ipcrg Desktop Helper

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Breathlessness in adults: a practical guide for primary care clinicians

1. What this Desktop Helper offers

Up to 10% of the population experiences long-term breathlessness (lasting more than four weeks), a symptom that has a widespread impact on those living with it and which often leads to emergency presentation if the underlying conditions are not well managed.[1-3] It is also highly associated with lower quality of life and poorer prognosis.[4-6] This desktop helper offers practical steps to primary care clinicians for the assessment and management of adults with long-term (chronic) distressing and disabling breathlessness. It aims to improve the consultation both for the individual and the clinician and offers practical ways to deal with this difficult symptom.

Population prevalence of the causes of breathlessness vary, and each individual has a unique combination of causes and therefore a personalised approach is essential, best delivered by expert generalists in the community. Actively managing the symptom of breathlessness, alongside diagnosing and treating underlying disease(s), enhances the consultation and improves quality of life. Taking account of the individual's experience, ideas, concerns and expectations opens the opportunity to tailor management, including self-management activities, to the individual that helps them breathe better, do more and feel good. Due to the undifferentiated nature of the problem, the diagnostic process may require several appointments and the ability to cope with uncertainty.[7-9] However, there are things that can be done from the first presentation, including the introduction of non-pharmacological breathlessness management strategies.[7,10] These can be supported by members of the primary care team.

2. Acute presentation and action

Many presentations of breathlessness have an acute component. Pulse oximetry is a simple and discriminating test (if available) that will highlight significant acute compromise of lung/cardiac function.

Box 1 Consider referral to emergency department if:

A high respiratory rate, high pulse rate and abnormally high or low blood pressure, altered mental status, noting presence of pulmonary oedema or extensive peripheral oedema, severe breathing difficulty together with either fever and cough, swelling or pain in extremities, haemoptysis, chest pain or radiating pain to the arms, back, neck or jaw. The WHO **ABCDE** algorithm offers a clinical assessment process to identify the main acute causes including respiratory failure, myocardial infarction and anaphylactic reactions.

The rest of this desktop helper will focus on chronic breathlessness.

3. Definition, burden, main causes

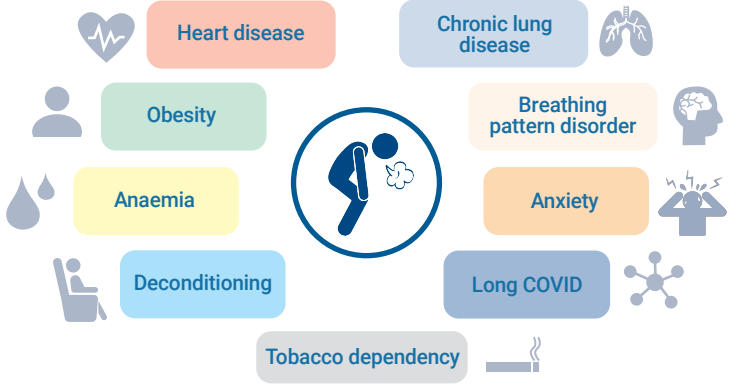
Breathlessness is a subjective experience of several qualitatively distinct sensations influenced by physiological, social and environmental factors.[11] Additional physical, emotional and behavioural secondary responses often occur. Chronic forms of breathlessness related to physical activity may persist despite optimal treatment of underlying pathophysiological abnormalities.[12] Individuals may say they cannot perform the same household tasks as before or walk as quickly as they used to. Over time, as their breathlessness gradually worsens, maybe without them noticing, it often leads to mental and physical impairment affecting their quality of life.[13] The fear of being out of breath often induces unconscious avoidance of physical activity leading to a vicious cycle of inactivity,[14] more breathlessness and worsening physical fitness.

An individual may have multiple conditions that co-exist in a unique way to them,[1,3] and a symptom-based approach can offer new ways forward. Therefore, avoid making assumptions: cardiorespiratory conditions are a common cause of breathlessness but there may be additional or alternative causes. Remember patients with chronic lung or cardiac disease may not tolerate some small additional problem well. Problems such as anaemia or infection may cause worsening breathlessness and when appropriately treated can relatively rapidly improve patient outcomes.

Top causes (these vary in different contexts and 60% may have more than one)

- Chronic lung disease: most common; 40-60% will have long term breathlessness. Asthma and COPD are the two most common causes.
- Heart disease: including heart failure, atrial fibrillation and valve pathology: in about 10% of people who are breathless
- Obesity: defined as a BMI above 30 kg/m^2. Individuals with obesity are about three times more likely to experience long-term breathlessness; up to 60% of people with breathlessness may be overweight/obese
- Breathing pattern disorders
- Deconditioning
- Anxiety: Over 50% of people with breathlessness may also have anxiety: it is both a cause and effect.
- Long COVID
- Anaemia (a smaller percentage, but easily treatable)
- Tobacco dependence

Chronic breathlessness is often multi-factorial. Consider and investigate for all common causes when assessing a patient with breathlessness



4. Making the most of the consultation

Individuals with chronic breathlessness often normalise their situation or feel personally responsible and therefore may not spontaneously mention their breathlessness. Therefore, take a proactive approach and use a structured consultation technique such as "Ideas, Concerns and Expectations" (see box 2) which can identify patient perspectives, might improve rapport, and may result in more focused and targeted consultations, greater satisfaction and better receptivity to interventions.[15,16]

Box 2 Ideas, concerns and expectations

Ideas: "What do you think is going on?" or "What do you think causes your breathlessness?"

Concerns: "Is there something specific worrying you about your breathlessness?" OR "Breathlessness can feel very frightening, how do you feel?" OR "How are you feeling today?" [**Emotional self-assessment**]

Expectations: "What are you hoping I might be able to do for you today?" OR "What has your breathlessness stopped you doing that you would like to do again, or start doing?"

5. History, examination, tests and holding uncertainty

As in your usual practice, take a clear history and examine the patient to assess possible reasons for and impact of breathlessness. Remember there could be more than one reason and context matters.[17,18]

History:

- Rest or exertional: *When do you feel breathless?*
- Nature of breathlessness: *How would you describe the feeling?*
- Aggravating and relieving factors: *What makes your breathlessness worse/better?*
- Onset and duration:
  When is the first time you can remember feeling breathless?
  Do your symptoms go away for periods of time?
- Associated symptoms: *Do you get any chest pain, cough, wheeze, ankle swelling, palpitations, dizziness?*
- Orthopnoea, paroxysmal nocturnal breathlessness: *Does lying flat make you breathless? Do you wake up gasping for breath at night?*
- Levels of exercise and daily activity: *What do you do on a normal day?*
- Impact on everyday life and **mMRC** or **MRC Breathlessness scale**[19] →
- Co-morbidities, medications and medication schedules
- **Smoking history** including pack years and substance smoked →
- Environmental and occupational risk factors: *Are your symptoms worse or better on days you are at work or doing certain activities?*

mMRC Breathlessness Scale

0 – I only get breathless with strenuous exercise
1 – I get short of breath when hurrying on level ground or walking up a slight hill
2 – On level ground, I walk slower than people of my age because of breathlessness, or I have to stop for breath when walking at my own pace on the level
3 – I stop for breath after walking about 100 yards (91m) or after a few minutes on level ground
4 – I am too breathless to leave the house or I am breathless when dressing/undressing

Or MRC breathlessness scale

Smoking history:

Do you smoke tobacco or use other tobacco products?
[Yes - No - Given Up]

If Given Up: How long ago?
[More than 3 months = ex-smoker, under 3 months = current smoker]

If Yes: How many cigarettes per day? OR
How many years have you smoked for?
Pack years = years of smoking x packs per day
1 pack = 20 cigarettes
e.g. 1 pack year = 20 cigarettes smoked daily for one year

Tobacco Addiction Treatment Pathway
Smoke Pack Years

Examination:

- Vital signs: resting heart rate and rhythm, O_2 saturation, respiratory rate and blood pressure
- Observe general appearance including cyanosis, jaundice, and breathing pattern (increased use of accessory muscles), check for anaemia
- Check for peripheral oedema
- Auscultate lungs (particularly for bi-basal crackles, wheezing)
- Auscultate cardiac sounds (listen for murmurs including right carotid area for aortic stenosis)
- BMI (weight [kg]/height^2 [m])

Investigations:

To diagnose or exclude the common causes of chronic breathlessness consider the following investigations as appropriate and if available:

- Pulse oximetry (SpO_2) if resting $SpO_2 \leq 92\%$ while breathing ambient air, consider (referral) for LTOT (long term oxygen therapy) assessment
- Spirometry. If $FEV_1/FVC < 0.70$ or $FEV_1/FEV_6 < 0.75$ indicative of obstruction; perform full spirometry. Refer those with restrictive or mixed pattern for further workup as spirometry is not a reliable test for restrictive causes e.g. ILD, lung cancer
- Chest X-ray
- Electrocardiogram (ECG)
- Full Blood Count (FBC)
- NT-proBNP profile
- Urea and electrolytes/Thyroid stimulating hormone (TSH)
- Screen for anxiety and depression (e.g. **PHQ4**)
- Screen for physical activity levels (e.g WHO **GPAQ** in multiple languages and **GPPAQ** designed for UK general practice)

Things to consider during history and examination, further investigation and safety netting

Episodic breathlessness unrelated to exertion	Consider pathology such as paroxysmal arrhythmia including atrial fibrillation (AF), and recurrent pulmonary embolism (PE)
Exertional breathlessness/chest tightness and /or chest pain Ask about onset (exertional/post prandial), radiation, precipitants, relief by GTN spray etc Air hunger or yawning, breathlessness related to talking Enquire about digital or oral paraesthesia, and tetany	Consider angina Often related to breathing pattern disorder which is often associated with multiple other symptoms Consider a Nijmegen Questionnaire or Breathing pattern assessment (BPAT)
Tiredness and lethargy (clarify whether tiredness or daytime somnolence)	Check Hb, thyroid function tests and oncology tests as per recommended investigations
Orthopnoea and/or paroxysmal nocturnal dyspnoea (PND)	Consider heart failure/cor pulmonale
Syncope with cardiac symptoms/heart murmur	**Urgent echo and consider hospital admission**
Weight loss, anorexia, risk factors and family history of malignancy	**Red flag and investigate for malignancy**

Characteristic findings and further workup for common causes of chronic breathlessness

Tobacco Dependency

- **Fagerstrom test of nicotine dependence**
- Exhaled CO
- "Does anyone in your household or usual work situation smoke?"

Air pollution may also be relevant:

- "What is your usual cooking method?"
- "What is your occupation?" [consider dust, smoke, mould]

Chronic Lung Disease

COPD

- Essential: **Spirometry** $FEV_1/FVC<70\%$ or Lower Limit of normal (LLN)
- Age over 35 years old
- Significant history of smoking/exposure to fumes or biomass fuel
- Progressive not episodic breathlessness, cough
- Frequent chest infections (also remember to consider bronchiectasis)

Interstitial Lung Disease (ILD)

- Fine **inspiratory crackles** on auscultation
- CXR may show interstitial shadowing. A HRCT thorax is much more sensitive
- Spirometry can be normal or show restriction ($FEV_1/FVC > 70\%$ with reduced FEV_1 % predicted and reduced FVC % predicted)

Asthma

- Spirometry may show $FEV_1/FVC<70\%$ when symptomatic
- FEV_1 reversibility by 200ml and 12%
- Wheeze and/or cough may be worse at night and upon exposure to allergens or exercise
- Symptoms are normally episodic
- Often history of other atopic features, hay fever, rhinitis, allergies
- May have family history of asthma or atopy
- Blood eosinophils compared to local reference range that might suggest value of referral for assessment for biologics but consider other causes for your context eg untreated chronic parasitic infection, other medications
- Improvement of symptoms on corticosteroids (either inhaled or oral)
- Variable PEF

Heart Disease

Heart failure with reduced ejection fraction (HFrEF)

- Use of echocardiogram to determine the type of heart failure and to guide treatment
- Signs and symptoms compatible with HF on history and examination (orthopnoea, PND, oedema)
- More likely if history of previous MI and/or cardiovascular risk factors
- NT-proBNP raised

Heart failure with preserved ejection fraction (HFpEF)

- Use of echocardiogram to determine the type of heart failure and to guide treatment
- Signs and symptoms compatible with HF on history and examination
- NT-proBNP raised

Obesity

- Use national classification e.g. BMI ≥30 kg/m^2 or BMI>/= 27.5 kg/m^2 in Asian populations
- Low physical activity exercise, sedentary lifestyle - supported by activity questionnaire (WHO **GPAQ** in multiple languages and **GPPAQ** designed for UK general practice).
- If snorer, BMI>30 and increased daytime sleepiness, screen for sleep apnoea with **STOP-BANG** questionnaire or **Epworth Sleepiness Scale**

Anxiety

- May be indicated in patient history
- Suggestive if **PHQ4/GAD7** is positive
- Can lead to breathing pattern disorder (typically supported by positive **Nijmegen** score > 23)[20]

Anaemia - use local reference value

- FBC shows low Hb (e.g. male <14g/dL, female <12g/dL)
- Common signs for anaemia – conjunctival pallor, pale skin
- History of haemorrhage, malnourishment, pregnancy, chronic disease such as cancer, long term infections (tuberculosis or malaria), renal failure

Long COVID-19

- Continuation or development of new symptoms 3 months post a COVID-19 infection
- Symptoms had lasted for 2 months or more without any other explanation
- Symptoms are variable and can commonly include fatigue, cognitive dysfunction

6. Management

Treat the underlying cause(s) according to national guidelines. Remember there may be more than one cause. In addition, where appropriate, offer evidence-based self-management support (Box 3) while confirming the diagnosis, which may take time. The value patients place on a diagnosis varies by country, however, a desire to reduce symptoms is common to all. Once a diagnosis is made, continue to offer support to help the person manage their breathlessness using these interventions. The Breathing, Thinking, Functioning (BTF) model is a helpful way to consider support.[21] The BTF approach, while reinforcing optimal treatment for underlying disease, focuses on symptom control. The three elements are:

- **Breathing** – help patients overcome breathing patterns common in breathlessness and encourage the use of strategies such as breathing techniques, holding a handheld fan near the face or a cool cloth on the face
- **Thinking** – address the fear, distress and anxiety which often occurs with breathlessness eg relaxation and mindfulness
- **Functioning** – focus on the common physical deconditioning. For example, cardiac and pulmonary rehabilitation programmes are essential components of management for many cardio-respiratory conditions. Increased physical activity will benefit people with deconditioning, obesity, anxiety, chronic lung and heart disease and mood is enhanced more by activity than SSRIs.[22]

See box 3 and refer to **Desktop Helper No. 3** Look for local resources.

For those with obesity, guidelines recommend multimodal interventions to promote weight loss delivered by a multidisciplinary team including improving diet (avoiding energy-dense food, and increasing intake of dietary fibre, fruits and vegetables), increasing physical activity and 6-12 months behaviour change support. These can be delivered face-to-face or digitally, as long as the digital solution supports multimodal rather than single function programmes and the person is open to the use of apps.[23]

Pharmacological management

Once reversible factors of breathlessness have been addressed and optimal medical management of the underlying cause is achieved, other pharmacology options such as low dose sustained-release morphine may be considered to palliate breathlessness symptoms. However, there are specific indications in patients for this treatment and more evidence is required.[24] Selective serotonin inhibitors (SSRI), may be used to treat anxiety or depression but do not have any evidence for treating breathlessness *per se*, [25] neither do benzodiazepines.[26] The most effective way to stop smoking is to combine support with medication.[27]

Oxygen therapy is NOT recommended to relieve breathlessness but may be indicated for patients with low oxygen saturations confirmed via further diagnostics such as arterial blood gas analysis.[28,29]

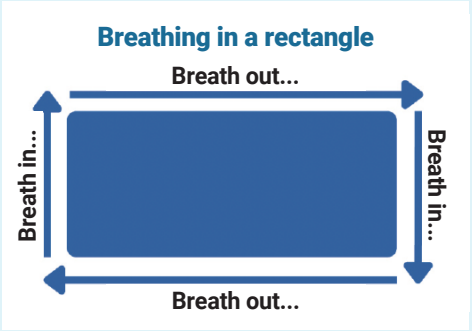
Box 3. Self-management strategies that may help reduce sense of breathlessness[30,31]

- **Hand-held fan** – Hold a hand-held fan approximately 15 cm away from your face, e.g. ▶ **Using a handheld fan** Or put a cool cloth on your face. The cool air around your face can help reduce the sensation of breathlessness.
- **Body positioning** – Lean forward while standing or sitting. This enables you to relax your accessory breathing muscles to recover your breathing. It also brings your stomach forward and away from the diaphragm. ▶ **COPD magazine**
- **Walking aids** – Use a stroller, walking frame or walking sticks to help you to lean forward when walking. Some frames also have a seat for resting when needed.
- **Breathing exercises:**

  Nose breathing – This helps to slow breathing and allows air entry deeper into the lungs. Practise breathing in and out through your nose when you are not moving.

  Pursed lip breathing – try breathing or 'blowing' out through pursed or narrowed lips which helps keep your air tubes/airways open. The air is able to leave your lungs more easily, making the next in-breath easier. This technique is often helpful for people with COPD. ▶ **Breaking the Dyspnoea Cycle**

  Rectangle breathing – trace a rectangle with your eyes while breathing in as your eyes go along the short edge of the shape and breathing out as you go along the long edge. This helps to slow your breathing rate.



Further resources

- **COPD Magazine** incorporates videos that have been reviewed for accuracy by Teesside University and IPCRG Steering Group
- **Supporting Breathlessness**
- **Desktop helper COPD and mental health**

References

Additional resources and full references can be accessed via the online version of the **Desktop Helper see www.ipcrg.org/dth17**

Authors: Gillian Doe, Ann Hutchinson, Jacob Sandberg, Anthony Sunjaya, Siân Williams
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