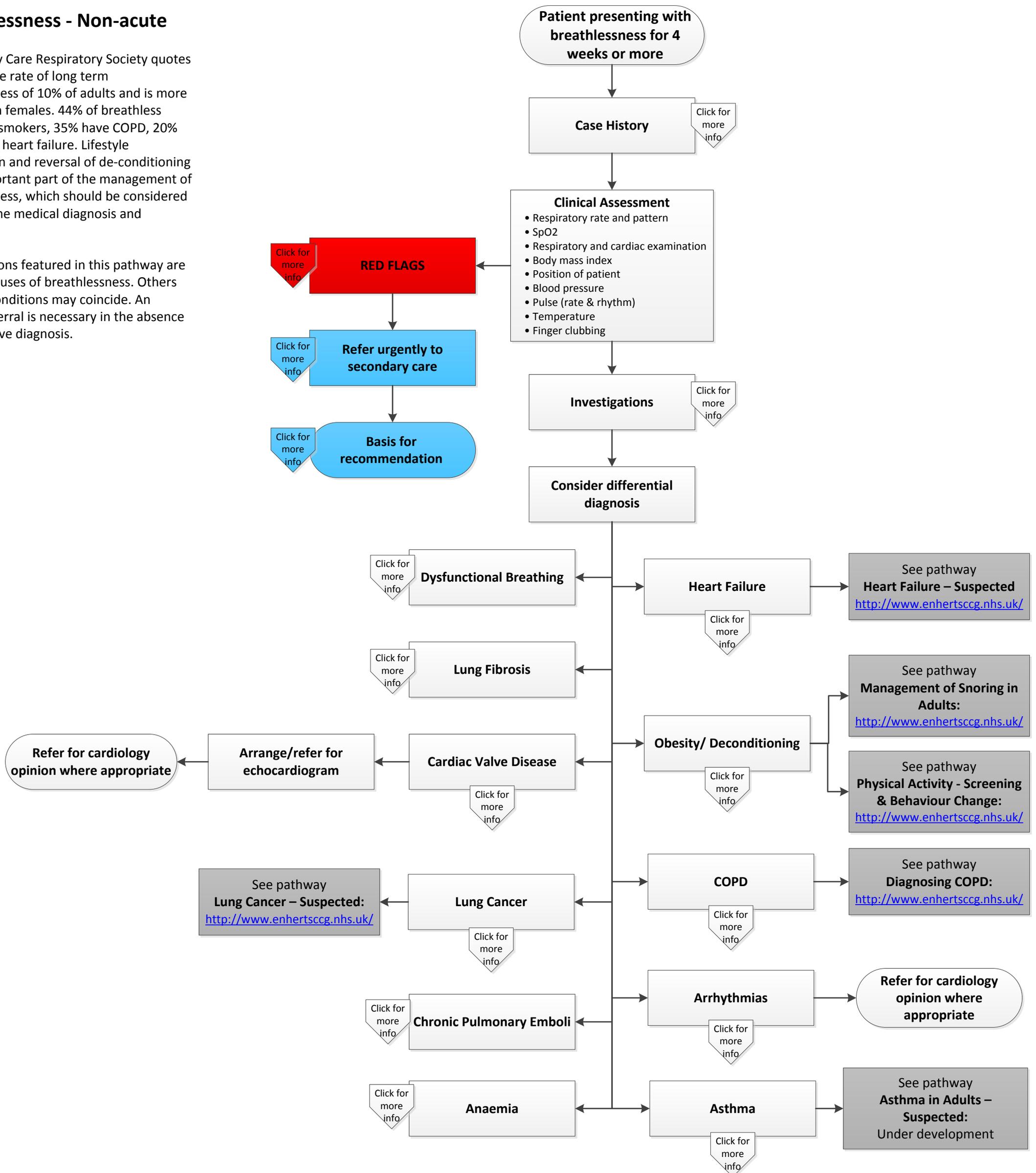


Breathlessness - Non-acute

The Primary Care Respiratory Society quotes a prevalence rate of long term breathlessness of 10% of adults and is more prevalent in females. 44% of breathless people are smokers, 35% have COPD, 20% obesity, 9% heart failure. Lifestyle modification and reversal of de-conditioning are an important part of the management of breathlessness, which should be considered alongside the medical diagnosis and treatment.

The conditions featured in this pathway are common causes of breathlessness. Others exist and conditions may coincide. An onward referral is necessary in the absence of a definitive diagnosis.





Case History

Questions to ask:

- When did the breathlessness start?
- What causes it?
- What relieves it?
- Any episodes at night?
- Can the patient walk up a flight of stairs?
- Are there any associated symptoms?
- Past Medical History
- Occupational and environmental factors
- Medication
- Smoking history in pack years
- Triggers
- Medications

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RED FLAGS

- Unexplained weight loss, night sweats
- Haemoptysis
- Rapid or slow respiratory rate
- SpO₂ <92% in healthy individual or <88% in patients with known chronic lung disease
- Pulse rate <40 >100bpm
- Silent chest
- Confusion

Determine the need for emergency admission by assessing:

- blood pressure
- pulse
- temperature
- level of consciousness
- PEFR
- oxygen saturation
- ECG (if possible)

Refer urgently to secondary care

Consider referral to secondary care/emergency admission for the following indications, taking into account the patient's usual baseline:

- Respiratory rate of > 30 breaths per minute
- Tachycardia greater than 130 beats per minute
- Systolic blood pressure < 90 mmHg, or diastolic blood pressure < 60 mmHg (unless this is normal for them).
- Oxygen saturation less than 92%, or central cyanosis (if the person has no history of chronic hypoxia)
- PEFr < 33% of predicted
- Altered level of consciousness
- A large respiratory effort (particularly if the person is becoming exhausted)
- Stridor
- Clinical features of a pulmonary embolus or pneumothorax (<https://cks.nice.org.uk/shortness-of-breath>)
 - ECG suggesting a cardiac arrhythmia or myocardial infarction

Consider arranging emergency admission, depending on the severity and number of risk factors present, if the person has acute breathlessness associated with any of the following:

- Elevated respiratory rate (but if it is > 30 breaths per minute, arrange emergency admission)
- Tachycardia (but if it is > 130 beats per minute, arrange emergency admission)
- Hypotension (but if blood pressure is < 90 mmHg systolic or 60 mmHg diastolic, arrange emergency admission)
- High temperature (especially if it is higher than 38.5°C)
- PEFr less than 50% of predicted (but if it is < 33%, arrange emergency admission).
- > 65 years of age.

Basis for recommendation

- Blood pressure
- pulse rate
- respiratory rate
- temperature
- level of consciousness
- The modified early warning system (MEWS), recommended by the BTS, assesses and classifies the seriousness of the condition of an acutely unwell person (based on their blood pressure, pulse, temperature, breathing rate, and level of consciousness) to determine their need for urgent medical care
 - MEWS is based on evidence (from a prospective cohort study of 673 medical admissions) of the association between vital signs and level of consciousness, and the risk of death, risk of cardiac arrest, and need for treatment in a high dependency or intensive care unit
- The CRB-65 scoring system, recommended by BTS, assesses the risk of harm for people with community-acquired pneumonia based on the presence of: confusion (recent); respiratory rate of 30 breaths/min or greater; BP (systolic 90 mmHg or less, or diastolic 60 mmHg or less); and age (≥ 65 years)
 - The CRB-65 assessment is based on evidence of the risk of death from a cohort study, that prospectively followed 1000 people who had been admitted to hospital with a primary diagnosis of community-acquired pneumonia
- The SIGN and BTS guideline *The management of asthma* recommends assessing the risk of harm for people with acute asthma based on respiratory rate, blood pressure, pulse rate, and level of consciousness (as well as their peak expiratory flow rate, oxygen saturation, presence of central cyanosis and signs of exhaustion)
 - This assessment is based on evidence from confidential enquires into over two hundred asthma deaths in the UK of the association between these clinical features and the risk of death in people presenting with acute severe asthma.
- KKS takes the view that the similarity of the recommended methods of assessing risk in widely differing conditions can be taken as evidence that these methods of assessment can reasonably be extrapolated to all people who are acutely ill, whatever the cause, and to people with breathlessness where the cause is unknown.

Oxygen saturation < 92%

- The *BTS guidelines for the management of community acquired pneumonia in adults: update 2009* recommend that pulse oximetry should be available to general practitioners to assess severity and oxygen requirement in people with community Acquired pneumonia and other acute respiratory illnesses
- The Scottish Intercollegiate Guidelines Network (SIGN) and BTS guideline on the management of asthma recommends that people with asthma and oxygen saturation of less than 92% should be admitted to hospital as they are at high risk of death

Central cyanosis

- Central cyanosis is reported to be present when the concentration of deoxygenated haemoglobin is > 50 g/L. This corresponds to an arterial oxygen saturation of $< 90\%$ in people who are not anaemic
- The SIGN and BTS guideline *The management of asthma* recommends that people with asthma and oxygen saturation of less than 92% should be admitted to hospital as they are at high risk of death

Stridor

- Stridor is a sign of upper airway obstruction. It carries a high risk of death or serious morbidity. Experts recommend immediate admission

Peak expiratory flow rate (PEFR)

- The SIGN and BTS guideline *The management of asthma* recommend that people with asthma and PEFR $< 30\%$ of predicted, have life-threatening asthma; and recommends emergency admission
- The guidelines also recommend that, for people with known asthma and PEFR $< 50\%$ of predicted, the decision to admit should be based on their response to treatment and the risk of subsequent deterioration (based on their previous history).
- These recommendations are based on evidence from confidential enquires into over two hundred asthma deaths in the UK that identified clinical features associated with an increased risk of death

Investigations

How should I investigate people with chronic breathlessness?

- If the person does not have an indication for emergency admission, arrange investigations to identify or confirm the underlying cause of breathlessness <https://cks.nice.org.uk/breathlessness>
- Where the diagnosis cannot confidently be established by clinical features alone:
 - Initial investigations should include:
 - Chest radiography — to look for signs of heart failure and pulmonary pathology (including pleural effusion).
 - ECG — to look for signs of heart failure, arrhythmia, and pulmonary embolism.
 - Spirometry — to look for signs of obstructive airway disease or a restrictive pattern associated with interstitial lung disease (such as idiopathic pulmonary fibrosis, sarcoidosis, pneumoconiosis, or extrinsic allergic alveolitis)
 - FBC — to check for anaemia
 - Urea and electrolytes, and random blood glucose level — to test for renal failure and diabetes as causes of metabolic acidosis and breathlessness
 - Thyroid function tests — to detect thyroid disease as a cause of breathlessness
 - If initial investigations do not identify the cause of breathlessness:
 - Arrange echocardiography and test for B-type natriuretic peptide (BNP), depending on local guidelines, to assess for heart failure.
 - Reassess for risk factors and clinical features of pulmonary embolism. If this is suspected, arrange urgent referral for further investigations.

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Heart Failure

Symptoms and signs

- Breathlessness on exertion, nocturnal dyspnoea, orthopnea
- Ankle oedema, raised JVP, fine creps in lung bases
- CXR & ECG may be abnormal
- NT Pro BNP will be elevated

Causes include:

- IHD
- Hypertension
- AF
- Other arrhythmias
- Valvular heart disease

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Lung Cancer

Symptoms and signs

- Gradual increase in breathlessness
- persistent cough (>3 weeks)
- haemoptysis
- hoarseness
- chest or shoulder pain
- weight loss
- smoking history
- finger clubbing
- lymphadenopathy
- abnormal lung field signs
- Arrange urgent CXR
- 2 week wait referral to lung cancer service
- See NICE Lung Cancer guidelines: <https://www.nice.org.uk/guidance/cg121/resources/lung-cancer-diagnosis-andmanagement-35109444863941>

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Dysfunctional Breathing

- Anxiety or depression (depression and anxiety screening questionnaires may be positive)
- Tingling around face & hands
- Voice changes
- A sensation of difficulty with inspiration
- Examples include vocal cord dysfunction and hyperventilation
- Assess Nijmegen score if >23 refer to dysfunctional breathing services
- Consider CBT/psychological therapies: <http://www.physiohypervent.org/>

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Lung Fibrosis

- Unexplained breathlessness on minimal exertion
- 'silly cough'
- exposure to asbestos/ birds/ coal/ silica
- Finger clubbing
- "velcro" creps in lung fields
- Spirometry may be normal OR restrictive
- Arrange CXR
- Refer to pulmonary specialist
- Consider spirometry

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Obesity/ Deconditioning

- Progressive exertional breathlessness
- BMI >30, examination otherwise may be normal, consider sleep apnoea

Consider:

- Lifestyle advice, referral to local health trainers/ obesity services
- Co-morbidities e.g. diabetes
- If Epworth is >11 then refer to sleep assessment service



COPD

- Progressive breathlessness associated with exertion, smoking history (≥ 10 pack years)
- Chest sounds may be abnormal
- Spirometry obstructive
- CXR may be abnormal
- Oxygen saturations may be low

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Arrhythmias

- Exertional breathlessness
- May present with:
 - palpitations
 - pre-syncope/ syncope
 - fatigue
- ECG abnormal, check thyroid function
- Most common AF, Bradycardia



Cardiac Valve Disease

- Progressive exertional breathlessness
- May present with exertional chest pains and or syncope
- Heart murmur likely
- Arrange/refer for echocardiogram
- Refer for cardiology opinion where appropriate



Anaemia

Investigate potential causes

- Progressive exertional breathlessness
- Fatigue
- Pale, may have lemon tinge or jaundice
- Hb low, MCV low, arrange ferritin, B12 & folate

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Asthma

- Breathlessness variable in intensity and timing
- Associated with history of atopy
- May have wheeze in lung fields, examination may be normal
- CXR/Spirometry may be normal
- May have raised eosinophils
- Arrange PEFr diary
- Spirometry with reversibility
- Refer to <http://www.brit-thoracic.org.uk/guidelines-and-quality-standards/asthma-guideline/>

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Chronic Pulmonary Emboli

- History of PE/ DVT/ pleuritic chest pains/ recent surgery/ immobility/ pregnancy/ malignancy/ obesity/ IV drug user/ recent long haul travel
- SpO₂: low or normal
- increased pulse rate
- Chest signs and ECG may be abnormal
- Refer to acute services
- If D-dimer negative, young patient or recent viral injury:
 - consider pericarditis (saddleback changes on ECG)