Chronic obstructive pulmonary disease

Information for the public
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About this information

NICE clinical guidelines advise the NHS on caring for people with specific conditions or diseases and the treatments they should receive. The information applies to people using the NHS in England and Wales.

This information explains the advice about the care and treatment of people with chronic obstructive pulmonary disease (which is usually shortened to COPD) that is set out in NICE clinical guideline 101.

This is an update of advice on COPD that NICE produced in 2004. This information includes the advice that was published in 2004 and the updated 2010 advice.

Does this information apply to me?

Yes, if you are an adult with, or suspected of having, chronic obstructive pulmonary disease.

No, if you have:

- asthma
- a condition called bronchopulmonary dysplasia
- bronchiectasis (a condition that affects the lungs).
Your care

Some treatments may not be suitable for you, depending on your exact circumstances. If you have questions about specific treatments and options, please talk to a member of your healthcare team.

In the NHS, patients and healthcare professionals have rights and responsibilities as set out in the NHS Constitution (www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_132961). All NICE guidance is written to reflect these. You have the right to be involved in discussions and make informed decisions about your treatment and care with your healthcare team. Your choices are important and healthcare professionals should support these wherever possible. You should be treated with dignity and respect.

To help you make decisions, healthcare professionals should explain COPD and the possible treatments for it. They should cover possible benefits and risks related to your personal circumstances. You should be given relevant information that is suitable for you and reflects any religious, ethnic, or cultural needs you have. It should also take into account whether you have any physical or learning disability, sight or hearing problem or language difficulties. You should have access to an interpreter or advocate (someone who helps you put your views across) if needed.

Your family and carers should be given their own information and support. If you agree, they should also have the chance to be involved in decisions about your care.

You should be able to discuss or review your care as your treatment progresses, or your circumstances change. This may include changing your mind about your treatment or care. If you have made an ‘advance directive’ (given prior instruction) about any treatments that you do not wish to have, your healthcare professionals have a legal obligation to take this into account.

All treatment and care should be given with your informed consent. If, during the course of your illness, you are not able to make decisions about your care, your healthcare professionals have a duty to talk to your family or carers unless you have specifically asked them not to. Healthcare professionals should follow the Department of Health’s advice on consent (www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_103643) and the code of practice for the Mental Capacity Act. Information about the Act and consent issues is available from www.nhs.uk/CarersDirect/moneyandlegal/legal In Wales healthcare professionals should follow advice on consent from the Welsh Government (www.wales.nhs.uk/consent).

In an emergency, healthcare professionals may give treatment immediately, without obtaining your informed consent, when it is in your best interests.
Chronic obstructive pulmonary disease

Chronic obstructive pulmonary disease (also known as COPD) is a condition that makes breathing difficult. COPD is a broad term that covers several lung conditions, including chronic bronchitis and emphysema. It usually develops because of long-term damage to the lungs from breathing in a harmful substance (such as cigarette smoke or chemical fumes).

The treatments available for COPD help people to breathe more easily, but they don't repair the damage to the lungs.

Diagnosing COPD

Your doctor may consider COPD as a possible diagnosis if you are over 35, you smoke or have smoked in the past, and you have breathing problems. These problems include getting short of breath easily, having a cough that has lasted a long time, often coughing up sputum (the medical word for phlegm or catarrh) or a lot of coughing, breathlessness or wheezing during cold weather. Your doctor should also ask whether your breathlessness is brought on by anything, how your daily life is affected and other questions about your general health.

Checking how well your lungs work

When trying to reach a diagnosis, your doctor should check how well your lungs work by performing breathing tests using a spirometer, which measures the amount of air you can blow out. This helps to find out whether your lungs have been damaged, which influences the treatment your doctor should offer.

COPD doesn't affect everyone in the same way, and some people with mild damage to their lungs may be severely disabled by their COPD.

Other tests at diagnosis

Your doctor should arrange for you to have a blood test and a chest X-ray to rule out other causes of your symptoms. Your body mass index (BMI) should also be calculated as this shows your doctor if you are a healthy weight for your height. This is important because people can deal with their COPD better if they are not over- or under-weight.
You may be offered more tests if your doctor needs more information to help decide the best treatment. Sometimes the results of these tests can be combined to give a better picture of your condition.

<table>
<thead>
<tr>
<th>Type of test</th>
<th>Why perform it?</th>
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</thead>
<tbody>
<tr>
<td>More breathing tests</td>
<td>To confirm whether you have COPD or asthma.</td>
</tr>
<tr>
<td>Functional breathing tests</td>
<td>To see how well you can breathe when doing a gentle activity such as walking.</td>
</tr>
<tr>
<td>A blood test for alpha-1 antitrypsin</td>
<td>To find out if you have alpha-1 antitrypsin deficiency, an inherited condition that can cause COPD. This is more likely if you are under 40, you've never smoked or hardly smoked, or if other members of your family have been diagnosed with the condition.</td>
</tr>
<tr>
<td>A CT scan of your chest</td>
<td>To take a detailed picture of the structure of the lungs using computerised tomography ('CT'), which provides more detail than an X-ray.</td>
</tr>
<tr>
<td>An ECG (short for electrocardiogram), an echocardiogram or both</td>
<td>To check whether COPD has affected your heart. The ECG monitors how your heart is beating and the echocardiogram uses ultrasound to give a picture of your heart.</td>
</tr>
<tr>
<td>Pulse oximetry</td>
<td>To see how well your lungs take up oxygen and if you need extra oxygen (a pulse oximeter records how much oxygen there is in your blood).</td>
</tr>
<tr>
<td>A sputum test if you produce a lot of sputum that's green or brown</td>
<td>To check for signs of infection.</td>
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</table>

**Distinguishing between COPD and asthma**

Your doctor can usually find out whether you have COPD or asthma by asking questions and examining you. If your breathlessness is better on some days than others, or you often wake up in the night feeling wheezy, you are more likely to have asthma than COPD. People with asthma also respond better to inhaled medicine than people with COPD.
Seeing a specialist

You may be referred to see a specialist doctor or specialist nurse to confirm the diagnosis or to work out the right treatment for you. You may also ask to see a specialist if you'd like a second opinion about your diagnosis.

You may also be referred to see other healthcare professionals who can help you manage your condition:

<table>
<thead>
<tr>
<th>Who are they?</th>
<th>What do they do?</th>
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<tbody>
<tr>
<td>Physiotherapists</td>
<td>Teach people with too much sputum how to use positive expiratory pressure masks and active cycle of breathing techniques.</td>
</tr>
<tr>
<td>Dietitians</td>
<td>Help people manage their weight.</td>
</tr>
<tr>
<td>Occupational therapists</td>
<td>Help people with activities of daily living.</td>
</tr>
<tr>
<td>Social services</td>
<td>Coordinate support for people who are disabled by COPD to help them manage at home.</td>
</tr>
<tr>
<td>Multidisciplinary palliative care teams</td>
<td>Support people with the later stages COPD, and their families and carers. The aim of palliative care is to keep you as comfortable as possible.</td>
</tr>
</tbody>
</table>

Questions about finding out what is wrong (diagnosis)

- Can you tell me more about the tests I should have?
- Will I need to have tests in hospital?
- How long will I have to wait to have these tests?
- When will I get the results of these tests?
- Do I have asthma or COPD?
- What exactly is COPD?
- Should I see a specialist?
Once COPD has been diagnosed

**Stopping smoking**

Giving up smoking is extremely important if you have COPD. Your doctor should encourage and help you to do this. They should offer medicines or nicotine replacement therapy (including patches and gums) and support to help you use them successfully.

### Questions about giving up smoking

- I've tried stopping before but I couldn't. How can you help me succeed?
- Which 'stop smoking' programme would suit me best?

**Treatment**

The decision about which medicines to use depends on how severe your COPD is, how it is affecting your everyday life, and the side effects of the medicines. The main aims of therapy are to improve symptoms such as breathlessness and to help prevent an exacerbation (flare-up of symptoms requiring a change in treatment such as an antibiotic for infection or oral steroids for increased breathlessness). There are several types of medicines that can help, which work in different ways.

A medicine called a bronchodilator helps to keep the airways open. Inhaled bronchodilators are generally the first therapies that should be offered to people with COPD. Inhaled bronchodilators and inhaled steroids are used to reduce breathlessness and the chance of you having an exacerbation.

Your doctor or nurse should review how well your treatment is working because you may need to try several medicines or combinations of medicines to find out what works best for you.

**Treating COPD**

<table>
<thead>
<tr>
<th>Type of treatment</th>
<th>When might my doctor offer this?</th>
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<table>
<thead>
<tr>
<th>Treatment Type</th>
<th>Description</th>
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</table>
| **Short-acting bronchodilator**     | As a first choice to relieve breathlessness that limits your activity.  
Short-acting inhaled treatments relieve breathlessness quickly and their effects last for 4–6 hours. You may be offered a short-acting beta₂ agonist (SABA) or a short-acting muscarinic antagonist (SAMA). |
| **Long-acting bronchodilator**      | If a short-acting bronchodilator is not controlling your breathlessness or you keep having exacerbations.  
Inhaled long-acting treatments also help to relieve breathlessness. These may give slower onset of relief, but their effects last for longer (12–24 hours). You may be offered a long-acting muscarinic antagonist (LAMA) or a long-acting beta₂ agonist (LABA). |
| **Long-acting bronchodilator(s) with an inhaled steroid** | If a long-acting bronchodilator alone is not controlling your breathlessness or you keep having exacerbations.  
You may be offered one or more inhalers to deliver the combination that best controls your symptoms. |
| **Oral theophylline**               | If combination inhalers are not controlling your breathlessness or you keep having exacerbations, or if you are unable to use inhaled therapy then you may be offered these tablets.  
You should have regular blood tests to check that the level of the drug is correct. Your doctor should be particularly cautious if you are taking other medicines or you are older, because your body deals with medicines differently. |
| **Oral steroid**                    | Very occasionally, if you have severe COPD and are taking the tablets to help during an exacerbation, you might need to keep taking them for a longer time.  
Your doctor should give you the lowest possible dose and monitor you for side effects. |
| **Mucolytic medicine**             | If you cough up a lot of sputum.  
This medicine (given as tablets or syrup) makes sputum thinner and runnier, making it easier to cough up. |
Long-term oxygen therapy

If you have low levels of oxygen in your blood. Oxygen is breathed through a nasal cannula (a small, soft plastic tube that fits just inside your nostrils) or a mask that is connected to an oxygen supply.

To get the benefits of oxygen treatment, you should breathe it for at least 15 hours a day.

You should be warned that it is dangerous to smoke while using extra oxygen because this could cause a fire or explosion.

Ambulatory oxygen

If oxygen helps you do activities or helps with breathlessness or if you are already having oxygen therapy and want to use it when you're away from home.

Oxygen is breathed through a nasal cannula or a mask connected to a portable oxygen supply.

Treatment with short bursts of oxygen

For episodes of severe breathlessness only when other treatments have failed to help. It is breathed through a mask connected to an oxygen supply.

Your doctor should continue this therapy only if it helps your breathlessness.

Non-invasive ventilation (NIV)

If you have trouble breathing after an exacerbation and long-term oxygen therapy isn't working, or you have needed help with breathing (ventilation) in the past then your doctor should refer you to a specialist centre to see whether you should have NIV. NIV is mainly used to treat exacerbations but may be used if your breathing problems lead to increased levels of carbon dioxide in your blood.

A machine pumps air or oxygen through a nasal cannula or a mask and into your lungs.

Different ways of taking your inhaled medicine

Several types of device are available. Different devices suit different people.
Inhalers

• Your doctor may offer:
  
  • a pressurised metered dose inhaler, when propellant gas squirts the medicine out of the inhaler
  
  • a dry powder inhaler, when you suck in a tiny amount of powdered medicine.
  
  • Your doctor should only give you an inhaler after you’ve been shown how to use it and he or she is sure that you can use it properly. If you have difficulties with one type, you may be offered another.
  
  • Your doctor or nurse should check regularly that you are using your inhaler correctly.

Spacers

• A spacer device attaches to a pressurised metered dose inhaler to help you inhale the drug more effectively.

Nebulisers

• A nebuliser is a device that turns the medicine into a mist that you can breathe in. It is sometimes used when large doses of inhaled medicine are required, such as during an exacerbation.

• If you’re using a hand-held inhaler but you’re still affected by breathlessness, your doctor may offer you a nebuliser and continue therapy if the nebuliser is helping your breathlessness, or increases your ability to carry out daily activities.

Medicines that should not be used

Some medicines and supplements should not be used to treat COPD because either it has been shown they don’t work or there isn’t enough evidence to justify their use.

These include regular, continued use of cough medicines (called anti-tussive medicines) and antibiotics to prevent infection (rather than to fight an infection that you already have).

Questions about treating COPD

• How will my inhalers help my COPD?

• What types of inhalers are there?
Pulmonary rehabilitation

Pulmonary rehabilitation is a programme of care that is designed individually for you, with your full involvement. It should include exercises, information about COPD, diet advice and should support you in dealing with your COPD. You should be offered pulmonary rehabilitation if you are disabled by breathlessness, unless you cannot walk for reasons unrelated to COPD (for example, if you have had a stroke), have angina at rest, or have recently had a heart attack.

It may sometimes be difficult or challenging, but a pulmonary rehabilitation programme can help you to make the most of your physical abilities and to be as independent as possible.

Doing your normal activities

Members of your healthcare team should regularly ask how easy you find it to do your normal day-to-day activities and how breathless you become. They should check whether you need extra help (such as specially adapted equipment, or being taught techniques to make tasks easier).

Guarding against chest infections

Your doctor should offer you a vaccination (jab) against pneumococcal infection (a bacterial infection that can cause pneumonia and other illnesses). You should also be offered an annual flu jab.

Lung surgery

Some people with severe COPD may be offered surgery on their lungs to remove a large air pocket (called a ‘bulla’), or part of the lung. Very occasionally, people with severe COPD who are severely disabled by their disease despite trying all other treatments may be referred to see whether they are suitable for a lung transplant. Lung transplantation is a high-risk operation and is only suitable for a small number of people.
**Regular check-ups**

You should see your doctor or nurse regularly for check-ups. People with severe COPD should also have a system in place so they can get a hospital check-up quickly if necessary.

During your check-up, you should be asked whether you smoke and if you want to stop. You should also be asked about how well your medicines are controlling your symptoms and whether you have had any side effects. Your doctor or nurse should use a spirometer to check from time to time how well your lungs are working and they may use a pulse oximeter to measure oxygen levels in your blood.

**Other COPD-related health issues**

**Cor pulmonale**

Cor pulmonale is a form of heart strain that can develop in people with COPD. Your doctor should consider cor pulmonale as a possible diagnosis if you have signs of a heart problem, such as swelling of the ankles. If you have cor pulmonale, your doctor should check whether you need long-term oxygen therapy. A diuretic (water tablet) may also help control the swelling.

**Anxiety and depression**

People with long-term conditions can develop depression or anxiety. Your healthcare professionals should watch out for signs of this. If you become depressed or anxious, you should be offered the same treatment as people who do not have COPD. You may be offered support (such as therapy or a physical exercise programme) and medicines (antidepressants).

**Special considerations**

**Air travel**

You should ask your doctor or nurse for advice before flying, especially if you're having long-term oxygen treatment.
**Having an operation**

If an operation is being considered for a problem unrelated to your COPD, the anaesthetist and surgeon should consider a number of factors, including the severity of the person's COPD, their general health and how much the operation is needed.

**Treating exacerbations**

You may have attacks when your symptoms become particularly severe. These flare-ups are called 'exacerbations'. You may suddenly become much more breathless, get a cough, or notice that you are producing more sputum or that it is a different colour than normal. You may need a change to your regular treatment or extra treatment to help you recover from an exacerbation, which may last several days.

**Managing an exacerbation at home**

If you are likely to have an exacerbation, you or your carer should be given advice about what to do at the first sign that one might be on its way. It should include advice about:

- starting steroid tablets (you should be given steroid tablets to keep at home if it's appropriate for you)
- starting antibiotics if you notice that you are producing more sputum or it has changed colour (you should also be given some of these to keep at home)
- making changes to your bronchodilator medicine (such as increasing the dose or changing how you take it) to help with your symptoms.

You should also be advised to contact your doctor or nurse if things don't improve.

**Deciding whether you need hospital treatment**

Most people can be treated at home if they have an exacerbation, but some should go into hospital. This depends on factors such as the severity of the exacerbation and your COPD, your general health, and how well you would be able to manage at home.

You may be treated at home after you have been assessed at a hospital or after a short stay in hospital instead of being admitted for a longer time. The schemes that support this are called
'hospital-at-home' or 'assisted-discharge' schemes. Your preferences about treatment at home or in hospital should be taken into account.

*Treating an exacerbation*

An increase in breathlessness is common during an exacerbation. This should usually be treated by increasing your short-acting bronchodilators and possibly by steroid tablets. These might be given using a nebuliser or an inhaler. If you use a nebuliser in hospital, your doctor should change your device back to an inhaler when your condition improves because this may mean you can leave hospital sooner. You may also need to have oxygen at the same time.

**Treating exacerbations**

<table>
<thead>
<tr>
<th>Type of treatment</th>
<th>When might your doctor offer this?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steroid tablets</td>
<td>If your breathlessness has increased so that it’s interfering with your normal activities (as long as there are no reasons why you shouldn’t have them).</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>If you are more breathless and producing more sputum or it has changed colour (a sign of infection), if a chest X-ray shows signs of infection or if you show signs of having pneumonia.</td>
</tr>
<tr>
<td>Intravenous theophylline</td>
<td>If you are taking a bronchodilator from a nebuliser and it does not improve your breathlessness, your doctor might consider a theophylline infusion (drip).</td>
</tr>
<tr>
<td>Oxygen</td>
<td>If you need extra oxygen during an exacerbation. The amount of oxygen in your blood should be measured to help decide how much extra oxygen you need.</td>
</tr>
<tr>
<td>Non-invasive ventilation</td>
<td>If you are not getting enough oxygen into your blood and not breathing deeply enough despite having the right type of medicines.</td>
</tr>
<tr>
<td>Intensive care</td>
<td>If you become very ill, you may be treated in an intensive care unit.</td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>If you have a problem clearing sputum during your exacerbation, you may have physiotherapy to help clear the sputum, possibly using a special mask.</td>
</tr>
</tbody>
</table>

**Questions about exacerbations**
• Could I be treated at home?

• What will the treatment involve?

• How long will it take to have an effect?

• What are the risks and benefits of this treatment?

• What can I do to prevent another exacerbation?

Before you go home from hospital

Your doctor should assess you regularly to monitor your recovery from an exacerbation and ensure all test results are satisfactory before you go home. You should be using the inhalers that work best for you.

Before you leave hospital, you and your family or carers should understand any special instructions for taking your medicines. Members of your healthcare team should arrange check-ups and assess you for, and provide, any extra help you might need at home.

Palliative care

Palliative care is care and support at home or in hospital. The aim of palliative care is to help people with the later stages of COPD be as comfortable as possible. It is designed to help with physical needs and any psychological, social and spiritual needs you have.

Your palliative care team may offer you a type of medicine called an opiate to help make you more comfortable. They may also offer antidepressants, tranquillisers and oxygen to help with your breathlessness.

People with the later stages of COPD should have access to the full range of palliative care services, including hospice services.
Explanation of medical terms

*Alpha-1 antitrypsin deficiency*

Alpha-1 antitrypsin is produced by the body and helps to control inflammation in the airway. If there is a deficiency then the lungs become damaged, leading to COPD.

*Bronchodilator*

type of medicine that helps to keep the airways open by relaxing the muscle around them and relieving breathlessness. Examples include beta$_2$ agonists and muscarinic antagonists.

*Nicotine replacement therapy*

This reduces the unpleasant withdrawal symptoms when you give up smoking. Gums, patches, inhalers, tablets, lozenges, and sprays are available on prescription or can be bought from pharmacies.

*Non-invasive ventilation*

Sometimes shortened to NIV. This emergency treatment is usually given to treat an exacerbation and involves wearing a mask connected to a machine that pumps oxygen into the lungs. This is not the same as long-term oxygen therapy, where you have to breathe in the oxygen.

*Pulse oximeter*

A device that detects the amount of oxygen in the blood. It is usually clipped onto a fingertip.

*Spacer*

This device is a large plastic container. At one end is a mouthpiece and at the other end is a hole for inserting the mouthpiece of an inhaler. It makes your inhaler easier to use as you don't have to coordinate puffing and inhaling and can deliver more medicine directly to your lungs.

*Steroid*

This type of drug may be given in an inhaler to help reduce the chance of having an exacerbation, or as a tablet to treat an exacerbation.
Vaccination

Stimulates the body's immune system to give better protection against diseases such as flu. Often given as an injection (jab).

More information

The organisations below can provide more information and support for people with COPD. NICE is not responsible for the quality or accuracy of any information or advice provided by these organisations.

- Northern Ireland Chest, Heart and Stroke, 028 9032 0184 www.nichsa.com
- British Lung Foundation, 0300 0030 555 www.lunguk.org
- NHS Free Smoking Helpline, 0800 022 4332 http://smokefree.nhs.uk

You can also go to NHS Choices (www.nhs.uk) for more information.

Accreditation

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