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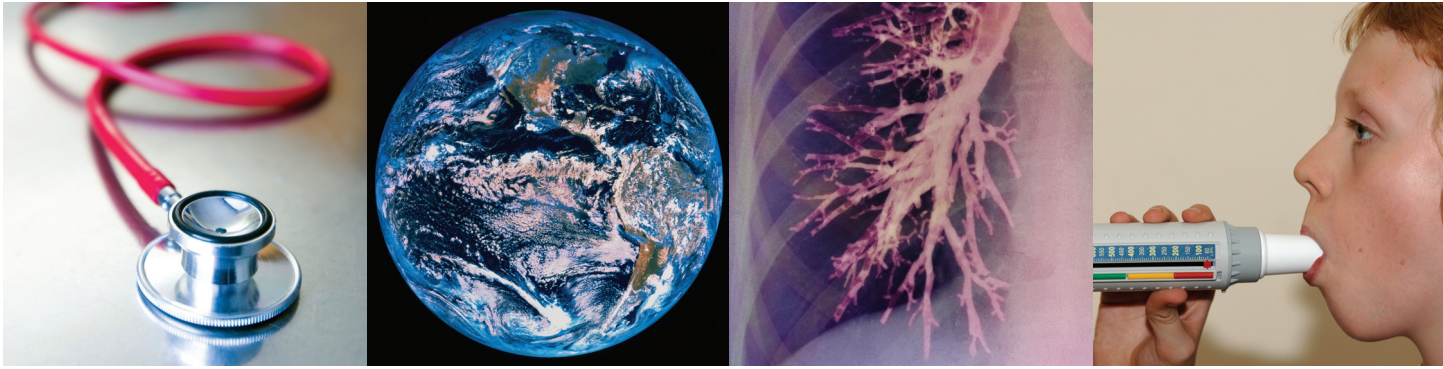
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Primary Care RESPIRATORY JOURNAL

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SUPPLEMENT

Summary of the
Consultation on a
Strategy for Services for
Chronic Obstructive
Pulmonary Disease
(COPD) in England

Edited by Paul Stephenson
and Mark L Levy

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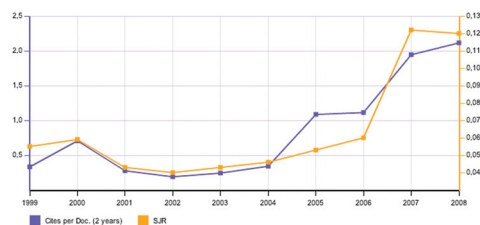
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SUPPLEMENT

Summary of the Consultation on a Strategy for Services for Chronic Obstructive Pulmonary Disease (COPD) in England

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Abstract

The Consultation on a Strategy for Services for COPD in England is the culmination of five years' work by respiratory specialists from all disciplines, as well as representatives from the voluntary sector, patients, carers and planners. It has been led by the Department of Health in England and the joint National Directors for the programme, Professor Sue Hill and Dr Robert Winter. The Strategy outlines service standards for providers of COPD care and is complementary to the UK National Institute for Health and Clinical Excellence (NICE) guidelines on the management of COPD. Its key elements are:

- preventing the development and progression of COPD
- diagnosing COPD accurately and at an early stage
- developing structured care based on national guidance
- promoting self-management education
- reducing the number of people admitted to hospital
- improving access to end-of-life care
- promoting good asthma services.

In essence this is an aspirational strategy which aims to change the way that the NHS in England delivers care for people with COPD by identifying them earlier and managing them optimally in order to reduce the likelihood of progression to the more severe stages of the disease. An economic impact assessment shows that implementing the Strategy will save approximately £1 billion over 10 years as well as sparing many people from a debilitating illness.

This supplement is based on the Strategy Consultation document as well as the NICE guidelines for COPD management. It aims to elucidate practical implementation of the COPD Strategy, and includes verbatim the Strategy recommendations as well as highly relevant clinical information from the NICE guidelines. Implementation of the Strategy recommendations should lead to optimum care for patients with COPD.

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Introduction

Steve Holmes

Chronic obstructive pulmonary disease (COPD) is currently the sixth largest cause of death worldwide and is anticipated to be the third commonest cause of death by 2020.¹ It is also the second commonest reason for emergency hospital admission in the UK, accounting for 27,000 admissions per year.² There is now increased awareness of significant numbers of undiagnosed patients,³ and of the wide variation in the quality of care provided.^{1,4,5} COPD-related healthcare costs are a significant proportion of any country's economy,⁴ and cost effective use of resources is now increasingly important.⁶

Following a report from England's Chief Medical Officer in 2005,⁷ the Department of Health (DOH) in England has been developing a National Strategy to enhance the care of patients with COPD. This has required a structured process using expertise from many areas of the respiratory community – emphasising the importance of transcending traditional primary/secondary care boundaries – and the UK Primary Care Respiratory Society (PCRS-UK) has been involved throughout.⁸

The Consultation on a Strategy for Services for COPD in England has now been published.⁹ This will clearly need to link with other national policy, and a UK government White Paper published in July 2010 is anticipated to have far-reaching consequences on the structure and methods of commissioning of services within the UK National Health Service (NHS).¹⁰ The Consultation document⁹ also links with the recently published 2010 update on COPD management from the UK National Institute for Health and Clinical Effectiveness (NICE).¹¹

This article covers the key areas identified in the Consultation document;

- prevention, awareness and identification of COPD
- diagnosis and differentiation from asthma and other respiratory diseases
- high quality acute and chronic care
- self-management
- end-of-life care
- implementation

The importance of smoking cessation^{7,12-14} is emphasised, as is the fact that more needs to be done to inform the population about COPD and its implications.³ The presence of “missing millions” with undiagnosed COPD requires improved case-finding and possibly screening,^{15,16} as well as quality diagnostic spirometry to complement

clinical assessment.^{8,17-21} There is a gap between ideal and provided care, and wide variation in provision across all areas of the health service,²¹ which the Strategy attempts to address. Finally, there is emphasis on the importance of end-of-life care for patients with COPD.

Implementation of the Strategy for COPD services in England across all areas of the health service will be crucial, and the publication of this *PCRJ* supplement, following publication of the Consultation document,⁹ is part of the implementation process. The 24 Key Recommendations of the Strategy are highlighted throughout the text. In order to increase relevance to practising clinicians, where appropriate there is clinical content based largely on the 2010 NICE guideline.¹¹ The PCRS-UK has also published an online Quick Reference Guide²² summarising the Strategy Consultation document.

The Strategy for COPD services in England has widespread applicability. If the Strategy achieves its aims, it should stimulate improved quality of care for COPD patients for many years to come.

Prevention and awareness

Rupert Jones

Recommendation 1: Work should be undertaken locally to identify where prevalence is high, and planned interventions should be developed to encourage behaviour change and help to minimise inequalities.

The stark statistics in the Consultation on a Strategy for COPD Services in England⁹ show that COPD affects 2.8 million people with only 0.8m diagnosed. COPD costs the UK NHS £1 billion, it causes 1 in 8 emergency admissions, 30% are readmitted soon after, and it accounts for at least 5% of all deaths in England and Wales (24,800 in 2008) and is a contributor to many more. The burden is growing, especially in women; more women die of COPD than from breast cancer.²³ COPD is more common in lower socio-economic groups and interacts with other conditions – for example, for every 10% decrease in FEV₁, cardiovascular events and deaths increase by 20% and 28%, respectively.²⁴

Notwithstanding this, 89% of the UK population have not heard of COPD. The Strategy aims to raise awareness in the population and emphasise the causes of COPD and the fact that COPD is both treatable and preventable.

Recommendation 2: The importance of lung health should be understood and people should take appropriate action to maintain good lung health.

Prevention policies need to start in pregnancy, through childhood and onwards (see Figure 1). There is potential to prevent COPD by people adopting healthy lung behaviours such as avoiding cigarette smoke, occupational and other harmful exposures. Many people develop major lung damage without symptoms and this group may be difficult to identify. Others do have symptoms without seeking help – they may have breathlessness on exertion which they attribute to ageing, and a cough which they attribute to smoking. These people, who are at risk of COPD, need to be encouraged to seek an assessment of their lungs. This can be done by proactive means (case-finding) or opportunistically (using existing healthcare interventions such as smoking cessation programmes).

Recommendation 3: The consequences of exposure to the main risk factors of COPD should be understood and people with early symptoms of lung disease need to be able to recognise their symptoms and seek further investigation.

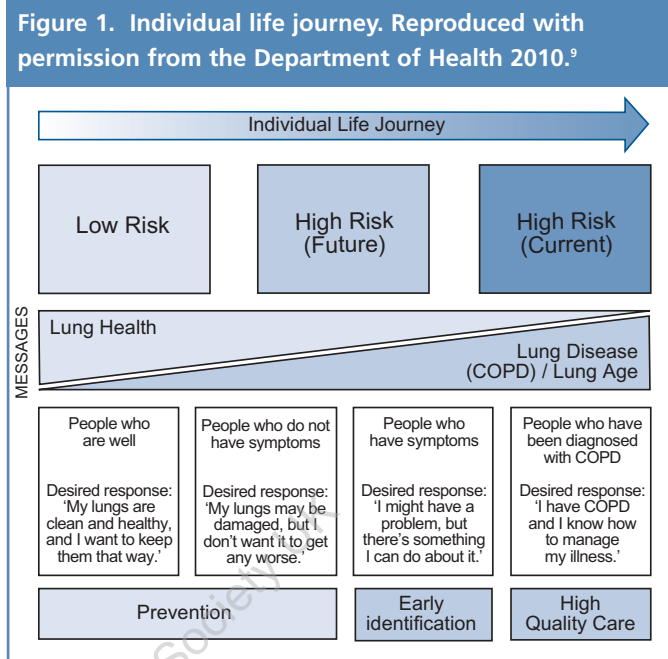
The roots of the disease start *in utero* and in childhood, when factors such as atopy, passive smoking and respiratory infections may be as important as conventional risk factors such as smoking.²⁵ There is a strong relationship between lifelong cigarette exposure in pack years and the chance of developing COPD.²⁶ Approximately half of those with COPD are current smokers, and these patients report that 8% have not been told to stop and a third have not been offered treatment or referral to smoking cessation clinics.²⁷ Effective therapies exist especially when part of a structured smoking cessation programme supported by medication – for example, varenicline improves quit rates fourfold in people with COPD.²⁸

Recommendation 4: Further evaluation work should be undertaken on the impact of the use of lung age tests on individuals' motivation for smoking cessation and testing for lung disease as a case-finding approach.

The Strategy External Reference Group recommended consideration of a lung health check in children and young adults at ages 7 and 14, and in adults at ages 25 and 40 years.⁸ In adults, increased use of case-finding spirometry and questionnaires may promote earlier detection of COPD.¹⁶

Such screening and case-finding programmes will have significant resource implications, and will therefore be tested by the National Screening Committee and also, where appropriate, in primary care pilots to assess feasibility, efficacy and cost benefit. The aim is to:

- test lung function in these age groups and identify those at risk of future problems
- ask about respiratory symptoms and take necessary steps
- identify risk factors and educate to change future risks.



Recommendation 5: Employers should look to minimise the risks of workforce exposure to known risk factors and work with partners from health and social care to support people with COPD to manage their condition and remain in work.

The Consultation document specifically aims to raise awareness of symptoms for those at risk, and to encourage individuals to adopt strategies to prevent or ameliorate future health problems.⁹ By promoting the concept of lung health and symptomatology, the Strategy should provide an opportunity to identify COPD earlier.

Identification and diagnosis

Rupert Jones and Judith Lawrence

Fundamental to the Consultation on a Strategy for Services for COPD in England is the early identification and diagnosis of those individuals at risk. Its success will be influenced by the ability of health care professionals to collaborate with other care providers to meet the needs of the patient.

Focusing on identification and diagnosis, the Consultation document⁹ proposes several key areas for targeting resources:

- Early identification
- Accurate quality-assured diagnosis
- Spirometry assessment in COPD
- Disease Registers
- Information

There needs to be a multifaceted approach to identification and diagnosis:

- People need to be aware of the symptoms of lung disease and when to seek assessment and advice from health care professionals

Figure 2. Differentiating asthma from COPD. Reproduced with permission from the National Institute of Health and Clinical Excellence.¹¹

Clinical features differentiating COPD and asthma	COPD	Asthma
Smoker or ex-smoker	Nearly all	Possibly
Symptoms under age 35	Rare	Often
Chronic productive cough	Common	Uncommon
Breathlessness	Persistent and progressive	Variable
Night time waking with breathlessness and/or wheeze	Uncommon	Common
Significant diurnal or day to day variability of symptoms	Uncommon	Common

- Health care professionals must be competent in the assessment and diagnosis of COPD, a fundamental ability being the ability to take an accurate history.
- Health care professionals must be able to differentiate between COPD and other respiratory diseases such as asthma to ensure that the patient is offered optimum care (see Figure 2).

Recommendation 23: The NHS should recognise similarities and differences between asthma and COPD, and should commission services accordingly to optimise the model of provision of care

Recommendation 10: Disease registers should be accurate and used to improve COPD outcomes.

- Competent assessment of disease severity should be based on a number of features, not just one entity or test, to ascertain disability and prognosis.
- Disease registers must be accurate and up to date to ensure regular review of diagnosed patients, managing care and targeting resources.
- Quality information obtained at assessment must be recorded accurately

Recommendation 6: Healthcare professionals should understand the risk factors for COPD and offer advice or an appropriate intervention to those who are at risk.

Health care professionals should understand the risk factors for COPD and be able to identify those at risk (see Table 1), offer them appropriate education to prevent the disease developing, and assess patients' lungs to establish the presence of lung disease and its cause.

While COPD presents in adults, failure of adequate lung development or damage in childhood reduces pulmonary reserves and puts individuals at an increased risk of developing symptomatic lung disease later in life.²⁵ In adults, lung damage occurs without symptoms, so warning people of the causes of

Table 1. Risk factors for developing COPD.

Risk factors that affect children

- Alpha-1-antitrypsin deficiency
- Smoking in pregnancy
- Low birth weight
- Severe viral and other infections in infancy
- Asthma and wheezing in childhood
- Environmental pollution (including cigarette smoke)
- Smoking in childhood
- Childhood deprivation, poor nutrition including obesity

Risk factors for adults

- Smoking
- Occupation
- Environment and family history
- Health events in childhood
- Genetic susceptibility

lung disease allows them to change their lifestyle before permanent serious damage accrues. By the time someone is breathless with COPD, much irreversible damage is done and the lungs will only get worse with time.

There is insufficient evidence, as yet, for widespread screening, and the case for lung health checks in children and adults aged 25 and 40⁸ is being assessed in research projects. However, it may be useful to consider the risks throughout people's lives so they can be made aware of positive steps to take to keep their lungs healthy.

Target groups for COPD identification

In practice, widespread screening in asymptomatic people is not yet required. Screening or case-identification of at-risk groups can be performed using symptom-based questionnaires^{29,30} or the measurement of airflow obstruction such as case-finding spirometry. Practices should be prepared to check people in the following groups:

First priority

Smokers over the age of 40 with:

- >20 pack-year smoking history

- Frequent courses of antibiotics and/or inhaled medication
- Chronic cough
- Breathlessness
- On existing asthma registers

Then: All smokers over the age of 40

Then: Individuals over the age of 40 and any of the following characteristics:

- Ex-smoker
- Previous pulmonary tuberculosis
- First-degree relative of those with COPD
- Known occupational or environmental exposure (coal mining, exposure to wood burning stoves)

Once identified, the risk factors and symptoms should be documented and spirometry performed with other tests as appropriate to diagnose the underlying lung condition(s).

Whilst the Consultation document recommends assessing patients over 40,⁹ NICE suggests a lower limit of age 35 and above.¹¹

Diagnosing COPD

Recommendation 8: A diagnosis of COPD should be confirmed by quality assured spirometry and other investigations appropriate to the individual.

The definition of COPD in the Consultation on a Strategy for Services for COPD in England⁹ follows the recommendations from GOLD³¹ and the 2010 NICE revision.¹¹ The diagnosis requires high quality post-bronchodilator spirometry combined with clinical assessment and exclusion of other diagnoses. Currently, the standards of spirometry performance and interpretation are a cause for concern throughout primary care, and to a lesser extent in secondary care.^{15,17} Furthermore, audit data suggest that 27% of those on COPD registers do not meet the diagnostic criteria for COPD, while failure to use post-bronchodilator spirometry may result in severity being overestimated in 18%.³²

A diagnostic algorithm is shown in Figure 3.

Problems identified with providing accurate spirometry include:¹⁷

- Inappropriate equipment
- Lack of calibration
- Inadequate training on conduct and quality checks
- Inadequate support
- Problems interpreting the result

The Strategy requires that quality-assured diagnostic standard spirometry is required to make the diagnosis of COPD and assess disease severity, and the current recommendations¹⁷ include the following:

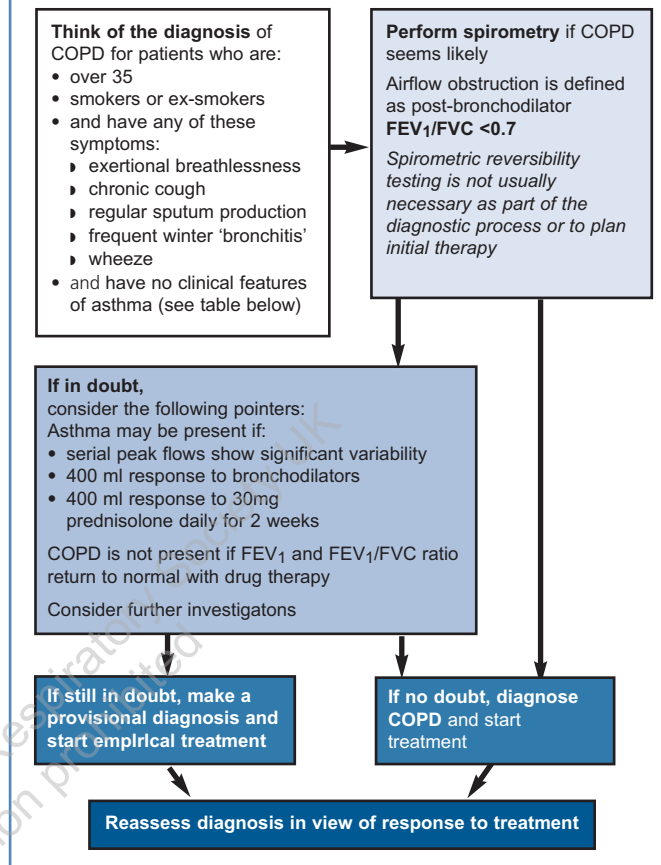
The spirometer:

- should be able to record the parameters of forced expiratory volume in one second (FEV₁), forced vital capacity (FVC), the FEV₁/FVC ratio, and display a graph of volume against time.
- should be calibrated before use

The spirometrist should be trained:

- in its use and calibration

Figure 3. COPD diagnostic algorithm (adapted from NICE with permission¹¹).



- in how to spot faults such as slow start, extra breaths etc.
- to understand the preparation of the patient for various types of spirometric assessment
- to understand which readings are required in different clinical scenarios such as reversibility testing or when to use the slow vital capacity

Whoever interprets the spirometry results to make the diagnosis must be able to calculate the following (see Table 2):

- FEV₁
- FVC
- FEV₁ % predicted
- the ratio of FEV₁ to VC (highest of FVC or SVC)

Anyone performing diagnostic standard spirometry should undertake quality-assessed, certified and approved training. With regard to case-finding spirometry, any form of spirometry not meeting diagnostic standards as outlined above should be considered as "case-finding".¹⁸ Case-finding spirometry may be performed using hand-held or screening devices used for detecting airflow obstruction, though the Strategy Consultation document has recommended further research.

For *post-bronchodilator readings* it is not necessary to stop treatment prior to the test. Post-bronchodilator tests are needed for the diagnosis in the majority of cases and for monitoring

Table 2. Classification of airflow obstruction severity according to various guidelines. Reproduced with permission from the National Institute for Health and Clinical Excellence.¹¹

		NICE clinical guideline 12 (2004) ³⁶	ATS/ERS 2004 ³⁷	GOLD 2008 ³¹	NICE clinical guideline 101 (2010) ¹¹
Post-bronchodilator FEV ₁ /FVC	FEV ₁ % predicted	Severity of airflow obstruction			
			Post-bronchodilator	Post-bronchodilator	Post-bronchodilator
< 0.7	≥ 80%		Mild	Stage 1 – Mild	Stage 1 – Mild*
< 0.7	50–79%	Mild	Moderate	Stage 2 – Moderate	Stage 2 – Moderate
< 0.7	30–49%	Moderate	Severe	Stage 3 – Severe	Stage 3 – Severe
< 0.7	< 30%	Severe	Very severe	Stage 4 – Very severe**	Stage 4 – Very severe**

*Symptoms should be present to diagnose COPD in people with mild airflow obstruction **Or FEV₁ < 50% with respiratory failure.

people with diagnosed COPD.

For *reversibility testing* drugs have to be stopped well in advance. Reversibility testing is needed in a minority of cases to differentiate the causes of airflow obstruction – e.g. differentiating asthma from COPD.¹¹

Establishing a spirometry service is key to achieving the aims of the Strategy. The Consultation document does not define who should do spirometry or where it should be done, but does require the person to have the right competencies.⁹ A variety of models include a 'hub and spoke' system whereby a team of experts in the centre (or 'hub') is able to train, assess and support those performing spirometry in practice (the 'spokes'), and these various models are being tested as part of the work being undertaken with NHS Improvement.

Assessment of severity in COPD

Recommendation 9: An assessment of the severity and presence of co-morbid conditions should be made at the point of initial diagnosis, and at least every three years.

No single measure can assess the severity of COPD accurately.¹¹ For this reason, healthcare professionals should use a variety of prognostic indicators in order to guide practice and plan appropriate care. Disability and FEV₁ do not always correlate, and therefore FEV₁ should not be used in isolation. The following prognostic factors should be used to formulate a more holistic view of the patient's overall wellbeing:

- FEV₁
- Breathlessness (MRC scale)
- Health status
- Exercise capacity (6-minute walk test)
- BMI
- Presence of *cor pulmonale*
- Presence of respiratory failure using pulse oximetry or arterial blood gas analysis
- Carbon monoxide transfer factor (TLCO)
- Presence of co-morbidities

NICE¹¹ recommends using the BODE index,³³ [Body Mass Index, Degree of Airflow Obstruction expressed as FEV₁%

predicted, Dyspnoea (MRC Dyspnoea score), and Exercise indicator limitation (6-minute walking test)], a multidimensional grading system. The BODE index is better than the FEV₁ at predicting the risk of death from any cause and from respiratory causes among patients with COPD.¹¹ However, a 6-minute walking test is required which can be difficult to undertake in primary care. More recently validated alternatives are the DOSE³⁴ (Dyspnoea, Airways Obstruction, Smoking Status, Exacerbation) and ADO³⁵ indexes. However, there was insufficient evidence yet for these to be recommended by NICE.¹¹

The 2010 NICE guideline¹¹ on severity classification of airflow obstruction (which should not be equated with 'disease' severity) is in line with the recommendations by GOLD³¹ and the ATS/ERS³⁷ (see Table 2). NICE suggests that asymptomatic patients with GOLD stage 1 (FEV₁ >80% and FEV₁/FVC ratio <0.7) should not be considered as suffering respiratory disease, but symptomatic patients with GOLD stage 1 have worse health status, and higher rates of FEV₁ decline and health care consumption.³⁸

Confirming the diagnosis

There is no single test to diagnose COPD. Once diagnostic standard post-bronchodilator spirometry has confirmed airflow obstruction, the diagnosis should be confirmed by;

- excluding other causes – e.g. bronchiectasis or tumour, and
- establishing that the patient has appropriate clinical features.

A full description of the clinical features of COPD and related respiratory illness such as asthma are outside the remit of this paper, but details are summarised in the NICE COPD guideline (see Table 3)¹¹ and national³⁹ and international⁴⁰ asthma guidelines.

Recommendation 7: In line with WHO advice, all people with a diagnosis of COPD and/or a history of adult asthma should be assessed for alpha-1-antitrypsin deficiency.

All patients with COPD should have a chest radiograph (CXR). An alpha-1-antitrypsin blood test is recommended for all COPD patients by the World Health Organisation and the Consultation document,⁹ but NICE 2010 suggests that testing should only occur if there is early onset, minimal smoking history or a family history.¹¹

Where the diagnosis is in doubt or symptoms are atypical (for

Table 3. Clinical Features of COPD (adapted from NICE with permission¹¹).

Symptoms	Signs
Exertional breathlessness	Hyperinflated chest
Chronic cough	Wheeze or quiet breath sounds
Regular sputum production	Purse lip breathing
Frequent winter "bronchitis"	Use of accessory muscles
Wheeze	Paradoxical movement of lower ribs
Exertional breathlessness	Reduced crico-sternal distance

example, disproportionate breathlessness) referral for further investigation may be required.

Patients with confirmed COPD should be entered on the disease register and assessed for disease severity including:

- Lung function (FEV₁% predicted)
- Breathlessness (MRC dyspnoea scale)
- Exacerbation frequency
- Smoking status
- Body mass index
- Important co-morbid conditions

The Strategy Consultation document also suggests recording a measure of health status – for example, the COPD assessment test ('CAT' – see <http://www.catestonline.org>).⁴¹

COPD management: chronic ongoing care

Kevin Gruffydd-Jones and Rupert Jones

This section of the Strategy Consultation document⁹ emphasises moving away from current models of purely reactive management (such as control of symptoms and management of acute exacerbations) towards a system of proactive care involving minimising the future risk of exacerbations and hospital admissions, and slowing disease progression.

Adapting the chronic care model for COPD

The chronic care model of Wagner⁴² has identified four essential elements in structured care likely to have a major impact on the quality, effectiveness and efficiency of care:

- provision of a comprehensive system to support clinical management
- promotion of self-management and adoption of a healthy lifestyle
- evidence-based support for decision making
- use of Clinical guidelines.

Recommendation 12: Chronic disease management approaches should be adopted in health and social care for all people diagnosed with COPD, irrespective of severity or symptoms

Clinical Networks

An important factor in the implementation of the Strategy will be

the development of local Clinical Networks bringing together primary and secondary health care professionals, managers and patients, to commission, provide and support COPD services in a locality. These will be supported at Strategic Health Authority (SHA) level by COPD Clinical leads.

Assessment and Review

One of the key elements of proactive COPD management is proper assessment at the time of diagnosis followed by regular structured review.

1. Assessing severity

Traditionally the severity of disease has been linked to the degree of airflow obstruction. The 2004 NICE Guideline³⁶ criteria for severity of airflow obstruction has recently been updated¹¹ in line with the GOLD criteria³¹ (see Table 2).

However, the degree of airflow obstruction correlates poorly with quality of life and exercise limitation, and therefore disease severity should be assessed in conjunction with other patient-centred markers of disease activity such as dyspnoea scores, health status, and frequency of exacerbations.

Multi-dimensional assessment tools have been developed. The BODE index³³ assesses disease severity by various measurements and is seen as an evidence-based prognostic indicator. Other more primary care-friendly indices have been developed (DOSE³⁴ and ADO³⁵).

2. Frequency of review

It is recommended that proactive review be carried out at intervals according to disease severity. For example, a patient with stable mild disease (FEV₁ 70% predicted, MRC score 2, no exacerbations) can be reviewed annually, whilst a patient with more severe disease (FEV₁ 40% predicted, MRC score 4, and more than one exacerbation per year) might be reviewed 6-monthly and after each exacerbation (especially after admission).

There is considerable interest in Patient-Reported Outcome Measures (PROMS) which measure the impact of the disease on the patient, especially in terms of quality of life. There are several self-completed questionnaires available which measure this and these are being piloted by the DOH. There is particular interest in the 8-question patient-completed COPD assessment test (CAT)⁴¹ which can be completed quickly by patients as part of a COPD review, providing information on the impact of COPD on their health.

3. Elements of a regular clinical review

A patient on the COPD register requires regular clinical review in order to:

- Assess the impact of the disease upon the patient in terms of symptoms, functional limitation, quality of life, psychological and social factors, exacerbations, lung function and hypoxaemia.
- Promote self-management by education, health promotion (including giving up smoking) and use of individualised action plans where appropriate.
- Review the need for, efficacy of, and safety of, pharmacological and non-pharmacological interventions (including inhaler technique)

Figure 4. Example of a COPD template used for COPD review.

DATE OF REVIEW	READ CODE
FEV ₁	3390
% PREDICTED FEV ₁	339S
SMOKING STATUS	137
SMOKING CESSATION ADVICE	8CAL
HEIGHT	229
WEIGHT	8CAL
BODY MASS INDEX (BMI)	22K
Exercise Advice Given	8CA5
Pneumococcal Vaccine Given	6572
Influenza Vaccine Given	65E
BREATHLESSNESS (MRC SCORE)	173(H-L)
PRODUCTIVE COUGH	171
INHALER TECHNIQUE	663 H/I
Pulmonary Rehabilitation	8FA
COPD self-management plan	66YI
Depression screening	6891
Acute Exacerbations in last year	66Yf
COPD Admissions	8H2R
PULSE OXIMETRY MEASUREMENT	44YA
PALLIATIVE CARE	2V57C
NEXT COPD REVIEW	666YL

- Identify co-morbid conditions and the emergence of complicating associated conditions such as lung cancer or bronchiectasis
- Consider the need for specialist respiratory referral including oxygen assessment and palliative care

Figure 4 shows an example of a COPD review template used in a primary care setting (including Read Codes). Additional entries might be added for co-morbidities such as diabetes or osteoporosis, or to include social factors such as the needs of carers.

Evidence-based treatment and management

Recommendation 24: People should be managed according to evidence-based guidelines

Recommendation 13: All people with COPD should receive evidence-based treatment using a structured medicines management approach

In line with the Chronic Care model,⁴² treatment of the individual patient is driven by clinical guidelines – in this case, the NICE 2010 Guidelines.¹¹ The PCRS-UK has adapted the NICE guidelines for use in primary care (Figure 5)⁴³ and specific details of the use of inhaled treatments are shown in Figure 6.¹¹ A separate medicines management guide will be published looking at ways of safe and cost effective ways of prescribing and using medicines for people with COPD.

Non-pharmacological interventions

The Consultation document emphasises the following non-pharmacological interventions:⁹

1. Smoking cessation

Figure 5. Management of Stable COPD in primary care.⁴³

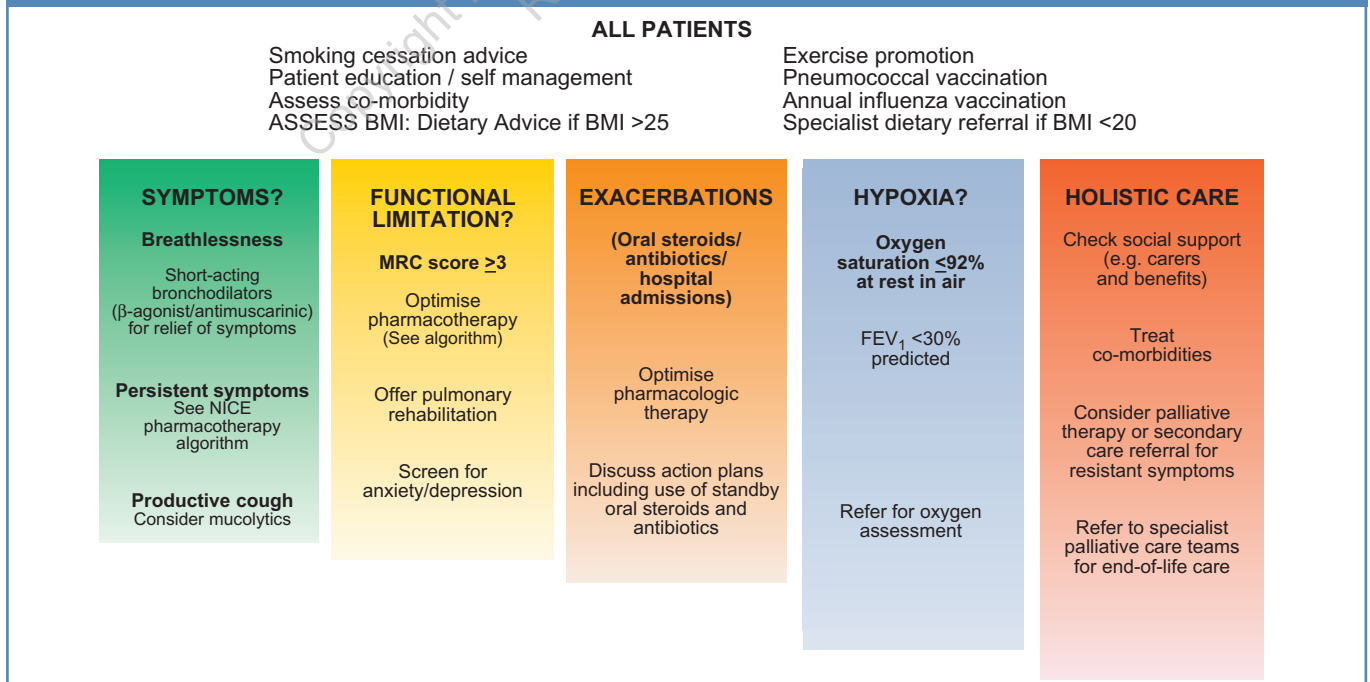
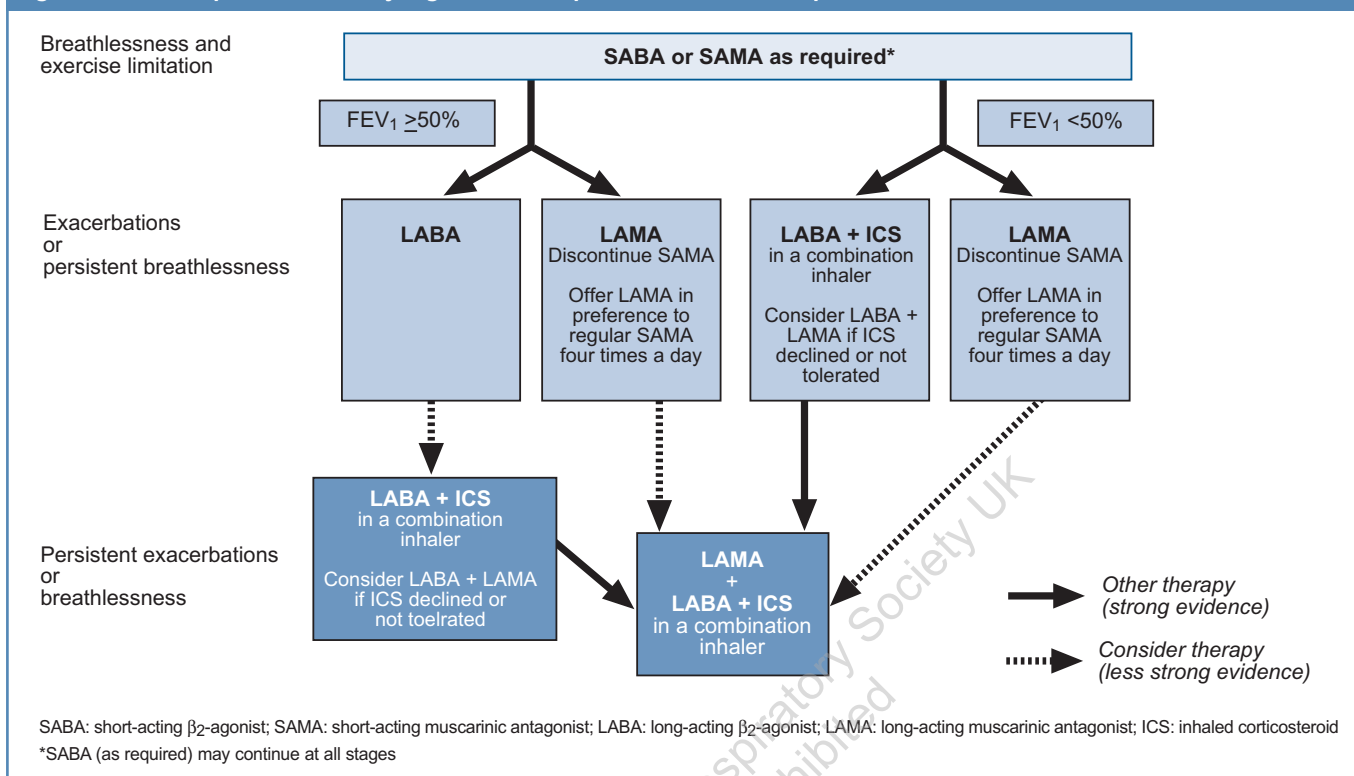


Figure 6. Inhaled pharmacotherapy algorithm (adapted from NICE with permission¹¹).



Recommendation 13 (cont.) A step-up approach to smoking cessation intervention as part of preventive management strategies should be taken.

Smoking status should be checked at every COPD review. Brief advice and then regular input to aid quitting should be given to those continuing to struggle against their tobacco dependence.⁴⁴

2. Oxygen

Recommendation 14. All people with COPD and hypoxaemia should be clinically assessed for long-term oxygen therapy and reviewed at regular intervals, and existing home oxygen registers should be reviewed.

The provision of home oxygen is a major financial burden on the NHS (approximately £110 million per annum in England). Oxygen prescribing for patients with COPD is poorly monitored and may be inappropriate. Oxygen should only be provided for those who have demonstrable hypoxia, it is potentially toxic, and patients should be assessed before it is prescribed. There is no evidence to support the use of short burst therapy for symptomatic relief of breathlessness. However, there is strong evidence that long-term oxygen therapy (≥ 15 hours per day) for patients with persistent and profound hypoxia reduces mortality.

In primary care, patients with oxygen saturations persistently ≤ 92% on air when free from an exacerbation should be referred to oxygen assessment services. Ambulatory oxygen may be helpful to a minority of patients with exercise desaturation but

should only be prescribed after a specialist assessment. Once home oxygen is prescribed then the patient should be placed on a home oxygen register and regularly reviewed.

3. Exercise and pulmonary rehabilitation

Recommendation 15: All people with COPD should be advised to undertake moderate exercise according to their condition. People with functional impairment should be referred for quality assured pulmonary rehabilitation.

People with COPD, irrespective of severity, become physically deconditioned due to muscle weakness and loss of cardiovascular fitness. Exercise is a vital part of COPD treatment.

Those with mild COPD (MRC dyspnoea score 1 or 2) can increase physical fitness by taking regular exercise in chunks of variable duration but this should total 150 minutes per week. Many localities run generic exercise promotion schemes which may be helpful. Housebound patients (MRC dyspnoea score 5) may benefit from home-based physiotherapy programmes.

One of the most cost-effective interventions for patients with COPD is *pulmonary rehabilitation*, a multi-disciplinary holistic intervention aimed at people with COPD who are functionally impaired but usually not housebound (i.e. MRC dyspnoea score 3 or 4)

Key features of pulmonary rehabilitation are:

- Supervised exercise training with education tailored to promote self management skills.
- Multidisciplinary input e.g. provided by physiotherapists/

doctors/ nurses/nutritionist/psychologist

- It can be provided in hospitals or in the community
- A programme is typically run for 6-12 weeks.

There is strong evidence that pulmonary rehabilitation can improve exercise tolerance, quality of life and activities of daily living. It has been shown to reduce healthcare utilisation and is very cost effective. Unfortunately, pulmonary rehabilitation has not been universally available in England, and the Strategy Consultation document⁹ encourages its wider availability. Publication of more detailed guidance regarding the specification of a high quality pulmonary rehabilitation service is being planned.

4. Reducing psychological stress

Many patients with COPD have depression and anxiety; 25% are clinically depressed and the incidence of depression may be higher in patients with functional limitation. It is important to diagnose these patients.

The Strategy Consultation document⁹ and the NICE guidelines¹¹ advise that patients should have access to a range of interventions including cognitive behavioural therapy and pharmacological treatments. It is recommended that a clinical psychologist be included in the multidisciplinary pulmonary rehabilitation team.

Self-management and self-care

Hilary Pinnock

People with COPD live with their slowly deteriorating condition over many decades. Of necessity, they and their families develop self-care strategies to deal as best they can with the tobacco dependence, increasing disability, unpredictable exacerbations, complex medication regimes, co-morbidity and social isolation. The Consultation on a Strategy for Services for COPD in England emphasises the key role of all healthcare professionals in providing not only clinically focused self-management advice, but also holistic support to enable individual patients to self-care more effectively.⁹

Information for self-care

Recommendation 11: Good-quality information should be provided at diagnosis and delivered in a format that any person can understand.

Effective self-care is underpinned by accurate and accessible information, tailored to the individual's disability, relevant to their personal circumstances and sensitive to their preferences for knowledge and autonomy. Key topics identified by people with COPD and their carers include education about the disease, management of breathlessness, pharmacological treatments, management of exacerbations, psychological support, and guidance on welfare benefits.⁹ Education should start at the point of diagnosis and be extended appropriately as the disease evolves.

Useful sources of information include:

- the British Lung Foundation website (<http://www.lunguk.org>)

includes written and video resources on COPD.⁴⁵

- NHS Choices (<http://www.nhs.uk>),⁴⁶ for information on healthy lifestyles, specific diseases and NHS services. An Information Prescription is an NHS initiative which aims to collate information specifically tailored to the individual patients' needs. Although intended to be compiled in discussion with a clinician, an online version enables a patient to choose the topics and services in which they are interested.⁴⁷

Managing their condition

Recommendation 16: People with COPD should be encouraged to learn how to help manage their condition themselves...

1. Lifestyle choices

Smoking status should be checked at every COPD review, and brief advice given to those who continue to smoke.⁴⁴ Useful guidance is available from <http://www.theipcrj.org/smoking/index.php>.

Increasing breathlessness, reduced activity, and consequent deconditioning are not the only barriers to remaining active: practical solutions may be needed to overcome practical problems (e.g. top floor flats with no lifts). Patients should be encouraged to set their own goals as a target for improvement.

2. Using medication

Patients need information about their treatment, including how and when to take it, and discussion on any safety concerns. Reviewing inhaler technique annually is only helpful if action is taken to address problems – changing to an alternative device may be more effective than repeatedly correcting poor technique.

Self-management of exacerbations

Self-management education – including action plans about when and how to adjust and/or start medication in case of an exacerbation – reduces hospital admissions and significantly improves breathlessness and respiratory-related quality of life.⁴⁸

- *Recognising deterioration:* There are no physiological measures which predict exacerbations reliably, so patients are asked to monitor their symptoms (increased breathlessness, and increased quantity and purulence of sputum). Tools such as sputum colour charts may help patients differentiate exacerbations from 'bad days' with COPD.
- *Taking action:* Patients vary in the degree of autonomy that they wish to accept. Most will be happy to keep emergency supplies of steroids and antibiotics, though some will prefer to talk with a clinician before commencing treatment (see Figure 7). When to seek urgent advice is equally important.

Self-management plans should be reviewed regularly and revised as COPD progresses. Ongoing trials are testing whether tele-monitoring can reduce admissions by supporting self-management.⁴⁹ A Met Office initiative uses data about prevalent viruses combined with forecast cold weather to predict high risk of admissions so that patients can be prepared.⁵⁰

Figure 7. The Plymouth self-management plan (reproduced with the permission of Dr Rupert Jones).

COPD Action Plan

WHAT ACTION TO TAKE IF YOUR SYMPTOMS GET WORSE:

Step 1

Check the colour of your sputum:

Cough sputum onto a white tissue.

If your sputum colour has changed from clear or pale to a darker shade e.g. yellow or green : **start ANTIBIOTICS.**

RELIEVER TREATMENT

via Inhaler or Nebuliser

Maximum dose...../.....times per day

Maximum dose...../..... times per day

ANTIBIOTICS

Please take your home supply or obtain a prescription without delay from the surgery.

PREDNISOLONE

Take 30mg once daily (6 x 5mg tablets) For 5-10 days.

Step 2 Look at table

Symptoms	OK	CAUTION	ACTION
Breathlessness	Normal/ Usual	Worse than usual	Much worse than usual
Cough	Normal/ Usual	More than usual	Much more than usual

If all of your symptoms are in the **green OK column** continue usual treatment.

If any of your symptoms are in the **orange CAUTION column**: Increase your **RELIEVER TREATMENT**, take regular up to maximum dose. Keep a close eye on your symptoms, if you improve within 2 days resume usual treatment.

If **NO improvement** start **PREDNISOLONE**.

If any of your symptoms are in the **red ACTION column**

Take maximum reliever treatment and start **PREDNISOLONE immediately.**

WARNING

At any time if you get

Severe symptoms:
If you have symptoms in the **red ACTION column**, have tried medication and you are not getting better, please **contact your doctor/nurse for an urgent appointment.**

EMERGENCY

If you have any of the following:

- Very short of breath
- Chest pains
- High fever
- Feeling of agitation, fear, drowsiness or confusion

DIAL 999 AMBULANCE

Oxygen

In an emergency please do not use **high flow** oxygen.
Give sufficient oxygen to reach the target saturation:% (usual range 88-92%)

Support for self-care

Recommendation 16 (cont): ...and how to have positive interactions with healthcare professionals and others about their condition.

People with respiratory long-term conditions value the support of a trusted clinician,⁵¹ and healthcare services need to ensure flexible access to professional advice.⁵² A face-to-face consultation may be required to deal with an exacerbation; on other occasions a brief telephone call or e-mail communication may suffice to answer a query.⁵¹ NHS choices includes web-based resources to support self-care.⁵³

Recommendation 16 (cont): They should also be encouraged to engage with others who have COPD in order to promote exchanges of information, support and advice.

Peer support is helpful, and many patients value the on-going support of their local BreatheEasy group.⁵⁴ 'Expert patient' courses teach generic skills of relevance to people with COPD.⁵⁵

Personalised care plans

It has been proposed that all people with long-term conditions, including COPD, should have a Personalised Care Plan (PCP).⁵⁶ PCPs are owned by the patient, reflect their goals, and are

tailored to individual circumstances. A clinical action plan advising on emergency management is likely to be a core component of a PCP, but in complex situations plans would also include details of care services, social needs and, if relevant, advanced care planning. Whether or not PCPs for COPD patients provide additional benefits over self-management or action plans is unknown.

Management of acute exacerbations

Kevin Gruffydd-Jones and Sarah-Jane Peffers

Definition

An acute exacerbation is defined by the Strategy Consultation document as a sustained worsening of an individual's symptoms from their usual stable state which is rapid in onset.⁹

COPD exacerbations are a burden on the individual patient and on health services throughout the world, and are associated with faster disease progression, worsening quality of life and increased mortality.

COPD was the second highest cause of hospital admissions in 2007/2008,² with 15% of patients dying within three months of admission.⁵⁷

The Consultation document makes several recommendations regarding the management of acute exacerbations of COPD,⁹ some of which are relevant to primary care:

Recommendation 17: The quality of the identification and management of exacerbations should be improved and all people with COPD who have an exacerbation should be reviewed afterwards to ensure that their treatment remains optimal and relapses are reduced to a minimum.

Recommendations 18: All people with COPD in respiratory failure should be issued with oxygen alert cards, and ambulance staff should be able to recognise and respond appropriately to respiratory failure in COPD.

Recommendation 19: People with COPD should receive a specialist respiratory review when acute episodes have required referral to hospital. They should be assessed for management by early discharge schemes, or by a structured hospital admission, to ensure that length of stay and subsequent readmission are minimised.

Recommendation 20: All people with acute respiratory failure should be identified and investigated promptly and offered treatment with non-invasive ventilation (NIV) with access to mechanical ventilation, if required.

The need for early recognition of exacerbations

Whilst most COPD exacerbations are treated in the community, about 50% of patients with an acute COPD exacerbation do not present to a healthcare professional.⁵⁸ Detailed guidance for treatment is provided in the NICE guidelines,¹¹ and the earlier treatment is started the less chance there is of hospital admission.⁵⁹ Provision of individualised self-management strategies, including action plans which help the patient to identify and treat early signs of an exacerbation can reduce hospital admissions⁶⁰ (see above).

Assessment

Assessment should include:

- Level of consciousness
- Assessment of degree of breathlessness, (respiratory rate, use of accessory muscles)
- Degree of hypoxaemia (presence of cyanosis, oxygen saturation below 92%)
- History and examination to exclude alternative diagnoses (e.g. pneumonia, pulmonary embolus) and to assess co-morbidities.
- Ability to cope at home during the course of an exacerbation (including degree of carer support available)

Treatment

1. Patient self-management

Many patients will have started management themselves by use of stand-by antibiotics for cough with purulent sputum, increased use of short-acting bronchodilator, and/or use of standby oral steroids and breathing exercises. The Strategy recommends that patients inform their usual healthcare professional within two days of starting their exacerbation therapy (see below).

Table 4. Initial treatment of symptoms of an acute exacerbation of COPD in the community.

Increased breathlessness	<ul style="list-style-type: none"> • Increase frequency and dose of short acting bronchodilation (e.g salbutamol 400-800mcg 3-hrly). Deliver via a hand-held inhaler (including a spacer device if appropriate), or nebuliser if unable to use a spacer. • Commence oral steroids if symptoms persist (30mg prednisolone for 7-10 days)
Purulent sputum	<ul style="list-style-type: none"> • Start course of broad spectrum antibiotics. • Encourage Active Cycle of Breathing Technique (ACBT) to help expectorate sputum. • Consider using the mucolytic erdosteine for up to 10 days.
Measure Oxygen Saturations by Pulse Oximetry	Oxygen saturations < 92% warrant the administration of 24%-28% oxygen at 2-4l/minute delivered via a Venturi mask . The aim is to maintain oxygen saturation at between 88%-92%.*

*Many COPD patients rely on a hypoxic drive to maintain adequate ventilation. High oxygen delivery rates and concentrations can suppress this drive and precipitate hypercapnic respiratory failure. It is therefore recommended that COPD patients at risk of developing hypercapnia (i.e. those with previous hypercapnic respiratory failure) carry oxygen alert cards and that ambulance staff are aware of the need to control oxygen flow rates if a COPD patient is transferred to hospital.⁶¹

2. Management in primary care

After initial assessment, treatment should be initiated in line with national and local guidance (see Table 4).

Various factors are considered when deciding whether to treat the patient at home or in hospital (see Table 5). This may vary according to available home care support (e.g. "hospital at home" services).

Review

Where patients have been treated for an exacerbation in the community, the patient should be reviewed at least at the end of the initial treatment period (e.g. after one week of oral antibiotics and/or oral steroids) or sooner if the clinical condition warrants this. Further review at six weeks should include optimisation of pharmacological and non-pharmacological therapy and reinforcement of self-management education (see Figure 8).

Hospital admission

The detailed recommendations regarding in-patient management are beyond the scope of this primary care-focussed supplement, but they include:

- Prompt access to non-invasive ventilation (NIV) and/or mechanical ventilation for patients in acute respiratory failure.
- Review during admission by a member of the specialist respiratory team.
- Review of management of the acute condition and of co-morbid conditions

Table 5. Factors to consider when considering where to treat a patient with acute COPD (adapted from NICE with permission¹¹).

Factor	Treat at home	Treat in hospital
Able to cope at home	Yes	No
Breathlessness	Mild	Severe
General condition	Good	Poor/deteriorating
Level of activity	Good	Poor/confined to bed
Cyanosis	No	Yes
Worsening peripheral oedema	No	Yes
Level of consciousness	Normal	Impaired
Already receiving LTOT*	No	Yes
Social circumstances	Good	Living alone/not coping
Acute confusion	No	Yes
Rapid rate of onset	No	Yes
Significant co-morbidity (particularly cardiac disease and insulin-dependent diabetes)	No	Yes
SaO ₂ < 90%	No	Yes
Changes on chest radiograph	No	Present
Arterial pH level	≥ 7.35	< 7.35
Arterial PaO ₂	≥ 7 kPa	< 7 kPa

* LTOT: long-term oxygen therapy

- Review of discharge arrangements including the requirement for continuing care in the community (including the provision of oxygen post admission, rehabilitation programmes, and psychosocial support).
- Review of chronic management including self-management advice.

Review post-discharge

Thirty-three percent of patients are readmitted to hospital within three months of an acute exacerbation of COPD.⁵⁷ There is evidence that discharge procedures are inadequate and that some patients are left socially isolated and depressed.⁶² The UK National COPD Audit of 2008⁵⁷ showed a median time to readmission of 38 days, with 25% of patients being readmitted within 20 days, thus suggesting that review should be carried out within three weeks of hospital discharge (see Figure 8). The Consultation document’s recommendation of post-discharge review within six weeks⁹ may therefore be too lenient, and this may need to be reviewed before publication of the final Strategy document.

Admission avoidance and early discharge schemes

There are a variety of models of care available to minimise the impact of acute exacerbations of COPD.⁶³ These include validated early assisted discharge schemes from hospital, and “hospital at home” admission avoidance schemes provided by specialist community teams or hospital outreach teams. These have the potential to reduce hospital admission rates and inpatient stays.

Figure 8. Features of a post-exacerbation review (adapted from the GOLD report³¹ by Dr Gruffydd-Jones).

- Optimise acute treatment including pharmacotherapy, provision of oxygen and pulmonary rehabilitation where appropriate.
- Optimise psychosocial support.
- Discuss/reinforce self-management education including the use of self-management plans.
- Consider discussion of possible palliative care (including end-of life issues if appropriate) including action to be taken if further exacerbations.
- Optimise chronic care to prevent exacerbations.

Such schemes are preferred by people with COPD and have proved to be a cheaper option than usual care. Other novel methods of care, such as telemedicine, could have the potential to identify exacerbations at an early stage, trigger early interventions and reduce the risk of hospital admission.⁴⁹

End-of-life care

Patrick White and Jane Scullion

Recommendation 21: There should be improved access to high-quality end-of-life care services that ensure equity in care provision for people with severe COPD, regardless of setting.

Recommendation 22: Access to information and appropriate support should be available to carers and those who are bereaved.

For people diagnosed with COPD it is inevitable that whilst they may or may not die from their condition they will certainly die with it. COPD is a chronic and progressive disease in which treatments are aimed mainly at improving symptoms but have little impact on disease progression. The treatment of advanced COPD is therefore essentially palliative. It can be seen to fit the basic tenets of palliative care although there are also specific end-of-life issues. Recommendations 21 and 22 link well with guidelines for end-of-life-care of people with non-malignant diseases.^{9,64} They emphasise the importance of access both to high quality end-of-life-care and to appropriate information and support for carers. The recommendations come with three associated action points (Actions 30-32) which propose piloting markers of a prognostic indicator, publishing core workforce skill requirements, and piloting and evaluating an end-of-life care pathway.

The recommendations and the actions highlight the challenge facing clinicians working with patients with advanced

Table 6. Symptoms often experienced by patients with advanced COPD (Reproduced with permission from the Department of Health⁶⁴).

- | | |
|------------------|--------------------------|
| • Breathlessness | • Cough |
| • Fatigue | • Anxiety and depression |
| • Pain | • Fear and panic |
| • Insomnia | • Weight loss / Cachexia |

COPD. It is difficult to identify patients who are dying from COPD. For those who are identified, there is no recognised pathway of care, although the document⁹ includes the end-of-life care pathway of the Department of Health End of Life Care Strategy.⁶⁴ An additional challenge concerns the palliation of symptoms, predominantly breathlessness (see Table 6).⁶⁵ Breathlessness is the most important problem to people with advanced COPD and in many patients palliation of breathlessness should be addressed even before they can be defined as having reached the terminal phase of the disease.⁶⁶ Whether palliation of breathlessness should be considered alongside end-of-life-care of COPD or should be considered in the mainstream management of the disease is an issue for further discussion. Palliation of breathlessness in advanced COPD will likely be confused with end-of-life-care, and it will not be easy for clinicians to consider it until they have started to think in terms of end-of-life-care.⁶⁷ As the palliation of breathlessness becomes more widely understood in COPD it is likely to be seen and treated separately.

Symptom control in advanced COPD requires an expertise which is often lacking in traditional care of the disease.⁶⁸ COPD management is usually reactive and aimed at crisis intervention, whereas a palliative care approach should be more proactive. In order to manage symptoms, it is first necessary to look at patients' understanding of their disease, what they believe caused it and what they anticipate can be done about it. If we manage to address patients' perceptions of their condition we can more adequately assess general well-being and the likely effectiveness of treatments. It may be necessary to explore beyond the impact of dyspnoea and declining lung function. The role of social and emotional issues, the experience of panic attacks, and the fear of dying may be critical to wellbeing in advanced COPD. In this respect it is good to see the needs of carers addressed in the Strategy Consultation document.⁹ COPD is a disease with social ramifications beyond the individual affected especially in its advanced stages.

The Consultation document acknowledges the difficulty clinicians face in defining prognosis in advanced COPD and the impact that this is likely to have in determining when patients have reached the end stage of the disease.⁹ The document is positive about prognosis in referring to the BODE index³³ as a tool for predicting mortality – though this is poorly supported by the Gold Standards Framework⁶⁹ and by evidence provided by systematic reviews of end-of-life-care of COPD.⁷⁰⁻⁷² BODE is not definitive in predicting mortality in the context of end-of-life care.

Even using the most severe category of the BODE index, 70% of subjects will still be alive at two years so it does not enable us to predict when patients will die.

The best indices of survival in advanced disease based on current evidence are more likely to be the generic characteristics of proximity of death – such as progressive loss of function and weight, and progressive symptoms. For a person with COPD we would therefore expect a poor prognosis in someone with severe airflow obstruction (MRC Dyspnoea score of 5) on long-term oxygen therapy (LTOT), with weight loss and increasing hospitalisations. These practical markers may incline us to initiate the discussion about end-of-life with the patient and their carers.

The End-of-Life Care chapter of the COPD Strategy Consultation document is welcome, because it highlights a problematic area of COPD care for clinicians, addressing many as yet unanswered questions, and it indicates the need for further key research in this important but largely uncharted area.

Implementing the Strategy for COPD Services in England, measuring outcomes, and commissioning care

Rupert Jones

COPD Strategy objectives

The key objectives of the Strategy are:

- Prevention and early identification
- Good quality early diagnosis
- High quality care and support following diagnosis
- Improving access to end-of-life services

The role of the Strategy is to ensure that organisations which provide respiratory services have a framework which defines the standards for those services. The Consultation on the Strategy for Services for COPD in England⁹ sets out standards for services, including clinical standards set by NICE,¹¹ and how these standards are to be implemented.

The background to implementation

The Strategy Consultation document was published as a draft version in February 2010,⁹ but the actual Strategy and its implementation plan has yet to be finalised and launched.

The White paper 'Equity and excellence: Liberating the NHS'¹⁰ proposes far-reaching changes to the UK NHS including commissioning by GPs and phasing out of Strategic Health Authorities (SHAs) and Primary Care Trusts (PCTs). Ensuring quality of services remains an important element of government policy, but with new emphasis on measuring outcomes, rather than process, especially Patient-Reported Outcome Measures (PROMS) and patient experience. There will be an increased role for patients in designing, delivering and monitoring the service as well as strengthening patient choice. Proposals are made to reform long-term prevention strategies in partnership with other fields such as social care and public health, all to be delivered with reduced management costs.

The NHS will have to save £20 billion over the next three

years (a saving of approximately £1,000 for every person in England every year). Implementing all of the recommendations in the Strategy Consultation document⁹ may increase healthcare costs in the short term but reduce them in the long term. Direct savings can be made by reducing inappropriate drug and oxygen therapy while savings are anticipated through strategies to reduce exacerbations, admissions and disease progression such as smoking cessation, rehabilitation and drug treatments. The impact assessment published in February 2010 has predicted that over 10 years the net benefit of implementing the Strategy to the NHS will be £1,075m (range £235-3,407m).⁷³

Implementation Mechanisms

The implementation of the strategy will occur at different levels.

1. Clinical networks

Regional SHA respiratory clinical leads have been appointed to establish a network of managers and clinicians to oversee the service development. How each region operates will vary in practice, but they will seek to bring together services in primary, secondary and intermediate care as well as private providers. Independent third sector providers are expected to increase in number and will need to be assessed in conjunction with existing NHS services. As PCTs are phased out, the services they currently provide will need to be realigned either to be under the aegis of a GP consortium, hospital trust or becoming an independent social enterprise company.

Particular attention will be paid to the key priorities for implementation from the NICE COPD guideline¹¹:

- Diagnose COPD and confirm airflow obstruction by post-bronchodilator spirometry
- Stop smoking
- Promote effective inhaled therapy
- Provide pulmonary rehabilitation for all who need it, including those who have had a recent hospitalisation for an acute exacerbation
- Use non-invasive ventilation (NIV) for persistent hypercapnic ventilatory failure during exacerbations not responding to medical therapy
- Manage exacerbations
- Ensure multi-disciplinary working

The clinical leads will assess services in terms of process and outcomes;

Process:

What services are currently in place?

What are the gaps in provision including accessibility for services such as spirometry, structured care, pulmonary rehabilitation and NIV?

Outcomes:

The quality of services will be measured using common assessment methods (see Metrics section below). Services which provide an efficient and effective service to improve patient-centred outcomes, reduce costs and disease progression, will be identified and emulated. Standards are being set for the quality of the service to guide commissioners and those assessing the service; many standards are defined in the Strategy Consultation

document,⁹ and others – such as the programme for Physiological Measurement standards – are ongoing.

2. Metrics

There is an ongoing stream of work to define best outcome measures in a range of areas including the following:

- (i) Quality of diagnostic services:
Assess diagnostic standard spirometry provision as defined by the Consultation document⁹ and subsequent guidance. Clinical leads will assess the quality of services irrespective of where they are delivered.
- (ii) Data recording:
Data recording in primary care and in hospital services will be checked, including NICE-approved items such as the MRC dyspnoea scale and exacerbation frequency. NICE is now revising the Quality Outcomes Framework (QOF) markers for COPD.
- (iii) Structured care:
The recording of patient reviews at recommended intervals depending on disease severity, and items such as offering smoking cessation to current smokers and pulmonary rehabilitation for those with MRC dyspnoea score of 3 or above will be required. Another marker is the documented provision of care plans including self-management advice and reviews post-exacerbation/admission.
- (iv) In-patient care:
The metrics in secondary care may well follow those used in the RCP audits^{74,75} including admission rates and duration, the proportion of in-patients managed by a chest specialist, readmission rates within three months, and mortality (both in-patient and within three months post-admission). The 24 hour availability and patient experience of NIV is a likely marker.
- (v) Accessible, high quality local services:
Availability of services such as pulmonary rehabilitation and oxygen assessment services will be important. Suitable metrics may include the number of patients prescribed oxygen, the proportion who had a formal assessment, and the proportion on short burst oxygen.

3. Commissioners

Commissioning of services will be overseen by a new national independent board. Regional respiratory clinical leads will have a role in monitoring services and establishing clinical networks to promote better service integration and delivery of respiratory services. The DOH will be issuing clear guidance to commissioners in a document anticipated at the end of 2010.

GP consortia will have responsibility for commissioning services for people with COPD. GP consortia will have a nationally-set budget and there will be a personal health budget for people with long-term conditions to ensure that those providing for these patients have the appropriate resources.

Summary

The UK NHS can no longer afford to ignore COPD. Implementing the recommendations in the Consultation on a Strategy for Services for COPD in England should reduce the inordinate and growing costs of

COPD, both human and financial. New systems of commissioning, provision and monitoring of services in a rapidly changing NHS are outlined. A new unified approach to provision of high quality and uniform COPD services is being developed. To deliver better services, primary care will have to work more closely with other GPs in consortia and with clinical networks. It is hoped that incentives such as QOF payments and GP commissioning will be used to drive increased quality of care. There will be a new emphasis on 'outcomes' rather than 'process', particularly patient-related outcomes and patient experience.

Conflict of Interest declarations

RJ has been paid to take part in educational activities related to COPD for Altana, Astra Zeneca (AZ), Boehringer Ingelheim (BI), GlaxoSmithKline (GSK), Novartis, Nutricia, Pfizer, TEVA, Tejin and Chiesi in the last three years. RJ is a consultant to the global emPOWER educational programme supported by Pfizer and BI.

KG-J is a member of the NICE COPD Guidelines Committee, and the Medicines Management Group for the COPD Clinical Strategy. He has spoken and acted as consultant for GSK, Merck Sharpe & Dohme (MSD), BI, AZ, Chiesi, Pfizer and Novartis. HP has received fees for lecturing or attending advisory groups from GSK, AZ, BI, and has been sponsored to attend conferences by AZ, BI/Pfizer and GSK.

SJP has received speaker honoraria and travel support to conferences from BI, Chiesi, GSK, Pfizer and AZ.

JL has received speaker honoraria from AZ, GSK, and BI. She has also co-authored educational resources funded by the Primary Care Respiratory Society UK

JS has received honorarium and travel grants from AZ, GSK, Pfizer, BI, Novartis, Quintiles, and Teva.

PW has received speaker honoraria and support for travel to scientific conferences from AZ, BI UK, GSK, and Pfizer UK.

SH has received funding as a speaker, advisor, as well as receiving travel bursaries from Altana, AZ, BI, GSK, MSD, Novartis, Pfizer and Chiesi in the last three years. He has also indirectly received Department of Health funding for work within the IMPRESS collaborative.

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