1 Care map information

Quick info:

Scope:
- early detection, assessment, diagnosis, and management of chronic obstructive pulmonary disease (COPD) in adults
- management in primary and secondary care, and criteria for specialist referral
- principles of palliative care in COPD

Out of scope:
- children and adolescents
- smoking cessation – see 'Smoking cessation' care map
- other aspects of palliative care – see 'End of life care in adults' care map

Definition:
- COPD is characterised by airflow obstruction [1-3]:
  - forced expiratory volume in 1 second (FEV$_1$)/forced vital capacity (FVC) ratio less than 0.7 [3]
  - airflow obstruction is usually progressive, not fully reversible [1-4], and does not change over several months [1,3]
  - airflow limitation is usually associated with a chronic inflammatory response in the airways and the lung to noxious particles or gases [2]
- COPD is the preferred term for patients with airflow obstruction who were previously defined as having [1,3]:
  - chronic bronchitis
  - emphysema
- Asthma-COPD Overlap Syndrome (ACOS) [2]:
  - is characterised by persistent airflow limitation with several features associated with asthma and other features associated with COPD

Incidence and prevalence:
- in the UK, an estimated 3 million people are affected by COPD – approximately 2 million of these remain undiagnosed [3]
- the prevalence of COPD in the population is estimated to be between 2% and 4% [3]
- prevalence rates are increasing in women but have reached a plateau in men [1,3]
- the incidence of COPD is difficult to determine as the disease develops insidiously [3]
- in the UK, the mean age of diagnosis is age 67 years [1]
- 7% of men over age 75 years suffer from COPD [3]
- worldwide, COPD is the fourth leading cause of death [2]

Prognosis:
- in the UK, COPD accounts for approximately 30,000 deaths each year (more than 90% of these occur in those over age 65 years) [3]
- 5 year survival rates from diagnosis [1]:
  - men with mild disease – 78%
  - men with severe disease – 30%
  - women with mild disease – 72%
  - women with severe disease – 24%
- 15% of patients admitted to hospital with COPD die within 3 months and approximately 25% die within a year [11]
- COPD is also associated with an increased risk of mortality from cardiovascular disease [11]

Other common co-morbidities and systemic features of COPD include [2,3]:
- lung cancer – having COPD increases the risk of developing lung cancer
- depression and/or anxiety disorder
- osteoporosis
- cachexia

Risk factors:
- smoking [1-3] – in most cases COPD is caused by cigarette smoking [11]
• occupational exposure [1-3]
• increasing age [2,3]
• deprived communities [3]
• genetic risk of homozygous alpha₁-antitrypsin deficiency – accounts for less than 1% of cases [1,2]
• environmental factors, eg air pollution [1,2]

References:

2 Information resources for patients and carers

Quick info:
Recommended resources for patients and carers, produced by organisations certified by The Information Standard:
• ‘Chronic Obstructive Pulmonary Disease’ (PDF) from Patient UK at http://www.patient.co.uk
For details on how these resources are identified, please see Map of Medicine's document on Information Resources for Patients and Carers (URL).

Live Life Better Derbyshire Leaflet

Home Oxygen Therapy Leaflet

Pulmonary Rehab Info Leaflet for North Derbyshire

BTS Respiratory Physiotherapy Leaflet

Stay Well This Winter Leaflet

Respiratory Action Plan (1/5)
Respiratory Action Plan (2/5)
Respiratory Action Plan (3/5)
Respiratory Action Plan (4/5)
Respiratory Action Plan (5/5)


Lung diseases affected by air travel – leaflet

British Thoracic Society – NIV Patient Leaflet (for local use)

Derbyshire Community Health Services (DCHS)
Living with Long-Term Conditions
http://www.dchs.nhs.uk/find_services_by_topic/id/48674
Derbyshire Community Health Services (DCHS)
Living with Long-Term Conditions Programme (leaflet)
http://www.dchs.nhs.uk/assets/LWLTC_leaflet_b.pdf

Local Breathe Easy Support Groups
Breathe Easy Groups are support groups for people affected by lung conditions, including their friends, family and carers. These groups are run by members with help and support from the British Lung Foundation when it’s needed. There are more than 230 Breathe Easy groups across Britain. Groups typically meet once a month and members arrange all kinds of things for their meetings, from talks on local patient services and advice from health care professionals, to arts and crafts and trips to the theatre or the seaside. Every group is different and the activities each one organises depends on what its members want and enjoy.
In NDCCG Breathe Easy Groups are held in Chesterfield and Buxton – details are shown below:-

Hardwick North
When: 4th Tuesday of every month 1.30pm - 3.30pm
Call: 03000 030 555
St Barnabas Centre, Pilsley Rd, Chesterfield, S45 9BU

Hardwick East
When: 2nd Wednesday of every month 1.30pm - 3.30pm
Call: 03000 030 555
Bainbridge Hall, Chapel Road, Carr Vale, Chesterfield, S44 6JD

Chesterfield
When: 2nd Monday of every month 1pm - 3.30pm
Call: 03000 030 555
Burns Close Community Room, Burns Close, Grangewood, S40 2SW

Buxton
When: 1st Tuesday of the month, from 1.30-3.30pm
Contact: 03000 030 555
St Anne’s Parish Centre, Hardwick Square West, Buxton, SK17 6PX

Individuals can phone the BLF Helpline number shown above for details or just turn up at their local meeting. The groups are free to attend. Further details are also available on the British Lung Foundation website at www.blf.org.uk

3 Updates to this care map

Quick info:
Date of publication: 31-Jan-2016
This care map has been updated with recommendations on home oxygen use and spirometry in chronic obstructive pulmonary disease (COPD), in line with the following guidelines:
New guidance on suspected cancer referrals has been included, in line with:
Information about the asthma-COPD overlap syndrome has been added, in line with:
Please see the care map's Provenance for additional information on references, contributors, and the editorial methodology.
Date of publication: 31-Jul-2015
Updated drug safety recommendations from the Medicines and Healthcare Products Regulatory Agency (MHRA) on the delivery of tiotropium and the additional risk of cardiovascular side effects in patients with cardiac conditions have been added in line with:


Please see the care map’s provenance for additional information on references, contributors, and the editorial methodology.

Date of publication: 31-Jan-2014

The clinical content of this care map has been accredited by the Royal College of Physicians (RCP).

This care map has been updated with the following guidelines:


Further information has been added from the following:


Expert opinion has been added to this care map in line with:

- [23] Contributors representing the Royal College of Physicians (RCP) and the Royal College of General Practitioners (RCGP); 2014.

A literature search identified an update to the following guideline, but no changes to clinical recommendations were required:


Please see the care map’s Provenance for additional information on references, accreditations from national clinical bodies, contributors, and the editorial methodology.

4 COPD - management considerations

Quick info:

Chronic obstructive pulmonary disease (COPD) care should be delivered by a multidisciplinary team (MDT), including [3]:

- doctors
- nurses, including a respiratory nurse specialist:
  - COPD nurse specialists are found in primary and secondary care settings
  - the role of COPD nurse specialists may include:
    - education of patients and carers
    - support and education for other professionals
    - coordination of care
    - assessing and monitoring stable COPD
    - psychological and emotional support
COPD - management

A-Z Local Care Maps - NDCCG & HCCG > COPD > COPD - Management

• nurse prescribing
• home care provisions
• oxygen assessment
• monitoring patients on home ventilation
• hospital-at-home
• physiotherapists – their role is to help:
  • reduce the work of breathing
  • restore patients' maximal function
  • improve peripheral and respiratory muscle weakness
• occupational therapists
• pharmacists

In severe cases of COPD, the MDT should also include a [3]:
• dietitian
• social worker
• mental health trained worker
• clinical psychologist or liaison psychiatrist

Functions of the team include [3]:
• assessing patients, including:
  • performing spirometry
  • assessing the:
    • need for oxygen therapy
    • need for aids for daily living
    • appropriateness of delivery systems for inhaled therapy
• care and treatment of patients, including:
  • prescribing appropriate inhalers and other medication
  • non-invasive ventilation (NIV)
  • pulmonary rehabilitation
  • hospital-at-home or early discharge schemes
  • providing palliative care
  • identifying and managing anxiety and depression
  • advising patients on:
    • relaxation technique
    • dietary issues
    • social security benefits and travel
    • self-management
    • exercise
  • identifying patients at risk of exacerbation
  • providing care to prevent emergency admissions
  • educating patients and other healthcare professionals

Patients should be involved in shared decision-making about their care [11].

References:

5 Treatment of Asthma-COPD Overlap Syndrome
Quick info:
In treatment of Asthma-COPD Overlap Syndrome (ACOS), initial treatment is as follows [2]:

- if the differential diagnosis is equally balanced between COPD and asthma:
  - start treatment for asthma with inhaled corticosteroids (ICS):
    - essential in preventing morbidity, and even death, in uncontrolled asthma
    - mild asthma symptoms – compared with those of moderate-to-severe COPD – may indicate significant risk of a life-threatening asthma attack – see the ‘Chronic asthma in adults – management’ care map
- if syndromic assessment suggests asthma or ACOS, or there is significant uncertainty about COPD diagnosis:
  - start treatment for asthma until further investigation has been completed:
    - inhaled ICS in low or moderate dose according to symptoms
    - a long-acting beta2-agonist (LABA) should be continued or added
    - NB: do not treat with LABA without an ICS if there are features of asthma
- if syndromic assessment suggests COPD:
  - start symptomatic treatment with bronchodilators or combination treatment, but not an ICS alone
  - treatment of ACOS should also include:
    - smoking cessation
    - pulmonary rehabilitation
    - vaccinations
    - treatment of comorbidities
  - refer for further specialist investigation if further issues arise during ongoing management

Reference:

6 Consider the following

Quick info:
When managing a patient with chronic obstructive pulmonary disease (COPD), consider all of the following [3]:

- treatment of symptoms
- management of complications
- health and preventative measures
- palliative care

References:

7 Health promotion or preventative measures

Quick info:
Advice on health promotion and preventative measures include [3]:

- encourage smoking cessation – see ‘Smoking cessation’ care map
- pulmonary rehabilitation
- exercise advice
- vaccination and antiviral therapy
- travel and leisure advice
- occupational and social services
- patient education and self-management
8 Symptom treatment

Quick info:

Delivery systems for symptom management:

- inhalers [3]:
  - bronchodilator therapy is usually best administered by a hand-held inhaler device (including a spacer device if appropriate)
  - short-acting bronchodilators should be the initial empirical treatment for relief of breathlessness and exercise limitation, if necessary
  - inhalers should not be prescribed unless the patient has received training and demonstrated satisfactory technique – if the patient is unable to use a particular device satisfactorily, or it is not suitable, an alternative should be found
  - regularly assess ability to use an inhaler device and re-teach correct technique, if needed
  - dose of treatment should be titrated according to individual clinical response

- spacers:
  - should be compatible with the patient's metered-dose inhaler [3]
  - use in the following way [3]:
    - administer drug by repeated single actuations of the metered-dose inhaler into the spacer, with each followed by inhalation
    - ensure minimal delay between inhaler actuation and inhalation
    - tidal breathing is as effective as single breaths
  - do not clean more than monthly (frequent cleaning leads to a build-up of static and affects their performance) [3]
  - clean with water and washing-up liquid and allow to air-dry [3]
  - wipe mouthpiece clean of detergent before use [3]

- nebulisers:
  - consider if distressing or disabling breathlessness, despite maximal therapy using inhalers [3]
  - continue to prescribe only after assessment confirms one or more of the following [3]:
    - a reduction in symptoms
    - an increase in the ability to undertake activities of daily living
    - an increase in exercise capacity
    - an improvement in lung function
  - assess patient's and/or carer's ability to use it [3]
  - offer a choice between a facemask and a mouthpiece, unless the medication specifically requires a mouthpiece, eg anticholinergic drugs [3]
  - provide with equipment, servicing, advice, and support [3]

Treatments that are not recommended:

- antioxidant therapy (alpha tocopheryl and beta-carotene supplements) [3]
- antitussive therapy [3]
- prophylactic antibiotic therapy; however, antibiotics do have a role in the management of COPD exacerbations [1]

References:

9 Management of complications

Quick info:
Management of complications should cover the following, if necessary [3]:
• respiratory failure and oxygen therapy
• consideration for long-term non-invasive ventilation (NIV)
• management of cor pulmonale
• management of abnormal body mass index (BMI)
• considerations for surgery

Reference:

10 Palliative care

Quick info:
Palliative care [2]:
• is an important component in the management of all patients with advanced COPD
• aims to:
  • prevent and relieve suffering
  • enhance quality of life
  • optimise function
  • help with making decisions about end-of-life care
  • provide emotional and spiritual support to patients and their families

Symptom management – consider the following for the palliation of breathlessness in patients with end-stage COPD unresponsive to other medical therapies [3]:
• opioids
• benzodiazepines
• tricyclic antidepressants (TCAs)
• major tranquillisers
• oxygen

Patients with end-stage COPD, and their family/carers should be offered palliative care that addresses physical, social, and emotional needs [26], including admission to hospices [3] which may be beneficial for patients with the most advanced and terminal illness [2].

Ensure effective communication between patients and clinicians to give patients the opportunity to make informed decisions about their care and to ensure clinicians understand their values, goals, and perspectives [2]

Local Service Information

Derbyshire Alliance for End of Life Care - http://derbyshire.eolcare.uk/
Toolkit designed collaboratively by professionals who work across Derbyshire (the self-titled ‘Derbyshire Alliance for End of Life Care’) to help teams plan and deliver care for people in their last months, weeks and days of life. This toolkit contains national guidelines and local ‘Derbyshire-wide’ guidelines which should be used by all agencies in the county.

Derbyshire End of Life Care Toolkit Document
Derbyshire End of Life Toolkit: Pocket Guide

References:
12 Oxygen therapy

Quick info:
Oxygen therapy should be administered according to current national guidance [4].

Long-term oxygen therapy (LTOT):
- defined as oxygen used for at least 15 hours per day in chronically hypoxaemic patients [10]
- can improve survival rates by approximately 40%, however 30% of people currently prescribed oxygen either do not benefit clinically or do not use the oxygen [11]
- should be prescribed after appropriate assessment [3,10]:
  - in patients with a confident chronic obstructive pulmonary disease (COPD) diagnosis
  - when breathing is clinically stable
  - in patients who are receiving optimum medical management
  - should comprise measurement of arterial blood gases on two occasions at least 3 weeks apart
- consider assessment of nocturnal hypoxaemia if there is [10]:
  - a history of morning headaches
  - doubt about adequacy of overnight correction of oxygen saturation (SaO₂)
  - suspicion of obstructive sleep apnoea
- indicated in:
  - patients with partial pressure of oxygen in arterial blood (PaO₂) less than or equal to 7.3 kPa when stable [10]; or
  - PaO₂ less than or equal to 8 kPa when stable plus one of the following [2,3,10]:
    - secondary polycythaemia – haematocrit more than or equal to 55% [3,10]
    - nocturnal hypoxaemia [3]
    - peripheral oedema [2,3]
    - pulmonary hypertension [2,3,10] shown clinically and/or by echocardiographic evidence [10]
- oxygen flow rate [10]:
  - initiated at 1L/min; titrated up by 1L/min until an SpO₂ of more than 90% is achieved
  - arterial blood gas (ABG) should then be performed to confirm target PaO₂ is more than or equal to 8kPa at rest
  - is not indicated for patients with chronic hypoxaemia with a PaO₂ value above 8kPa [10]
- patients should breathe supplemental oxygen for at least 15 hours per day [1-3,10], including at night [1,10] – greater benefits are seen in patients receiving oxygen for 20 hours per day [3]
- assess need for oxygen therapy in patients with [3]:
  - forced expiratory volume in 1 second (FEV₁) less than 50% predicted – ensure routine pulse oximetry is performed in these patients
  - cyanosis
  - polycythaemia
  - peripheral oedema
  - raised jugular venous pressure (JVP)
  - oxygen saturation less than or equal to 92% on air
- use oxygen concentrators for fixed supply at home for LTOT [3] – warn patient about the dangers if they continue to smoke with prescribed oxygen [10]
- GP should review the patient annually, including pulse oximetry [3]

Ambulatory oxygen therapy:
COPD - management
A-Z Local Care Maps - NDCCG & HCCG > COPD > COPD - Management

• consider for those already on LTOT who want to continue therapy outside the home [1,2,10]
• should only be offered for use during pulmonary rehabilitation or an exercise programme after formal assessment shows improved exercise endurance [10]
• consider in the following patients [3]:
  • patients who have exercise desaturation [10]
  • patients shown to have an improvement in exercise capacity and/or dyspnoea with oxygen
  • patients with the motivation to use oxygen
• should only be prescribed after assessment has been performed by a specialist – assessment should include [3]:
  • extent of desaturation
  • improvement in exercise capacity with supplemental oxygen
  • oxygen flow rate required to correct desaturation
• small light weight cylinders, oxygen-conserving devices, and portable liquid oxygen systems should be available [3]
• not recommended if PaO₂ is greater than 7.3kPa and there is no exercise desaturation [3]
• consider assessing the benefits of a walking aid to transport ambulatory oxygen, especially for disabled patients [4]

Short-burst oxygen therapy:
• only for episodic breathlessness [25] not relieved by other treatments in patients with the following conditions [3]:
  • severe COPD
  • interstitial lung disease
  • heart failure
  • conditions requiring palliative care
• should only continue to be prescribed if an improvement in breathlessness following therapy has been documented [3]
• should be provided from cylinders when indicated [3]

NB: Clinicians should be aware that inappropriate oxygen therapy in people with COPD can cause respiratory depression [3].

Home Oxygen Therapy Leaflet

References:

13 Encourage smoking cessation

Quick info:
Smoking is the main preventable cause of chronic obstructive pulmonary disease (COPD) and lung cancer [11]. All patients with COPD should be encouraged to stop smoking, and offered help to do so at every opportunity [3]:
• explain the benefits of giving up smoking – use visual aids to help emphasise the benefits [1]
• offer varenicline, bupropion, or nicotine replacement therapy (unless contraindicated), combined with a support programme as an option for smokers who have expressed a desire to quit smoking [3]
• consider referral to a smoking cessation clinic [1]
• NHS Stop Smoking services offer free support through a range of interventions [11]
• see 'Smoking cessation' care map
Smoking cessation cannot restore loss of lung function but can prevent accelerated decline [3].
If the patient is unwilling to stop smoking, advise them to cut down as this may have some symptomatic benefits [1].
If initial attempt to quit smoking was unsuccessful [7]:
• reassess readiness to quit at 6 months – patient may regain adequate motivation
• it may be reasonable to try again sooner if external factors interfered with initial attempt

Local Service Information
Live Life Better Derbyshire
Free stop smoking support to any smoker over the age of 12.
Telephone: 01246 515550 / Free Phone 0800 0852299
Email: llbd@nhs.net
Text: llbd to 80800
Visit: http://www.livelifebetterderbyshire.org.uk/stop-smoking
Live Life Better Derbyshire leaflet

References:

14 Go to COPD - JAPC guideline
Quick info:

15 Education on home oxygen services
Quick info:
Patient education should cover [10]:
• long-term oxygen therapy (LTOT) and/or ambulatory oxygen, and the reasons for prescription
• discussion of principles of ambulatory oxygen
• explanation of requirements for a back-up cylinder for the concentrator
• discussion of advantages of nasal cannulae for oxygen delivery – some patients may require masks
• assessment of requirement for a humidifier
• warning about the dangers of cigarette smoking in the presence of oxygen equipment
• enquiry about the dangers of cigarette smoking with respect to installation of oxygen equipment or storage

Local Service Information
Contact:
Clinical Nurse Specialist for Home Oxygen Assessment
Direct Line: 01246 516128
Mobile: 07500 443384
Email: CRHFT.HOS@nhs.net
**COPD - management**

*Home Oxygen Therapy Leaflet*

Reference:

**16 Patient education/self management**

Quick info:
If a patient has had three or more exacerbations, please seek specialist medical advice.

Patient education [26]:
- specific educational packages should be developed for patients with chronic obstructive pulmonary disease (COPD) [3]:
  - packages should take into account the different needs of patients at different stages of their disease
  - do not use programmes designed for asthma
- patients with moderate to severe COPD should be made aware of non-invasive ventilation (NIV) – benefits and limitations should be explained in case it is necessary in the future [3]
- all patients should be advised about reducing risk factors [2]
- patients should be provided with the following patient education [2,3]:
  - information about the nature of COPD
  - instructions on how to use inhalers and other treatments
  - recognition and treatment of exacerbations
  - strategies for minimising dyspnoea
- patients with stage 4 COPD should be provided with additional patient education, ie [2]:
  - information about complications
  - information about oxygen treatment
  - advance directives and end of life decisions

Self-management [3]:
- patients at risk of having an exacerbation of COPD:
  - should be given self-management advice which encourages a prompt response – prompt medical management improves outcomes [11]:
    - start oral corticosteroid therapy
    - start antibiotic therapy if their sputum changes colour to become purulent with increased volume or breathlessness
    - adjust their bronchodilator therapy to control symptoms
  - should be given a course of antibiotic and corticosteroid tablets to keep at home for use as part of a self-management strategy – appropriate use of these tablets should be monitored
  - patient should be advised to contact a healthcare professional if they do not improve

**Respiratory Action Plan (1/5)**
**Respiratory Action Plan (2/5)**
**Respiratory Action Plan (3/5)**
**Respiratory Action Plan (4/5)**
**Respiratory Action Plan (5/5)**

**Local Service Information**

**VSPA (Voluntary Single Point of Access)**
The aim of the VSPA (Voluntary Sector Single Point of Access) is to provide an effective referral route into health and social care voluntary services and to support people to receive services at home or as close to home as is possible. The service covers Erewash, Hardwick and North Derbyshire Clinical Commissioning Groups (CCGs) patient population. The service is not for patients to self-refer into, but to be referred by health, social care or voluntary sector professionals. [http://www.ndva.org.uk/learn-more-about-us/vspa](http://www.ndva.org.uk/learn-more-about-us/vspa)

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Breathe Easy Support Groups
There are more than 230 Breathe Easy support groups throughout the UK. Groups are run by their members and meet regularly (usually once every month). [https://www.blf.org.uk/support-for-you/breathe-easy](https://www.blf.org.uk/support-for-you/breathe-easy)

COPD self-management pack

COPD self-management plan

References:

17 Frequent exacerbations
Quick info:
If a patient has had three or more exacerbations, please seek specialist medical advice.

Management of frequent exacerbations [3]:
- check:
  - compliance
  - inhaler techniques
  - optimise bronchodilator therapy
- Provide self-management advice for patients at risk of an exacerbation:
  - encourage an early response to symptoms of exacerbation by [3]:
    - starting oral corticosteroid therapy if increased breathlessness interferes with activities of daily living (ADLs), unless contraindicated [3]
    - if patient finds it difficult to stop oral corticosteroids, eg has immediate worsening of symptoms [1]:
      - offer a repeated short course
      - consider referral for advice on maintenance oral corticosteroids
    - patients taking prolonged/maintenance oral corticosteroids should [1]:
      - take the lowest dose possible
      - be advised not to stop taking corticosteroids suddenly and to carry a steroid treatment card
    - starting antibiotic therapy if their sputum is purulent [3], with either increased sputum volume or increased breathlessness [25]
    - adjusting bronchodilator therapy to control symptoms [3]
    - give a course of antibiotic (subject to local current microbiological guidelines) and corticosteroid tablets to keep at home – monitor use of these medications [3]
    - advise patient to contact a healthcare professional if symptoms do not improve [3]

Local Service Information
Derbyshire Community Health Services (DCHS) – Respiratory Team
[http://www.dchs.nhs.uk/home/our-services/find_services_by_topic/respiratory_services/](http://www.dchs.nhs.uk/home/our-services/find_services_by_topic/respiratory_services/)
Follow-up of patients on oxygen therapy

Quick info:
Follow-up at home:

- should take place within 4 weeks of long-term oxygen therapy (LTOT) prescription by a healthcare worker experienced in the provision of domiciliary oxygen therapy [10]
- the National Institute for Health and Care Excellence (NICE) state that follow up should be at least annually, or more frequently as necessary [26], and the British Thoracic Society (BTS) suggest follow-up every 6 months [10]
- follow up should include [26]:
  - degree of breathlessness
  - frequency of exacerbations
  - validated measures of health status and prognosis
  - presence of hypoxaemia
  - co-morbidities
- follow up aims to [10]:
  - provide further education and patient/carer support
    - if SaO2 is noted to be 92% or less on air, repeat oximetry in 4 weeks – if levels are still 92% or less, the patient should be referred to a specialist to assess the requirement for LTOT
  - the healthcare professional should pay particular attention to [10]:
    - nasal cannulae/masks
    - requirement of back-up cylinder
    - oxygen usage, with patients understanding the importance of compliance
    - reinforcing that avoidance of smoking is essential – see ‘Smoking cessation’ care map

Follow-up by a specialist [10]:
- should be performed 3 months after LTOT is ordered, including assessment of blood gases and flow rate
- should ensure:
  - LTOT is still indicated and therapeutic
  - there is good compliance with LTOT and ambulatory oxygen therapy
  - continuing requirement for domiciliary oxygen

Patients on LTOT should be reassessed with arterial blood gas (ABG) after oxygen titration is complete to determine [10]:
- if adequate oxygenation has been achieved
- if respiratory acidosis and/or worsening hypercapnia have not been precipitated on LTOT

Follow-up of patients on ambulatory oxygen therapy (AOT) [10]:
- if started during an exacerbation or when unwell, an initial review at 4–6 weeks to check it is still indicated is essential
- home visits may be useful to identify problems with equipment or set-up
- further reviews should be carried out every 6 months when stable, or sooner if the patient’s clinical status changes

Local Service Information
Contact:
Clinical Nurse Specialist for Home Oxygen Assessment
Direct Line: 01246 516128
Mobile: 07500 443384
19 Vaccination and antiviral therapy

Quick info:
All patients with chronic obstructive pulmonary disorder (COPD) should be offered:

  - age 65 years and older
  - younger than age 65 years with:
    - significant co-morbidities, eg cardiac disease
    - a forced expiratory volume in 1 second (FEV\textsubscript{1}) less than 40% predicted
- annual influenza vaccination [1,3]:
  - in an influenza pandemic, zanamivir and oseltamivir are recommended for at-risk patients presenting within 48 hours of onset of symptoms of an influenza-like illness [7]
  - oseltamivir can be associated with a variety of neurological and behavioural symptoms, including [7]:
    - hallucinations
    - delirium
    - abnormal behaviour

Local Service Information
NHS Choices - Stay Well This Winter website [http://www.nhs.uk/staywell](http://www.nhs.uk/staywell)
Stay Well This Winter Leaflet

References:

20 Consider referral to specialist for long-term non-invasive ventilation (NIV)

Quick info:
The following patients should be referred to a specialist centre for consideration for long-term non-invasive ventilation (NIV):

- patients with chronic hypercapnic respiratory failure who have required assisted ventilation during an exacerbation (invasive or non-invasive) [3]
- patients who are hypercapnic or acidic and on long-term oxygen therapy (LTOT) [3]
- patients with chest wall or neuromuscular disease causing type 2 respiratory failure [10]:
  - additional LTOT may be required in case of hypoxaemia not corrected with NIV [10]
- those involved in the delivery of NIV and the care of patients using NIV should be adequately trained in the:
  - principles of NIV
  - assessment of patients receiving NIV
COPD - management

21 Exercise and employment advice

Quick info:
Exercise will vary depending on the disease severity and other co-morbidities – patients should be reminded that exercise is not dangerous [1].

Exercise advice:
• advise patient to:
  • exercise at their own pace, ie not to over-strain themselves [1]
  • take regular exercise that leaves them a little short of breath [1] – if possible 30 minutes a day, 5 times a week [16]
  • gradually increase their level of exercise [1]
  • do upper limb activities, eg twisting and arm stretches, if immobile [1]
  • if mild chronic obstructive pulmonary disease (COPD), continue with all their usual activities, including all but the most strenuous jobs [7]

Exercise programmes [2,4]:
• can improve exercise tolerance and symptoms of dyspnoea and fatigue [2]
• consider inspiratory muscle training (IMT) [4]:
  • add to a general exercise programme, if respiratory muscle weakness is thought to be contributing to the patient's problem – IMT can improve muscle strength and/or endurance
  • do not use instead of pulmonary rehabilitation
  • if the patient is unwilling or unable to take part in pulmonary rehabilitation, consider IMT in order to improve dyspnoea and exercise tolerance
  • use devices that incorporate control of breathing and flow rate

Employment [7]:
• breathlessness on exertion may be distressing, but is not dangerous, and many patients can continue their activities and interests in spite of their impairment
• patients with moderate COPD can often continue in employment as long as it does not involve heavy manual work

References:

Local Service Information
Live Life Better – Get Active
http://www.livelifebetterderbyshire.org.uk/get-active
Live Life Better Leaflet

Citizens Advice Bureau – Healthy Advice – Delivering advice in GP surgeries across Derbyshire
http://www.healthyadvice.org.uk/

Patient record requests - Accessing health records held by Derbyshire Healthcare
http://www.derbyshirehealthcareft.nhs.uk/contact-us/patient-requests/

References:
23 Chronic productive cough

Quick info:
Consider mucolytic therapy [1,3] (eg carbocisteine [1]) for patients with a chronic cough productive of sputum [1,3]:

- continue if there is symptomatic improvement, eg reduction in [1,3]:
  - frequency of cough
  - sputum production

- do not routinely use for the prevention of exacerbations in people with stable chronic obstructive pulmonary disease (COPD) [3]
- a few patients with viscous sputum may benefit but overall benefits appear to be very small [2]

Patients with excessive sputum should be taught [3]:
- the use of positive expiratory pressure masks
- active cycle of breathing techniques

Teach patients to contract their pelvic floor muscles before forced expiration and coughing, irrespective of continence status [4].

Consider referral to physiotherapy:
- if patient is having a persistent problem in clearing the sputum [1]
- specialising in continence, if leakage problems are identified [4]

Local Service Information
Pulmonary Rehabilitation Team
Welbeck Suite
Walton Hospital
Whitecoates Lane,
Chesterfield
S40 3HW
Phone: 01246 253067 Fax: 01246 565053 Email: DCHST_Respiratory@nhs.net

Pulmonary Rehabilitation Self-referral Poster
Pulmonary Rehab Info Leaflet for North Derbyshire
BTS Respiratory Physiotherapy Leaflet

References:

24 Occupational therapy and social services

Quick info:
Occupational therapy [3]:

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• may be relevant in the following circumstances:
  • recently diagnosed patients
  • during an exacerbation
  • during pulmonary rehabilitation
  • as part of palliative care
• should include regularly asking the patient about:
  • their ability to undertake daily activities
  • how breathless they become during daily activities
• needs should be assessed by the clinician using a validated tool
Consider referral for assessment by a social services department for patients disabled by chronic obstructive pulmonary disorder (COPD) [3].

Local Service Information
Live Life Better Derbyshire
Free stop smoking support to any smoker over the age of 12.
Telephone: 01246 515550 / Free Phone 0800 0852299
Email: llbd@nhs.net
Text: llbd to 80800
Visit: http://www.livelifebetterderbyshire.org.uk/stop-smoking
Live Life Better Derbyshire leaflet

Derbyshire Community Health Services (DCHS) Occupational Therapy
http://www.dchs.nhs.uk/find_services_by_topic/id/45276

Service Locations
• Ilkeston Hospital
• St. Oswald's Hospital
• Ripley Hospital
• Dronfield Health Centre

Contact Details
Janice BryanLocality manager (Amber Valley/ Erewash and South Derbyshire Dales)
Tel: 01773 571442
Email: janice.bryan@dchs.nhs.uk

Derbyshire Healthcare NHS Foundation Trust – Occupational Therapy
http://www.derbyshirehealthcareft.nhs.uk/services/support/occupational-therapy/

Derbyshire County Council Social Services
http://www.derbyshire.gov.uk/social_health/

North East Health and Social Care - Social Care and Support in Derbyshire
http://www.ne-derbyshire.gov.uk/health-social-care/social-care/

British Thoracic Society – COPD Guideline
http://www.nice.org.uk/guidance/CG101
BTS Respiratory Physiotherapy Leaflet

Reference:
26 Physiotherapy management

Quick info:
Management of breathlessness using physiotherapy techniques [4]:

- positioning – advise patient:
  - to passively fix the shoulder girdle for:
    - optimising ventilatory muscle efficacy
    - relief of breathlessness
  - to rest elbows on knees or table when seated or on a suitable surface when standing, eg window sill or walls
  - when ambulating to consider the following:
    - placing hands or thumbs in pockets, belt loops, or waistband
    - using handbags with across the shoulder straps
  - to assess the effectiveness of forward lean sitting for relief of breathlessness
  - to modify the forward lean position for use in standing and lying, if the forward lean is effective when sitting
- walking aids – assess the effectiveness of:
  - rollator frames if patient is disabled by breathlessness
  - gutter rollator frames in the acute setting if patient is disabled by breathlessness, especially if they are elderly
- teach the following:
  - to help reduce/relieve dyspnoea:
    - individualised energy conservation techniques
    - breathing control at rest
    - exhalation on effort
  - pursed lips breathing during exertion to:
    - reduce respiratory rate
    - aid recovery
  - relaxed, slower, deeper breathing to facilitate effective ventilation during exertion
- management of anxiety and panic attacks
- consider the following airway clearance techniques for patients with stable chronic obstructive pulmonary disease (COPD) who need assistance in the removal of secretions (consider patient preference), eg:
  - active cycle of breathing techniques, including forced expiration technique
  - autogenic drainage
  - plain or oscillating positive expiratory pressure
  - postural drainage – consider only if it aids clearance further and has no detrimental effects
- consider inspiratory muscle training (IMT):
  - add to a general exercise programme, if respiratory muscle weakness is thought to be contributing to the patient's problem – IMT can improve muscle strength and/or endurance
  - do not use instead of pulmonary rehabilitation
  - if patient is unwilling or unable to take part in pulmonary rehabilitation, consider IMT in order to improve dyspnoea and exercise tolerance
  - use devices that incorporate control of breathing and flow rate
The following are not indicated in the management of COPD [4]:

- diaphragmatic breathing – should not be routinely taught to patients with severe COPD
- breath holding during exertion – should be strongly discouraged
- ventilation feedback
27 Travel and leisure advice

Quick info:
Travel is possible by land and sea in virtually all cases of chronic obstructive pulmonary disease (COPD) – the following are important if considering travelling [3]:
- plan in advance
- be realistic
- shop around due to:
  - the variability in cost and availability of support, eg oxygen
  - regulations of different airline, train, coach, and ferry companies
  - ask questions
- travel with necessary medication and ensure it is accessible during journeys

Air travel:
- the frequency of severe adverse events during air travel in patients with COPD appears to be very low – the potential risks are [6]:
  - acute bronchospasm
  - hypoxaemia
  - infective exacerbation, because of close proximity to others
  - theoretically increased risk of pneumothorax in patients with bullous disease [1,3]
- all patients with COPD should contact their primary healthcare professional for a fitness to fly assessment if considering air travel [1]
- all patients on long-term oxygen therapy (LTOT), or who have severe COPD (FEV₁ less than 30% predicted), should consult their respiratory specialist before flying [6]
- patients with a resting partial pressure of oxygen in arterial blood (PaO₂) of greater than 9.3kPa are likely to be safe to fly without supplementary oxygen – although this does not exclude the development of severe hypoxaemia during a flight [2]
- if a patient requires oxygen at more than 4L/min at sea level, this is a contraindication to commercial air travel [6]
• suitability can be assessed by initial measurement of arterial oxygen saturation using [3]:
  • pulse oximetry
  • history and examination – consider cardiorespiratory disease, dyspnoea, and previous flying experience
  • results of spirometry
• depending on the results of the initial assessment, a hypoxic challenge test may be required to assess whether patients need
  in-flight oxygen [3]
• patients who require oxygen when flying [6]:
  • usually supplied by the airline and must be booked in advance – airline issues a form which needs to be completed by the
    patient and GP or hospital specialist
  • may be charged a fee [1]
  • may be able to take their own small full cylinders if agreed by the airline in advance
  • oxygen is given via nasal cannulae
  • airlines do not provide oxygen for use at airports – separate arrangements must be made if direct flights are not available
• careful consideration should be given to any co-morbidities that impair oxygen delivery to tissue, eg cardiac impairment,
  anaemia [2]
• advise the patient [1]:
  • to carry inhalers in their hand luggage – patients with severe COPD should also consider taking an emergency supply of
    prednisolone [6]
  • to keep mobile during the flight, if possible
  • that a wheelchair may be available for transport to and from the aeroplane

For an acute exacerbation during a flight [6]:
• patient’s own bronchodilator should be administered with a spacer where appropriate
• the dose should be repeated until symptoms are relieved
• the airline’s emergency kit inhaler can be used if available

Scuba diving is not recommended for patients with COPD – patients should seek specialist advice if they have queries [3].

Local Service Information

NDVA Community Transport
http://www.ndva.org.uk/index.php

East Midlands Ambulance Service (EMAS)
http://www.emas.nhs.uk/our-services/

NSL - private non-emergency patient transport provider working with CCGs and their patients
http://www.nsl.co.uk/contact/nept/

British Lung Foundation - going on holiday with a lung condition
https://www.blf.org.uk/support-for-you/going-on-holiday

British Thoracic Society
Lung diseases affected by air travel – leaflet

Home Oxygen Therapy Leaflet

References:
[2] Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management, and prevention of
28 Cor pulmonale

Quick info:
Consider cor pulmonale in patients with the following characteristics and who have no other cause of ventricular dysfunction [3]:
• peripheral oedema
• raised venous pressure
• systolic parasternal heave
• loud pulmonary second heart sound

Treatment [3]:
• patients presenting with cor pulmonale should be assessed for the need for long-term oxygen therapy (LTOT)
• treat associated oedema associated with diuretic therapy
• the following are not recommended for the treatment of cor pulmonale:
  • angiotensin-converting enzyme (ACE) inhibitors
  • calcium-channel blockers
  • alpha-blockers
  • digoxin, unless there is atrial fibrillation

Local Service Information

Contact:
Clinical Nurse Specialist for Home Oxygen Assessment
Direct Line: 01246 516128
Mobile: 07500 443384
Email: CRHFT.HOS@nhs.net

Home Oxygen Therapy Leaflet

Reference:

29 Consider referral for surgery

Quick info:
Surgical options:
• bullectomy [3]:
  • indicated for relief of dyspnoea or to manage complications of bullae
  • usually involves removal of a single large bulla that leads to collapse of surrounding tissue
  • considered in patients with isolated bullous disease on CT and a forced expiratory volume in 1 second (FEV₁) of less than 50% predicted
• lung volume reduction [3]:
  • aims to improve breathlessness by removing areas of poorly functioning lung, but does not appear to have any effect on long term survival
  • improves walking distance and quality of life
  • is an alternative to lung transplantation in selected patients
  • considered in patients with severe COPD who, despite maximal medical therapy, remain breathless and restricted in activities of daily living (ADLs) – should meet the following criteria [3]:
    • FEV₁ more than 20% predicted

• arterial carbon dioxide tension (PaCO$_2$) less than 7.3kPa
• upper lobe predominant emphysema present
• transfer factor for carbon monoxide (T$_L$CO) more than 20% predicted
• bronchoscopic lung volume reduction with airway valves for advanced emphysema [13]:
  • shows some improvement in patient-reported quality of life (QoL)
  • should only be performed with special arrangement for clinical governance, consent, and audit research
  • clinicians wishing to perform the procedure should inform their clinical governance leads, ensure the patient and carers understand the uncertainty surrounding the procedure, and audit and review clinical outcomes
  • the National Institute for Health and Clinical Excellence (NICE) encourage further research into the procedure for advanced emphysema
• transplantation:
  • leads to improvements in FEV$_1$, exercise capacity, and QoL
  • considered in patients with severe COPD who, despite maximal medical therapy, remain breathless and restricted in activities of daily living
  • considerations include [3]:
    • age – older patients have significantly worse survival rates
    • FEV$_1$
    • PaCO$_2$
    • homogeneously distributed emphysema on CT scan
    • elevated pulmonary artery pressures with progressive deterioration
The decision of whether to proceed with surgery should rest with a consultant anaesthetist and consultant surgeon, taking into account [3]:
• presence of co-morbidities
• functional status
• necessity of the surgery
• composite assessment tools such as American Society of Anaesthesiologists (ASA) scoring system
• lung function should not be the only criterion used to assess patients with COPD before surgery
Medical management optimisation and rehab are mandatory before surgery - especially for LVRS and valves. Surgical referrals need to come from secondary not primary care.

Local Service Information
British Thoracic Society – NIV Patient Leaflet (for local use)

References:

30 Abnormal body mass index (BMI) and malnourishment

Quick info:
Body mass index (BMI) should be calculated in all patients with chronic obstructive pulmonary disease (COPD). BODE index, which comprises of BMI, airflow obstruction, dyspnoea, and exercise tolerance, should be measured where its components are available [3]:
• the normal range for BMI is between 20 and 25 [3]:
  • $BMI = \text{weight (kg)} / (\text{height (m)})^2$ [7]
• if patient's BMI is abnormal or changing over time, refer patient for dietetic advice [3]
• if the BMI is low [3];
• give nutritional supplements; and
• encourage exercise to augment the effects of nutritional supplementation
• if patient is obese [12]:
  • weight reduction will reduce the energy requirements of exercise and improve the ability of patients to cope with their disability
  • offer appropriate dietary advice and support
• in older patients, attention should also be paid to changes in weight, particularly if the change is greater than 3kg [3]

Malnourishment [7]:
• malnutrition is common in patients with severe COPD
• may contribute to mortality
• refer for dietary advice

References:

31 Consider pulmonary rehabilitation

Quick info:
Pulmonary rehabilitation should be offered to patients with chronic obstructive pulmonary disease (COPD), including those who have had a recent hospitalisation for an acute exacerbation [3], with a view to improving [16]:
• exercise capacity
• dyspnoea
• health status
• psychological wellbeing

Pulmonary rehabilitation [2,3]:
• is defined as a multidisciplinary programme of care [3]
• should be:
  • a supervised programme
  • individually tailored to optimise the patient's physical and social performance and autonomy [3]
  • held at times that suit the patient, and in buildings that are easy for the patient to get to [3]
  • available to all appropriate patients with COPD, including those recently hospitalised for an acute exacerbation [3] – to commence within one month of discharge [16]
  • considered during an exacerbation to maintain mobility and function [4]
  • offered to all patients with a Medical Research Council (MRC) score of 2 or more who are limited by breathlessness [16]
  • is not suitable for those:
    • who have difficulty walking, eg severe arthritis or severe peripheral vascular disease [16]
    • with unstable cardiac disease [16]
    • who have had a recent myocardial infarction (MI) [3]
  • should include:
    • assessment of exercise tolerance with a field exercise test for the prescription of either exercise or ambulatory oxygen [4]
    • resistance and aerobic training [16]
    • counselling [2]
    • psychological intervention [3]
    • behavioural intervention [3]
    • information, advice [2], and education [2,4]

The referral process and assessments for pulmonary rehabilitation also offer an important opportunity to [16]:

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• offer smoking cessation advice
• assess and optimise cardiovascular health and address risk factors for cardiovascular disease
• detect and consider referral for co-existing symptoms of anxiety and/or depression
• check and optimise inhaler technique
• to screen and educate patients on nutrition

Patients should be made aware of the benefits of rehabilitation and the commitment required to gain these benefits [3]:

• benefits include [2]:
  • improved:
    • exercise capacity
    • health-related quality of life
    • strength and endurance of upper limbs
    • survival
  • reduced:
    • perceived intensity of breathlessness
    • hospitalisation
    • anxiety and depression

Encourage regular physical activity for 30 minutes a day, 5 times a week, and encourage all patients to continue exercising after completing their pulmonary rehabilitation programme [16].

Local Service Information
Pulmonary Rehabilitation Team
Welbeck Suite
Walton Hospital
Whitecoates Lane,
Chesterfield
S40 3HW
Phone: 01246 253067
Fax: 01246 565053
Email: DCHST.Respiratory@nhs.net

Pulmonary Rehabilitation Self-referral Poster
Pulmonary Rehab Info Leaflet for North Derbyshire
BTS Respiratory Physiotherapy Leaflet

References:

34 Anxiety and depression

Quick info:
Healthcare professionals should be aware of anxiety (see ‘Anxiety’ care map) and depression (see ‘Depression in adults’ care map) in patients with chronic obstructive pulmonary disease (COPD) [3,22] – consider in patients [3]:

• who are hypoxic
• with severe dyspnoea
• who have been seen at or admitted to hospital with exacerbation of COPD

Patients with depression should have access to self-help groups, eg [9]:
• the Expert patient programme
• Local Breathe Easy Club

Local Service Information
Derbyshire Community Health Services (DCHS)
Health Psychology Service
http://www.dchs.nhs.uk/home/our-services/find_services_by_topic/health_psychologyservice/
Our services are based at:
• Walton Hospital
• Scarsdale Clinic
• Chapel-en-le-Frith Health Centre
• Welbeck Road Health Centre

Contact Details
The Health Psychology Service Walton Hospital Whitecotes Lane Chesterfield S40 3HWTel: 01246 515520Fax: 01246 515987

Derbyshire Community Health Services (DCHS)
Living with Long-Term Conditions
http://www.dchs.nhs.uk/find_services_by_topic/id/48674

Derbyshire Community Health Services (DCHS)
Living with Long-Term Conditions Programme (leaflet)
http://www.dchs.nhs.uk/assets/LWLTC_leaflet_b.pdf

Expert Patient Programme (EPP)
Awaiting information from Anne Hayes

References:

35 Monitoring progress and follow-up

Quick info:
Follow-up:
• for patients with mild or moderate disease, should take place at least annually, or more frequently if indicated [1,3]
• for patients with severe disease, should take place at least twice a year
• consider more frequent follow up (at least twice yearly) for patients [1]:
  • with newly diagnosed chronic obstructive pulmonary disease (COPD)
  • with very severe disease [26]
  • with frequent exacerbations or complications
  • who have recently been discharged from hospital
• should take place after 4-8 weeks if there has been a change in medication [1]
• should provide a written care plan [26]
COPD - management

A-Z Local Care Maps - NDCCG & HCCG > COPD > COPD - Management

- for all patients with COPD should include:
  - highlighting diagnosis in notes and computer database [3]
  - record results of spirometric tests at diagnosis (absolute and percentage of predicted) [3]
  - monitoring of:
    - exposure to risk factors [2], eg smoking [3]
    - disease progression and complications [2]
    - pharmacotherapy and other medical treatments [2], including compliance [3]
    - exacerbation history, including unscheduled visits to providers, telephone calls for assistance, and use of emergency care facilities [2]
  - record opportunistic measurements of spirometric parameters [3]
- of patients treated with mucolytics for chronic production cough should take place every few months [1]

Measurements required include [3]:
- forced expiratory volume (FEV$_1$) and forced vital capacity (FVC)
- body mass index (BMI)
- Medical Research Council (MRC) dyspnoea score
- oxygen saturation of arterial blood (SaO$_2$) in patients with severe disease

Clinical assessment to include:
- detailed history and examination [2]
- measurement of spirometry before and after bronchodilator medication [2]
- smoking status and desire to quit [3]
- adequacy of symptom control, eg:
  - breathlessness [1,2,3]
  - exercise tolerance [1,2,3]
  - estimated exacerbation frequency [3]
  - cough and sputum production [1]
- health status [2]
- anxiety and depression status [26]
- presence of complications, including cor pulmonale [3]
- effects of each medication [3]
- inhaler technique [3]
- need for [3]:
  - referral to specialist and therapy services
  - long-term oxygen therapy (LTOT)
  - pulmonary rehabilitation
  - referral to social services

Patients with severe COPD requiring interventions such as non-invasive ventilation should also be reviewed regularly by specialists [3].

Patients with very mild COPD, who do not smoke and with little or no exercise limitations, can be discharged from follow-up but should be advised to be seen by their primary care team if severity of disease increases [9].

References:
[5] Contributors representing the Royal College of Physicians (RCP); 2011.
Key Dates

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