

Cough - Chronic Persistent (cough for > 8 weeks)

See Notification of Infectious Diseases:
<http://www.enhertscg.nhs.uk/>

Click for info for patients

2WW referral for suspected lung cancer

Are RED FLAG symptoms present? Consider TB, cancer or other reasons for urgent referral

Click for more info
Patient has a cough for > 8 weeks (chronic persistent cough)

For coughs lasting < 8 weeks see 'Cough in Adults' pathway:
<http://www.enhertscg.nhs.uk/>

History and examination including x-ray and spirometry

Refer to the Hertfordshire Stop Smoking service as Required
<http://www.enhertscg.nhs.uk/>

Suspected COPD or asthma
Spirometry FEV1 / FVC assessment based on clinical standards is abnormal and a diagnosis of COPD or asthma is suspected. Refer smokers to smoking cessation service

See pathway Diagnosing COPD:
<http://www.enhertscg.nhs.uk/>

Suspected bronchiectasis

See pathway Bronchiectasis in Adults – Suspected:
<http://www.enhertscg.nhs.uk/>

Suspected pneumonia

Exclude COPD, asthma, bronchiectasis and pneumonia

Dry cough treatment

Productive cough - purulent/ non-purulent treatment

If the patient is taking an ACE inhibitor - STOP and consider alternative

Review within 6-8 weeks

Rhinosinus disease

Cough variant asthma

Gastro-oesophageal reflux disease (GORD)

If no improvement consider other causes
Consider bronchoscopy, high resolution CT scan to fully exclude significant disease

No improvement and difficult diagnosis, refer to secondary care

Consider referral to pulmonary rehab service for cough suppression techniques - individualised approach

See pathway Pulmonary Rehabilitation:
<http://www.enhertscg.nhs.uk/>

Patient has a cough for > 8 weeks (chronic persistent cough)

- Chronic cough lasting for > 8 weeks is common in the community. Chronic cough is reported by 10-20% of adults.
- Risk factors include atopy and smoking. Cough may be work-related and a thorough occupation history is very important in assessment.
- Most cases reflect the presence of an aggravant (asthma, drugs, environmental, gastro-oesophageal reflux, upper airway pathology) in a susceptible individual. The most common causes of chronic cough, other than smoking in adults, are postnasal drip, asthma, and GORD.

Common causes

- Smoking (active or passive).
- Asthma (and its variants, i.e. cough variant asthma, eosinophilic bronchitis).
- COPD.
- GORD.
- Postnasal drip.
- Environmental pollution
- ACE inhibitors
- Occupational exposure to irritants
- Whooping cough - in young adults

Less common causes

- Cardiovascular - left ventricular failure, pulmonary emboli, aortic aneurysm
- Chronic infections - bronchiectasis, tuberculosis, cystic fibrosis, lung abscess
- Postinfectious cough - may be more likely following infection with *Mycoplasma pneumoniae*, chlamydial pneumonia and whooping cough
- Parenchymal lung diseases - interstitial lung fibrosis, emphysema, sarcoidosis
- Tumours - lung cancer, metastatic carcinoma, lymphoma, mediastinal tumours, benign tumours
- Upper airway conditions (other than chronic rhinitis, above) - chronic tonsil enlargement, obstructive sleep apnoea, chronic snoring, irritation of external auditory meatus. Laryngeal problems are increasingly recognised as being part of chronic cough
- Foreign body in large airways - recurrent aspiration, inhaled foreign body, endobronchial sutures
- Rarely, cough may be due to cardiac arrhythmias
- Cough only when supine - may be due to collapse of large airways
- Diffuse panbronchiolitis - a recognised cause in Japan, responds to low-dose macrolide antibiotics (but resistant to steroids)
- Chronic cough may be a presentation of a complex involuntary tic (e.g. as sometimes seen in Tourettes Syndrome)
- Idiopathic or psychogenic - a diagnosis of exclusion

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History and examination including x-ray and spirometry

Physical examination should concentrate on the afferent sites identified as most commonly associated with cough.

Has patient tried antitussive preparations?

Chest x-ray and spirometry is mandatory

- **DO NOT** refer for bronchoscopy at this stage unless inhaled foreign body suspected.
- **DO NOT** refer for high resolution CT scan early unless wide-spread crackles present to suggest interstitial disease.
- Home PEF monitor unlikely to help, forced blow often initiates cough.

Link to
question
naire

May use a cough visual analogue scale, the Leicester Cough Questionnaire or a capsaicin challenge

If patient is a smoker it is essential that they stop. If appropriate refer to Hertfordshire Stop Smoking service.

Further assessment

- Blood tests - FBC (infection, eosinophilia), ESR/CRP (infection, malignancy, connective tissue disorders).

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Are RED FLAG symptoms present? Consider TB, cancer or other reasons for urgent referral

- Copious sputum production (bronchiectasis)
- Systemic symptoms - fever, sweats, weight loss (tuberculosis, lymphoma, bronchial carcinoma)
- Haemoptysis (tuberculosis, bronchial carcinoma)
- Significant dyspnoea (heart failure, COPD, fibrotic lung disease)

Does patient have symptoms of TB or cancer including:

- Haemoptysis
- Chest and/or shoulder pain
- Breathlessness
- Weight loss
- Chest signs
- Hoarseness
- Finger clubbing
- Cervical/supraclavicular lymphadenopathy
- Fever
- Night sweats
- Anorexic

LEICESTER COUGH QUESTIONNAIRE-acute (LCQ-acute)

This questionnaire is designed to assess the impact of cough on various aspects of your life. Read each question carefully and answer by CIRCLING the response that best applies to you. Please answer ALL questions, as honestly as you can.

1. In the last 24-hours, have you had chest or stomach pains as a result of your cough?

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
2. In the last 24-hours, have you been bothered by sputum (phlegm) production when you cough?

1	2	3	4	5	6	7
Every time	Most times	Several times	Sometimes	Occasionally	Rarely	Never
3. In the last 24-hours, have you been tired because of your cough?

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
4. In the last 24-hours, have you felt in control of your cough?

1	2	3	4	5	6	7
None of the time	Hardly any of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time
5. How often during the last 24-hours have you felt embarrassed by your coughing?

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
6. In the last 24-hours, my cough has made me feel anxious

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
7. In the last 24-hours, my cough has interfered with my job, or other daily tasks

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
8. In the last 24-hours, I felt that my cough interfered with the overall enjoyment of my life

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
9. In the last 2 weeks, exposure to paints or fumes has made me cough

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
10. In the last 24-hours, has your cough disturbed your sleep?

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
11. In the last 24-hours, how many times have you had coughing bouts?

1	2	3	4	5	6	7
All the time (continuously)	Most times of during the day	Several times during the day	Some times during the day	Occasionally through the day	Rarely	None
12. In the last 24-hours, my cough has made me feel frustrated

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
13. In the last 24-hours, my cough has made me feel fed up

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
14. In the last 24-hours, have you suffered from a hoarse voice as a result of your cough?

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
15. In the last 24-hours, have you had a lot of energy?

1	2	3	4	5	6	7
None of the time	Hardly any of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time
16. In the last 24-hours, have you worried that your cough may indicate a serious illness?

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
17. In the last 24-hours, have you been concerned that other people think something is wrong with you, because of your cough?

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
18. In the last 24-hours, my cough has interrupted conversation or telephone calls

1	2	3	4	5	6	7
All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	Hardly any of the time	None of the time
19. In the last 24-hours, I feel that my cough has annoyed my partner, family or friends

1	2	3	4	5	6	7
Every time I cough	Most times when I cough	Several times when I cough	Some times when I cough	Occasionally when I cough	Rarely	Never

Thank you for completing this questionnaire.

LCQ Scoring

1. Domains (questions): Physical: 1,2,3,9,10,11,14,15
 Psychological 4,5,6,12,13,16,17
 Social: 7,8,18,19
2. Domain Scores: Total score from items in domain / number of items in domain (range 1-7)
3. Total Scores: Addition of domain scores (range 3-21)

Suspected Bronchiectasis

See link to antimicrobial guidelines: <http://www.enhertscg.nhs.uk/infections>

Symptoms include:

- chronic cough with daily mucopurulent sputum – occurs in up to 90% of cases
- frequent lower respiratory tract infections - may be the only presenting feature
- breathlessness
- general malaise, lethargy, fatigue, and weight loss
- chronic rhinosinusitis
- haemoptysis:
 - typically mild with bloody specks in the sputum
 - massive haemoptysis (more than 235mL) is rarely seen in adults
- chest pain that is present between exacerbations
- asthma that is not responding to treatment
- unexplained non-productive cough (less frequent)

Signs on examination, include:

- coarse crackles during early inspiration
- wheezing
- large airway rhonchi (low pitched snore-like sounds)
- finger clubbing – in a minority of patients

Factors favouring further investigation:

- young age at presentation
- history of symptoms over many years
- absence of smoking history
- daily expectoration of large volumes of very purulent sputum

Suspected Pneumonia

Pneumonia is characterised by acute inflammation with an intense infiltration of neutrophils in and around the alveoli and the terminal bronchioles. The affected bronchopulmonary segment or the entire lobe may be consolidated by the resulting inflammation and oedema.

See link to antimicrobial guidelines: <http://www.enhertscgg.nhs.uk/infections>

Risk factors:

- Age: especially infants, young children and the elderly.
- Lifestyle: smoking, alcohol.
- Preceding viral infections - e.g., influenza predisposing to *Streptococcus pneumoniae* infection.
- Respiratory: asthma, COPD, malignancy, bronchiectasis, cystic fibrosis.
- Immunosuppression, AIDS, cytotoxic therapy - increased risk of infection with *Staphylococcus* spp., tuberculosis, Gramnegative bacilli and *P. jirovecii*.
- Intravenous drug abuse, often associated with *Staphylococcus aureus* infection.
- Hospitalisation - often involving Gram-negative organisms.
- Aspiration pneumonia: patients with impaired consciousness, neurological disease such as cerebrovascular or Parkinson's disease, or patients with oesophageal obstruction are at risk of aspiration pneumonia which usually affects the right lung and is caused by anaerobes from the oropharynx.
- Underlying predisposing disease: diabetes mellitus, cardiovascular disease.

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Dry cough treatment

1. Trial of prednisolone 30mg daily up to 2 weeks.
2. Trial general advice and if appropriate treatment for Gastroesophageal Reflux; PPI +/- prokinetic drug, e.g. metoclopramide +/- Alginate.
3. Trial of inhaled steroid to chest especially if temporary response to corticosteroid to mouth.
4. Other potential therapeutic trials: leukotriene antagonist, e.g. montelukast sodium, sedative anti-histamine at night, over the counter agents containing dextromethorphan or menthol, codeine, gabapentin, amitriptyline, baclofen, local anaesthetic spray/nebuliser (lignocaine, low dose morphine).
5. Try treating these (or removing the cause, if occupational) for a limited period to observe response

Give patient general self-help leaflets

Link to
leaflets

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Information for Patients

Cough leaflet from Patient Info: <http://patient.info/health/cough-leaflet>

'The Active Cycle of Breathing Technique' (ACBT): http://www.acprc.org.uk/publications/patient_information_leaflets.asp

'The Active Cycle of Breathing Technique' (ACBT) YouTube video: https://www.youtube.com/watch?v=_n0nuy8VWml

'Cough' from NHS Choices: <http://www.nhs.uk/Conditions/Cough/Pages/Introduction.aspx>

'Chronic Cough Control Technique': http://www.guysandstthomas.nhs.uk/Search/search.aspx?search_keywords=Chronic+Cough+Control

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Productive cough - purulent/ non-purulent treatment

For purulent:

- Culture and treat with antibiotics +/- steroid. See link to antimicrobial guidelines: <http://www.enhertscg.nhs.uk/infections>
- If persistent symptoms, refer to respiratory physiotherapy for further advice

For non purulent:

- Treat with steroids for 1-2 weeks
- If no response, do CT scan and consider Macrolide. See link to antimicrobial guidelines: <http://www.enhertscg.nhs.uk/infections>
- If persistent symptoms, refer to respiratory physiotherapy for further advice

Give patient a copy of the leaflet 'The Active Cycle of Breathing Technique' (ACBT): http://www.acprc.org.uk/publications/patient_information_leaflets.asp

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If the patient is taking an ACE inhibitor - STOP and consider alternative

- For non-smokers, if taking an ACE inhibitor, trial of stopping/ replacing this drug. ACE inhibitor-induced cough should improve within 4 weeks of stopping the drug. Then consider chest x-ray and spirometry (or serial peak flow measurements, if spirometry unavailable)
- Stop medication and consider alternative
- Review after 6-8 weeks

Best Management

- Evidence suggests best management is combination of empirical trials aimed at specific potential causes as suggested by history and examination

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Rhinosinus disease

- Is there any associated:
 - Frequent throat clearing
 - Sneezing
 - Nasal discharge
 - Nasal obstruction
 - PND
- Trial treatment for rhinosinus disease with potent intranasal steroids bd +/- oral antihistamines (4-6 weeks)
- Consider ENT referral if symptoms remain severe or 'red flag' symptoms present, e.g. bleeding/crusting

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Gastro-oesophageal reflux disease (GORD)

- Is there any associated:
 - Heartburn
 - Acid reflux
 - Posture related
 - Meal related
 - Dysphagia
- Trial treatment for GORD
- High dose PPI (DB dose)
- Lifestyle advice (for 8-12 weeks)

If trial treatment for GORD unsuccessful, refer to secondary care respiratory clinic or ENT as appropriate



Cough variant asthma

- Wheeze
- Breathlessness
- Variability in PF monitoring
- Spirometry with reversibility
- Trial treatment with both Short acting Beta agonist & combination inhaler (ICS and LABA) use spacer with MDI (4-6 weeks)