The Practitioner®

Improving the diagnosis and management of COPD

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Patient Label

COPD Discharge Care Bundle

The care measures in this bundle are evidence based and should be delivered to all patients being discharged from hospital after an Acute Exacerbation of COPD. This should improve the quality of care, patient experience and reduce the chance of re-admission. **Please refer to the Respiratory Nurse Specialists (extension 2483/ bleep 5080/ 5530) prior to discharge.**

Prior to discharge

COPD confirmed with spirometry: Yes ☐ No ☐
Referral for spirometry testing: Yes ☐ No ☐
Signed:
Date:

Smoked within the last 12months: Yes ☐ No ☐
Offered referral to smoking cessation services: Yes ☐ Refused ☐ Referred ☐
Offered Nicotine replacement therapy: Yes ☐ No ☐ Refused ☐
Signed:
Date:

On Inhaler therapy: Yes ☐ No ☐
Inhaler technique reviewed: Yes ☐ No ☐
Signed:
Date:

Written, individualised self-management plan: Yes ☐ No ☐
Rescue steroids and antibiotics needed? Yes ☐ No ☐
Signed:
Date:

Contraindicated to pulmonary rehab: Yes ☐ No ☐
Referral to pulmonary rehabilitation: Yes ☐ No ☐ Refused ☐
Signed:
Date:

Stable pulse oximetry of ≤92%: Yes ☐ No ☐
Already on Home Oxygen: Yes ☐ No ☐ (ambulatory / LTOT / both)
Referral for Home Oxygen Therapy Assessment: Yes ☐ No ☐
GP to re-assess SpO_2 in 8 weeks (when clinically stable) ☐
Signed:
Date:

Patient safe for discharge?

Patient for Early supported discharge?
Yes ☐ No ☐

Patient for referral for ongoing community support?
Community matron ☐
Community respiratory specialists ☐

Patient for follow up in hospital clinic?
No ☐ Yes - *Nurse* ☐ *Doctor* ☐

Care Bundle complete & Patient ready for discharge?

(Nurse)
Signed _____
Print:_____
Date: ___/____/____

(Patient)
Signed _____
Print:_____
Date: ___/____/____

FIGURE 1
A COPD discharge care bundle used to ensure consistent application of guideline-based management

How should diagnosis be confirmed?

CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) REMAINS IMPORTANT NOT ONLY for people with the condition and their carers but also for the health economy because of the impact on resources and costs particularly related to hospitalisation where there has been a further 13% rise since 2008 despite greater use of admission prevention schemes.

Compared with the previous audit, the 2014 national COPD secondary care audit highlighted a reduction in mortality and length of stay with better use of non-invasive ventilation and early supported discharge.[1]

How should patients be monitored?

However, deficiencies were also evident with many patients not seeing a respiratory specialist while in hospital, and oxygen prescribing and documentation of spirometry were still well below expected levels. Ongoing management was often not well coordinated. Many patients were still failing to receive smoking cessation input while inpatients and there were deficiencies in post-discharge oxygen assessment and consideration of pulmonary rehabilitation; all of which are evidence-based treatments.

In time, increasing use of discharge care bundles, see figure 1, above, may help to address these shortcomings.[2]

What are the management options?

A COPD discharge care bundle would commonly include confirmation that:

- Inhaler technique has been checked
- The patient has an individualised written self-management plan
- Smokers have been given help to quit
- Pulmonary rehabilitation has been offered
- Follow-up spirometry and oxygen assessment has been arranged where indicated.

DIAGNOSIS

COPD is a progressive condition. Therefore, earlier diagnosis allows earlier intervention in particular »

smoking cessation. It is clear that smoking stopping in early middle age where an individual has relatively mild COPD is associated with a slower decline in lung function and reduced mortality.[3]

Spirometry should be performed in symptomatic (breathlessness, cough, phlegm and wheeze), current or former smokers (typically ≥ 10 pack years) who are aged at least 35 years where COPD is a likely differential diagnosis.

Spirometry should be performed by a healthcare professional who has received theoretical training, then supervised practice followed by regular performance. The Association for Respiratory Technology and Physiology (www.artp.org.uk) runs high quality spirometry training courses.

'Cigarette smoking is by far the most important risk factor for COPD'

COPD can be diagnosed in a patient with the relevant clinical features where there is evidence of airflow obstruction after bronchodilation.

Traditionally, airflow obstruction has been based on a FEV_1: FVC ratio < 0.7 but airflow obstruction occurs naturally with aging through loss of lung elastic recoil and so use of a 'fixed' ratio of 0.7 can lead to overdiagnosis of COPD in older people, particularly men, and underdiagnosis in younger people, particularly women.

Consequently, there is a strong move to use standardised residuals to determine airflow obstruction 'in the individual' according to the Global Lung Initiative 2012 recommendations.[4]

'Severe COPD is seen in many people who have smoked heroin regularly for five or more years'

Once airflow obstruction is proven and a diagnosis of COPD established (remembering that airflow obstruction is not infrequently seen in patients with asthma and bronchiectasis) then a measure of COPD severity can be made based on FEV_1 expressed as a percentage of predicted value[5] as shown in table 1, above.

Table 1

NICE and GOLD guideline assessment of COPD severity based on post-bronchodilator FEV_1

Post-bronchodilator FEV_1: FVC ratio	FEV_1 (expressed as percentage of predicted value)	COPD severity
< 0.7	≥ 80%	Mild
< 0.7	50-79%	Moderate
< 0.7	30-49%	Severe
< 0.7	≤ 30%	Very severe

RISK FACTORS AND COMORBIDITY

In the developed world, cigarette smoking is by far the most important risk factor for COPD although exposure to certain occupational inhalants and second-hand cigarette smoke may also increase risk.

The development of severe COPD is seen in many individuals who have smoked heroin regularly for five or more years; something that occurs at an early age, often 30-40 years, and is associated with a high mortality.[6]

When an individual with COPD is assessed it is vital that comorbid conditions are considered and management optimised.

Cardiovascular disease and diabetes were seen most commonly in people enrolled in the 2014 national COPD audit[1] and it has long been recognised that many patients with COPD die from ischaemic heart disease, heart failure and lung cancer. Osteoporosis is also very important because many patients with COPD have multiple risk factors, the use of oral and inhaled steroids is high and rib and vertebral fractures can have such a symptomatic impact.

EVALUATION AND ASSESSMENT

The most important factor to assess is the impact that COPD has on the patient's symptoms and quality of life and treatment should aim to address this. Patients with COPD complain of disabling breathlessness that limits their ability to walk, be active and sometimes sleep.

Chronic cough and phlegm production is burdensome and patients feel particularly unwell when suffering from an acute exacerbation with a disproportionate impact in those with frequent exacerbations.

Dyspnoea is typically assessed using the MRC dyspnoea score and exacerbation rate recorded annually. Two or more exacerbations per year is classed as frequent, and treatments known to reduce exacerbation rate should be considered.

The COPD Assessment Tool (CAT) is a simple measure of health status (see figure 2, opposite) that takes under five minutes to complete. The score ranges from 0 to 40, with a change of two points considered clinically significant. It has been assessed for use in primary care consultations.[7]

There is a relationship between mortality and various measurable factors including FEV_1 and this has led to the development of prognostication indices. The original 'BODE Index' has been shown to be useful in various clinical situations but the need to perform a six-minute walking test (requiring a 30 metre corridor) generally precludes its use in primary care.

'Many patients with COPD die from ischaemic heart disease, heart failure and lung cancer'

Two other indices, the DOSE index (dyspnoea, airflow obstruction, smoking and exacerbation rate) and ADO index (age, dyspnoea and airflow obstruction), have been developed and are more suited to use outside hospital.[8,9]

Prognostication is important when considering palliation and end of life care. It can link very effectively with the Gold Standards Framework (www.goldstandardsframework.org.uk).

Patients with COPD should expect an annual review and many of the assessments mentioned could reasonably be carried out at such a review. Performing spirometry each year can usefully identify patients with a rapid, progressive decline in lung function and allow this to be addressed. Inhaler technique should be checked at this review and also when a new type of inhaler is commenced.

This also provides an opportunity to discuss pulmonary rehabilitation, which can be repeated after a year as per

guideline recommendations.[10]

An audit of pulmonary rehabilitation in England and Wales *Pulmonary Rehabilitation: Time to breathe better* was carried out in 2015 and the initial organisational results show that most programmes are delivering care consistent with national quality standards.[11] However, improving referral and completion rates, ensuring availability of pulmonary rehabilitation after hospitalisation and ensuring security of funding for programmes are all areas highlighted as needing improvement. The patient outcome results are due to be published in February 2016.

MANAGEMENT

A review of all treatment options is beyond the scope of this article but there are multiple evidence-based COPD treatment guidelines including NICE[5] and the recently updated GOLD (The Global Initiative for Chronic Obstructive Lung Disease) guidelines.[12]

'Annual spirometry can identify patients with a rapid, progressive decline in lung function'

The single most important factor is still helping patients who continue to smoke to quit.

Bronchodilator therapy

As emphasised in the 2010 NICE COPD guideline update, use of long-acting bronchodilators is recommended at an early stage for any patient with at least moderate COPD (FEV_1 < 80% predicted) and symptoms, including exacerbations.

There are now multiple licensed long-acting beta-agonists (LABA) and long-acting antimuscarinic (LAMA) drugs. Both classes have been shown to be superior to their short-acting »

FIGURE 2
The COPD Assessment Tool (CAT): a simple, validated, easy to complete measure of health status that is sensitive to intervention

Your name:

Today's date:

CAT
COPD Assessment Test

How is your COPD? Take the COPD Assessment Test™ (CAT)

This questionnaire will help you and your healthcare professional measure the impact COPD (Chronic Obstructive Pulmonary Disease) is having on your wellbeing and daily life. Your answers, and test score, can be used by you and your healthcare professional to help improve the management of your COPD and get the greatest benefit from treatment.

For each item below, place a mark (X) in the box that best describes you currently. Be sure to only select one response for each question.

Example:	I am very happy	0 X 2 3 4 5	I am very sad

			SCORE
I never cough	0 1 2 3 4 5	I cough all the time	
I have no phlegm (mucus) in my chest at all	0 1 2 3 4 5	My chest is completely full of phlegm (mucus)	
My chest does not feel tight at all	0 1 2 3 4 5	My chest feels very tight	
When I walk up a hill or one flight of stairs I am not breathless	0 1 2 3 4 5	When I walk up a hill or one flight of stairs I am very breathless	
I am not limited doing any activities at home	0 1 2 3 4 5	I am very limited doing activities at home	
I am confident leaving my home despite my lung condition	0 1 2 3 4 5	I am not at all confident leaving my home because of my lung condition	
I sleep soundly	0 1 2 3 4 5	I don't sleep soundly because of my lung condition	
I have lots of energy	0 1 2 3 4 5	I have no energy at all	
		TOTAL SCORE	

key points

SELECTED BY
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COPD is a progressive condition. Therefore, earlier diagnosis allows earlier intervention in particular smoking cessation. It is clear that stopping smoking in early middle age where an individual has relatively mild COPD is associated with a slower decline in lung function and reduced mortality.

Spirometry should be performed in symptomatic (breathlessness, cough, phlegm and wheeze), current or former smokers (typically ≥ 10 pack years) who are aged at least 35 where COPD is a likely differential diagnosis. Once airflow obstruction is proven and a diagnosis of COPD established (remembering that airflow obstruction is not infrequently seen in patients with asthma and bronchiectasis) then a measure of COPD severity can be made based on FEV_1 expressed as a percentage of predicted value.

In the developed world, cigarette smoking is by far the most important risk factor for COPD. When an individual with COPD is assessed it is vital that comorbid conditions are considered and management optimised. Cardiovascular disease and diabetes were seen most commonly in people enrolled in the 2014 national COPD audit. Osteoporosis is also very important because many patients with COPD have multiple risk factors, the use of oral and inhaled steroids is high and rib and vertebral fractures can have such a symptomatic impact.

The most important factor to assess is the impact that COPD has on the individual's symptoms and quality of life and treatment should aim to address this. Patients with COPD complain of disabling breathlessness that limits their ability to walk, be active and sometimes sleep. The COPD Assessment Tool is a simple measure of health status that takes under five minutes to complete.

Patients with COPD should expect an annual review and many of the assessments mentioned could reasonably be carried out at such a review. Performing spirometry each year can usefully identify patients with a rapid, progressive decline in lung function and allow this to be addressed. Inhaler technique should be checked at this review and also when a new type of inhaler is commenced.

Use of long-acting bronchodilators is recommended at an early stage for any patient with at least moderate COPD (FEV_1 < 80% predicted) and symptoms, including exacerbations. Inhaled corticosteroids should only be commenced where there are clear indications. They should not be prescribed in those with mild to moderate COPD who do not have frequent exacerbations. In the acute situation, a recent Cochrane review has confirmed a similar benefit from using 5-7 rather than 10-14 days of oral prednisolone at the time of an acute exacerbation and a five-day course is commonly prescribed.

relatives with a combination providing additional benefit. There are multiple different combinations of long-acting beta agonist/inhaled corticosteroid (LABA/ICS) and more recently four new LABA/LAMA combinations have been licensed. The existing evidence base precludes broad recommendation of one particular agent over another, something which may become clearer over the following years.

One additional challenge this creates is the increase in number of different inhaler devices used to deliver these agents and it is more important than ever to check inhaler technique regularly to ensure the individual is able to use the device prescribed. An argument can be made for striving for consistency of device where possible.

'It is more important than ever to check inhaler technique regularly'

Corticosteroids

For many years corticosteroids, both orally (given acutely) and inhaled (prescribed chronically), have been used to treat COPD albeit with the recognition that their efficacy is much less than when treating asthma.

Large clinical trials have shown that inhaled corticosteroids both reduce exacerbation rate and improve health status in COPD.

However, the same trials and others have shown an increased incidence of pneumonia in those prescribed inhaled corticosteroids[13] though this does not lead to increased mortality. This risk is higher with inhalers containing fluticasone. This has created management challenges on how best to use these therapies in the context of an evolving evidence base.

It is important that this risk is discussed with patients and inhaled corticosteroids should only be commenced where there are clear indications. They should not be prescribed in those with mild to moderate COPD who do not have frequent exacerbations.

What to do where people are already prescribed inhaled corticosteroids is more challenging although, as with new prescriptions, it is reasonable to stop these drugs where there is no indication for their use.

If the patient has more frequent exacerbations there is evidence from the recent WISDOM trial that inhaled steroids can be gradually withdrawn with careful clinical observation for a deterioration of symptoms.[14] This appears to result in a small fall in FEV_1 which may or may not be progressive.

In the acute situation, a recent Cochrane review has confirmed a similar benefit from using 5-7 rather than 10-14 days of oral prednisolone at the time of an acute exacerbation[15] and a five-day course is commonly prescribed.

Long-term antibiotics

Evidence from a large, randomised controlled trial shows that use of low-dose azithromycin, in this case taken daily, leads to a reduction in exacerbations.[16] This is a potential therapeutic option in those who have frequent exacerbations and many clinicians choose to prescribe azithromycin thrice weekly.

However, the use of antibiotics is not universally accepted and the GOLD guideline does not recommend their use.[12] Care should be taken to ensure no interaction with cardiac medication and patients should be warned about the rare side-effect of hearing impairment.

There remains concern about the impact of widespread prescribing on macrolide resistance, particularly with pneumococcus, and it has been suggested that this has occurred in the USA.[17]

SELF-MANAGEMENT AND HOME CARE

Self-management remains a vital part of COPD care but it is evident from a large study from Glasgow that, according to predetermined criteria, only 40-50% of patients self-manage their condition optimally.[18]

Successful self-management was more common in younger people who did not live alone and in this group there was a reduction in healthcare use.

Telemonitoring appears to be suited to monitoring COPD but studies so far have been disappointing with little effect on individual quality of life or use of healthcare resources.[19] In part this may relate to the day-to-day variability in COPD symptoms and consequent difficulty differentiating this from an exacerbation. Other studies are ongoing and may provide further insight as to how to use this monitoring tool.

The evidence base for use of early supported discharge schemes is robust and their use is increasing although wider expansion was a specific recommendation from the 2014 secondary care audit.[1]

CONCLUSIONS

COPD remains a frequent and important condition that impacts significantly upon primary care. Increasingly COPD care is delivered outside hospital in an integrated service model.

For further information the NICE[5] and GOLD[12] guidelines provide a comprehensive evidence-based review.

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Useful information

The British Thoracic Society
www.brit-thoracic.org.uk/guidelines-and-quality-standards

The British Lung Foundation
www.blf.org.uk/Home

NICE
www.nice.org.uk/guidance/cg101

GOLD
www.goldcopd.org/Guidelines/guidelines-resources.html

The Association for Respiratory Technology and Physiology
The ARTP runs high quality spirometry training courses
www.artp.org.uk

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