Cough

1. Introduction

Cough is a protective reflex that clears mucus and irritants from the airways. **Most coughs seen in the pharmacy are caused by viral respiratory infections** and are self-limiting (1).

The infection lasts only a few days, but the irritated airway lining takes longer to heal, so **an acute cough lasts about 3 weeks on average**. Explaining this reassures patients who think their cough "is taking too long" (1,2).

The evidence for OTC cough medicines is weak, although many patients find them helpful. The pharmacist's role is to: (1) exclude serious causes, (2) offer safe symptom relief, and (3) avoid harmful or useless products (1,2).

> **Note**
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> In Iraq, patients often ask for an antibiotic for a cough, and antibiotics are frequently obtained without a prescription. **Antibiotics do not shorten a viral cough, even when the sputum is yellow or green** (2). Unnecessary use causes side effects and increases antimicrobial resistance. The pharmacist should explain this and **not dispense an antibiotic for an acute cough without a prescription**; a patient who may need one should be referred to a doctor.

2. Types of cough

The type of cough decides which product is suitable:

- **Dry (Non-productive):** no sputum; usually due to viral irritation of the airway. The cough has no useful function, so it can be suppressed if distressing.
- **Productive (chesty):** sputum is produced. The cough is useful because it clears secretions, so **do not suppress it**. An expectorant, mucolytic, or demulcent is used instead.
- **Chesty nonproductive:** the patient "feels it on the chest" but brings nothing up. **Treat as a productive cough.**

3. Patient assessment

Before recommending any product, the pharmacist asks a few questions. The answers decide whether the cough can be treated in the pharmacy or needs referral (1).

A- The patient

Ask who the patient is and how old they are. Infants and frail older people become seriously ill faster, and most OTC cough medicines are not suitable for young children (below 6 years). For women, ask about **pregnancy and breastfeeding**.

B- Duration

Most coughs are self-limiting and improve within about 3 weeks. **A cough lasting 3 weeks or more that is not improving, or is getting worse, should be referred** to the doctor (1).

C- Nature of the cough

1- Is it **dry or productive**? This decides the type of product

2- Sputum color:

- Clear/white (**mucoid**) sputum means no infection.

- Yellow or green sputum is common in viral infections and **does not mean an antibiotic is needed** in healthy people. Color matters more in lung disease: in **COPD**, more sputum or a change to yellow/green suggests a bacterial exacerbation → **referral** (1,2).
- **Blood in sputum (haemoptysis)** or **rusty** sputum always requires **referral**.

D- Associated symptoms

Symptoms of a cold (runny or blocked nose, sore throat, mild fever) support a simple viral cough. The following point to another cause (1,3):

1- Chest pain, shortness of breath or wheezing: **refer** for further investigation.

2- Pneumonia: high fever, feeling very unwell, breathlessness, sharp **chest pain** on breathing, rusty sputum. In the elderly, confusion may be the only sign. **Refer** the same day.

3- Asthma: a **recurrent night-time cough**, especially in children, with or without wheeze, and particularly with a family history of asthma, eczema or allergy. Night cough with a cold is common, but without cold symptoms it may indicate asthma. **Refer**.

4- Tuberculosis (TB): chronic cough (± blood) with fever, night sweats and weight loss. **TB is more common in Iraq than in Western countries**, so it must be considered in any prolonged cough. **Refer**.

5- Heart failure: persistent cough with breathlessness, especially when lying flat or at night, swollen ankles, or frothy sputum. May indicate heart failure and should be **referred**.

6- Post-nasal drip (upper airway cough syndrome): mucus drips from the nose into the throat, causing frequent throat clearing. Causes include colds, sinusitis, and allergies. Treat the cause (saline, allergy treatment: decongestants or antihistamines) rather than the cough alone.

7- Gastro-oesophageal reflux: cough worse lying down, after meals or when bending, often with heartburn. May improve with antacids/acid-reducing treatment; refer if persistent.

8- Croup: in young children, a harsh **barking** cough and noisy breathing in (**stridor**), starting a day or so after a cold. **Refer**; stridor at rest is an emergency.

9- Whooping cough: starts like a cold, then long **bouts of coughing** followed by a whoop or vomiting, lasting weeks. Babies may turn blue or stop breathing. Check the child's vaccination card and **refer**.

E- Smoking and exposure

Smokers (cigarettes or **narghile/argileh**) are prone to a chronic cough, which may progress to COPD. **A change in a smoker's cough** (more frequent, more productive, different sound, blood), especially with tiredness or weight loss in people over 40, may indicate lung cancer → **refer**. (1,3).

F- Medication

1- Chronic diseases and medicines: ask about heart disease, hypertension, diabetes, thyroid disease and current medicines; these affect product choice (e.g., decongestants).

2- Failed medication: if a suitable product has been used for a reasonable time without benefit → **refer**, rather than switching to another syrup.

3- Drug-induced cough – ACE inhibitors (captopril, enalapril, lisinopril, ramipril): a dry, persistent cough in about 2–10% of patients, starting days to months after treatment begins. Changing to another ACE inhibitor does not help. **Refer to the prescriber**, who will usually switch to an angiotensin II receptor blocker (losartan, valsartan). The patient should not stop the drug on their own (1).

4. When to refer

When to refer
Cough lasting 2–3 weeks or more and not improving
Cough associated with significant fever, malaise or feeling of being unwell
Distressing cough in frail, older people
Concern about comorbidity, such as diabetes or heart disease
Sputum (purulent sputum in COPD), rusty or bloodstained
Haemoptysis – blood in sputum, coughing blood
Chest pain
Shortness of breath
Wheezing
Whooping cough or croup
Recurrent nocturnal cough
Suspected adverse drug reaction, ACE inhibitors
Failed medication

Treatment timescale (1)

After treatment is recommended, the patient should see a doctor **if the cough has not improved 2–3 weeks after it started, or sooner if it gets worse.**

5. Community pharmacy approach (للاطلاع)

Step 1	**Identify** the patient: age, pregnancy, appearance.
Step 2	**Ask** the assessment questions (Arabic version at the end).
Step 3	**Screen for red flags** → referral.
Step 4	**Check** chronic diseases, medicines, and products already tried.
Step 5	**Decide:** treat or refer. If in doubt – refer.
Step 6	**Treat:** non-drug measures + honey/demulcent; add a medicine matched to the cough type and age if suitable. No antibiotic without a prescription.
Step 7	**Counseling**.

6. Management

6.1 Non-drug measures

- **Fluids and rest**; warm drinks soothe the throat.
- **Honey:** 1–2 teaspoons alone or in a warm drink (e.g. with lemon). Recommended by NICE for people **over 1 year**. **No honey under 1 year** (infant botulism) (1,2).
- **Steam** (e.g. a steamy bathroom) may be comforting; **no bowl steam inhalation in children** (scalds).
- **Stop smoking** (cigarettes and narghile); avoid dust and smoke exposure where possible (e.g. stay indoors during dust storms).

- **Demulcents (Simple linctus / glycerol, honey-and-lemon syrups):** Soothing syrups that coat the throat. They contain no active drug, so they are safe for **any type of cough, in children and in pregnancy**, and are the **preferred choice under 6 years (lozenges above 3 years)**. Usually taken 3–4 times daily. Choose sugar-free for patients with diabetes who prefer it (1).

6.2 Productive cough: expectorants and mucolytics

1-Guaifenesin (expectorant), also called Glyceryl guaiacolate. NICE lists it for **age 6 and over**, with limited evidence of benefit (2).

- **Dose:** 200–400 mg every 4 hours; max 2.4 g/day. Check the product contains an adequate dose.

2-Mucolytics (ambroxol, bromhexine) (age above 6) reduce sputum viscosity. They are **widely used in Iraq**, but are **not** included in NICE self-care recommendations and the evidence in acute cough is limited.

- **Usual adult doses:** ambroxol 30 mg three times daily for 2–3 days, then twice daily; bromhexine 8–16 mg three times daily.
- **Cautions:** GI upset; **avoid in active peptic ulcer** and use with care if there is a history of ulcer; rare serious skin/allergic reactions – stop if a rash appears.).

6.3 Dry cough:

1-dextromethorphan

The suppressant of choice: generally non-sedating with few side effects. NICE: **age 12 and over**, not for a persistent cough (e.g., asthma) or excess secretions (1,2).

- **Dose:** 10–20 mg every 4 hours or 30 mg every 6–8 hours; max 120 mg/day.

2-Sedating antihistamines (diphenhydramine, promethazine)

Common in local combination syrups. Limited evidence for cough; their effect is mainly sedation and drying of secretions. **Useful as a night-time dose (with a suppressant) when a dry cough disturbs sleep.** Non-sedating antihistamines do not help cough (1,2).

- **Never combine with an expectorant/mucolytic** – one dries secretions, the other loosens them.
- **Side effects:** drowsiness (driving), dry mouth, constipation, urinary retention.
- **Avoid** in glaucoma, prostate enlargement, frail elderly, **children under 6**, and with other sedatives.

6.4 Herbal products

- **Ivy leaf extract** syrups are very popular locally. Evidence is limited and of low quality; generally, well tolerated (occasional GI upset). Use according to the leaflet. Used for wet cough
- **Pelargonium:** NICE option for age 12+, low-quality evidence. Avoid with anticoagulants (e.g. warfarin) (1).

6.5 Not recommended (للاطلاع)

Some of these products may still be found in Iraqi pharmacies, because registration differs between countries; the pharmacist should not recommend them.

Product	Reason
Codeine-containing syrups	No benefit in acute cough; risk of dependence and abuse. Prescription-only since 2024; FDA: opioid cough medicines only for **≥18 years**. Refuse sale if misuse is suspected (5,6).
Pholcodine	**Withdrawn in the UK (2023)** – linked to anaphylaxis with muscle relaxants (7).

Product	Reason
Oral phenylephrine (common in combination syrups/tablets)	Found **ineffective** as an oral decongestant; FDA proposed its removal from OTC products (2024) (9).
Theophylline in cough syrups	A patient with wheeze or breathlessness needs referral, not an OTC bronchodilator (1).
Antibiotics	Not indicated for most acute coughs; not to be dispensed without a prescription (2).

6.6 Summary of OTC options (للاطلاع)

Option	Cough / age	Adult dose	Main precautions
Non-meicated			
Honey	Any; >1 y	1–2 teaspoons, alone or in warm drink	Not <1 y
Simple linctus / glycerol	Any; all ages, pregnancy	3–4 times daily	
Medicated (limited evidence)			
Guaifenesin	Productive; ≥6 y	200–400 mg every 4 h; max 2.4 g/day	
Ambroxol / bromhexine	Productive; not <12 y	See 6.2	Peptic ulcer; rash; 1st trimester
Dextromethorphan	Dry; ≥6 y	10–20 mg every 4 h or 30 mg every 6–8 h; max 120 mg/day	Misuse
Sedating antihistamine	Dry, night-time; not <6 y	Night dose per leaflet	Drowsiness; glaucoma, prostate, elderly
Ivy leaf / pelargonium	Acute cough	Per leaflet	In case of Pelargonium: anticoagulants

7. Special populations

Children (MHRA restrictions) (1,10)

- **Under 6 years:** no OTC cough/cold medicines containing antihistamines, dextromethorphan, guaifenesin or decongestants.
- **6–12 years:** only after simple measures fail; one product; **maximum 5 days**.

Why? There is no good evidence they work in children, they can cause side effects and poisoning, young children get many colds (more exposure), and they cannot report side effects.

What to offer instead: fluids,simple linctus, and honey (over 1 year).

Other groups

- **Pregnancy:** honey, demulcents and fluids first. Avoid oral decongestants and combination products; avoid guaifenesin and mucolytics in the first trimester.
- **Breastfeeding:** non-drug measures preferred; sedating antihistamines and pseudoephedrine may reduce milk supply.
- **Elderly/frail:** higher risk of pneumonia (may present as confusion) – low threshold to refer. Avoid sedating antihistamines (falls, confusion).
- **Hypertension, heart disease, diabetes, hyperthyroidism:** avoid oral decongestants; offer sugar-free products.

References

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2. NICE. **Cough (acute): antimicrobial prescribing.** NG120; 2019.
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4. NHS. **Whooping cough (pertussis) – symptoms and vaccination.** nhs.uk.
5. MHRA. **Codeine linctus reclassified to a prescription-only medicine.** Drug Safety Update, February 2024.
6. US FDA. **Opioid cough and cold medicines limited to adults 18 years and older.** Drug Safety Communication, 2018.
7. MHRA. **Pholcodine-containing cough and cold medicines: withdrawal from UK market.** Drug Safety Update, March 2023.
8. MHRA. **Pseudoephedrine: very rare risk of PRES and RCVS.** Drug Safety Update, February 2024.
9. US FDA. **Proposal to end use of oral phenylephrine as an OTC nasal decongestant.** November 2024 (check fda.gov for final status).
10. MHRA. **Over-the-counter cough and cold medicines for children.** Drug Safety Update, 2009; current BNF/BNFC.
11. Product leaflets of locally registered products (Iraqi Ministry of Health) for local availability and doses.

ملحق: الأسئلة التي يسألها الصيدلي لمريض السعال وكيف يتصرف

يُسأل المريض (أو من يسأل نيابةً عنه) الأسئلة الآتية قبل صرف أي علاج:

السؤال	كيف أتصرف حسب الجواب
١ـ منو المريض؟ وشكد عمره؟ (وإذا امرأة: حامل أو مرضع؟)	أقل من سنة: لا عسل ولا أدوية سعال، وأحيله بسهولة. أقل من ٦ سنوات: لا أدوية سعال وزكام؛ أعطي سوائل وشراب ملطّف وعسل (فوق السنة). الحامل: أفضّل العسل والشراب الملطّف.
٢ـ من شوكت عندك السعال؟	أقل من ٣ أسابيع ويتحسن: أعالج. **أكثر من ٢–٣ أسابيع وما يتحسن أو يسوء: أحيل للطبيب** (وأفكر بالتدرّن).
٣ـ السعال جاف لو بيه بلغم؟ شنو لون البلغم؟ بيه دم؟	جاف: مثبط سعال (دكستروميثورفان ≤١٢ سنة). بيه بلغم: مقشّع أو مذيب، **ولا أعطي مثبط**. بلغم بيه دم أو لونه مثل الصدأ: **إحالة**.
٤ـ أكو أعراض ثانية؟ (حرارة عالية، ضيق نفس، ألم صدر، صفير، تعرّق ليلي، نقص وزن)	أعراض زكام فقط (رشح، التهاب بلعوم): أعالج. **أي عرض من البقية: إحالة**. ضيق نفس شديد أو ازرقاق: طوارئ فوراً.
٥ـ السعال يزيد بالليل؟ يزيد من تنام على ظهرك أو بعد الأكل؟	سعال ليلي متكرر (خاصة الطفل): احتمال ربو ← إحالة. يزيد بعد الأكل أو الاستلقاء مع حرقة: ارتجاع. يزيد بالاستلقاء مع ضيق نفس وتورّم القدمين: عجز قلب ← إحالة.
٦ـ عندك أمراض مزمنة؟ (COPD, قلب، ضغط، سكر، غدة درقية)	ضغط/قلب/سكر/درقية: **لا أعطي مزيلات احتقان فموية**، وأفضّل شراب خالي من السكر. COPD مع ضيق نفس أو بلغم متقيّح: إحالة.
٧ـ تاخذ أدوية؟ (خاصة أدوية الضغط مثل الكابتوبريل والإنالابريل، وأدوية الكآبة)	سعال جاف مع دواء من مجموعة ACE-I: **إحالة للطبيب المعالج ولا يوقف الدواء بنفسه**. أدوية الكآبة (MAOI أو SSRI): **لا دكستروميثورفان**.
٨ـ استعملت علاج للسعال؟ شنو؟ ونفعك؟	إذا استعمل دواء مناسب لمدة كافية وما نفع: **إحالة، ولا أبدّل لشراب ثاني**.
٩ـ تدخّن (سكائر أو أركيلة)؟ تغيّرت طبيعة سعالك؟ تتعرض لغبار أو أبخرة؟	تغيّر سعال المدخن (أكثر، بيه دم، صوت مختلف) أو مع تعب ونقص وزن: **إحالة**. أنصحه بترك التدخين وتجنّب الغبار.

خلاصة التصرف

١ـ **علامة خطر شديدة** (ضيق نفس شديد، ازرقاق، صرير عند الطفل، اختناق مفاجئ، سعال دم كثير): **طوارئ المستشفى فوراً**.

٢ـ **علامة خطر ثانية** (حرارة عالية مع ضيق نفس أو ألم صدر، صفير جديد، دم بالبلغم، سعال نباحي أو ديكي عند الطفل): **طبيب بنفس اليوم**.

٣ـ **سعال أكثر من ٢–٣ أسابيع، سعال ليلي متكرر، سعال من دواء ضغط، أو فشل العلاج: طبيب خلال أيام**.

٤ـ **ماكو علامات خطر**: أعالج بالسوائل والعسل (فوق السنة) والشراب الملطّف، وأضيف دواء يناسب **نوع السعال وعمر المريض**.

٥ـ **لا أصرف مضاد حيوي** للسعال الحاد بدون وصفة طبية.

٦ـ أوصي المريض يراجع الطبيب **إذا ما تحسّن خلال ٢–٣ أسابيع من بداية الاعراض أو ساءت حالته**.