.

• Demulcents

Demulcents, for example simple linctus, provide a safe alternative for at-risk patient groups such as the elderly, pregnant women, young children and those taking multiple medication.

They can act as useful placebos when the patient insists on a cough mixture and will not take no for an answer. If recommended they should be given three or four times a day.

Common Cold

The common cold comprises a mixture of viral upper respiratory tract infections.

Colds, along with coughs, represent the largest caseload for primary healthcare workers. Because the condition has no specific cure and is self-limiting with two-thirds of sufferers recovering within a week, it would be easy to dismiss the condition as unimportant.

Although colds are self-limiting, many people choose to buy OTC medicines for symptomatic relief. Some of the ingredients of OTC cold remedies may interact with prescribed therapy, occasionally with serious consequences. Therefore, careful attention needs to be given to taking a medication history and selecting an appropriate product.

Prevalence and epidemiology

The common cold is extremely prevalent and usually caused by viral respiratory tract infection. Other causes include rhinitis, rhinosinusitis and otitis media. Sometimes, it can be caused by influenza.

Children contract colds more frequently than adults with on average five to six colds per year compared to two to four colds in adults, although in children this can be as high as 12 colds per year. Children aged between 4 and 8 years are most likely to contract a cold and it can appear to a child's parents that one cold follows another with no respite. By the age of 10 the number of colds contracted is half that observed in pre-school children.

Signs and symptoms:

The nature and severity of symptoms will be influenced by factors such as the causative agent, patient age and underlying medical conditions. Following an incubation period of between 1 and 3 days, the patient develops a sore throat and sneezing, followed by profuse nasal discharge and congestion.

In addition, headache, mild to moderate fever and general malaise might be present. Most colds resolve in 1 week, but up to a quarter of people will have symptoms lasting 14 days or more.

Patients with acute sinus involvement that fails to respond to decongestant therapy or with middle ear pain that fails to respond to analgesia may need for antibiotics. Patients with symptoms indicative of flu or vulnerable patient groups, such as the very elderly need an assessment of symptom severity by doctor.

• Age

Children are more susceptible to URTI than are adults and may get complications. Older people, particularly if they are frail and have co-morbidities (e.g. diabetes), may be at risk of complications such as pneumonia.

Children aged between 6 and 12 years can still use preparations containing antihistamines, nasal decongestants or cough preparations; but with an advice to limit treatment to 5 days or less.

• Duration

The symptoms of the common cold usually last for 7–14 days. Some symptoms, such as a cough, may persist after the worst of the cold is over and coughing for 3 weeks is not unusual.

Points indicative of referral for common cold

- Earache not settling with analgesic
- Very young patients
- Frail and old patients
- Patients with heart or lung disease, kidney disease, diabetes, compromised immune system
- Persisting fever and productive cough
- Signs of delirium
- Signs of pleuritic-type chest pain
- Asthma

Management:

Hygiene advice

Basic good hygiene measures may help to prevent spread infection of cold or flu. These include:

- Washing hands frequently with soap and hot water when the person has symptoms of the common cold or comes into contact with someone who has symptoms
- Avoiding the sharing of towels
- For children, discouraging the sharing of toys with an infected child.

Treatment:

Many of the active ingredients found in cold remedies are also constituents of cough products. Often they are combined and marketed as cough and cold or flu remedies.

• Antihistamines

First-generation antihistamines, such as chlorphenamine, diphenhydramine and triprolidine, are now included in some cough and cold remedies. Antihistamines when used as monotherapy did not have significant benefit clinically in nasal congestion, rhinorrhea or sneezing in older children and adults.

• Sympathomimetics

Topical oxymetazoline and xylometazoline and oral ephedrine, phenylephrine, pseudoephedrine and phenylpropanolamine are decongestants and sympathomimetics. No difference in efficacy was found between topical or systemic products. Nasal administration of sympathomimetics represents the safest route of administration.

Oral or nasal sympathomimetics should not be given to children under 6 years of age and for those aged between 6 and 12 duration of treatment should be limited to a maximum of 5 days. Rebound congestion (rhinitis medicamentosa) can occur with topically applied but not oral sympathomimetics.

• Analgesics and antipyretic

Paracetamol is the preferred analgesic and antipyretic.

• Combination preparations

Preparations with multiple ingredients have a very limited role to play in the management of coughs and colds. However, patients might perceive that an 'all in one' medicine as better value for money and, potentially, compliance with such preparations might be improved.

Alternative therapies:

• Saline sprays

Nasal sprays are preferable for adults and children over 6 years old because the small droplets in the spray mist reach a large surface area. Drops are more easily swallowed, which increases the possibility of systemic effects.

For children under 6 years old, drops are preferred because in young children the nostrils are not sufficiently wide to allow the effective use of sprays.

• Zinc lozenges

Some studies found that zinc (lozenges or syrup) is beneficial in reducing the duration and severity of the common cold in healthy people, when taken within 24 hours of onset of symptoms.

• Vitamin C

Vitamin C prophylaxis had no effect on the incidence of the common cold in the general community, and a small effect on the duration of a cold.

• Vapor inhalation

Steam inhalation has long been advocated to aid symptoms of the common cold, usually with the addition of menthol crystals.

Aromatic inhalants should not be used in those 3 months or younger.

• Cough remedies

Simple cough remedies (such as those containing glycerin, honey or lemon) can be used in children. Alternatively, for children over the age of 1 year, a warm drink of honey and lemon could be given.

• Herbal products

Some echinacea preparations may be better than placebo or no treatment for the prevention and treatment of colds.

• Antivirals

The effectiveness of antivirals during a pandemic cannot be known until used in such a situation and can only be guessed at based on experience in seasonal influenza and in those infected with avian flu.

Some antiviral products are licensed for use: oseltamivir, zanamivir and amantadine. They are POM.

• Antibiotics

Typical flu symptoms include cough, retrosternal discomfort, wheeze and phlegm (symptoms of acute bronchitis), and by themselves do not require antibiotics in a person who is not at risk.

However, if these symptoms worsen with a persistent or recurring fever, pleuritictype chest pain or breathlessness, then a pneumonia might be developing.