

The background features a stylized human torso in shades of green and yellow. A hot air balloon with blue and white vertical stripes is positioned on the left side. In the center, there is a stack of purple pills. On the right side, there are white, cloud-like shapes with dotted outlines. The main title is overlaid on a semi-transparent dark grey band across the middle of the image.

The **optimal** management of **patients** with **COPD**

Part 2: Stepwise escalation of treatment

The progression of COPD can be slowed by providing support for patients to stop smoking, and encouraging regular exercise and annual influenza vaccination. The pharmacological treatment of COPD needs to be individualised according to the patient's response; regular follow-up is an important part of this process. Short- and then long-acting bronchodilators are the mainstays of treatment, depending on the patient's symptom severity. Reducing the risk of exacerbations and ensuring acute exacerbations are promptly and appropriately treated with oral corticosteroids and antibiotics (if indicated) are important roles undertaken in primary care.

The pharmacological treatment of COPD has two aims:

1. To provide symptom control
2. To reduce the risk of exacerbations which are associated with increased mortality


Medicines should be introduced in a step-wise approach, according to the severity and progression of the patient's condition (Table 1, over page).

Non-pharmacological interventions are an important aspect of the management of patients with COPD, including:

- Smoking cessation
- Physical activity, including pulmonary rehabilitation
- Maintenance of normal weight

Stepwise pharmacological treatment

There is currently no high-quality evidence that any medicine is able to modify the long-term decline of lung function in patients with COPD. Medicines are given to manage symptoms and reduce the risk of exacerbations. The relationship between symptom severity, airflow limitation and exacerbation frequency varies between patients, therefore treatment needs to be individualised.

 As there are a large number of inhaled medicines indicated for the treatment of COPD it is important to ensure that medicine classes are not duplicated whenever changes are made to the patient's treatment regimen.

Step 1: For all patients with symptomatic COPD

Prescribe an inhaled short-acting beta2-agonist (SABA, e.g. salbutamol or terbutaline) or a short-acting muscarinic antagonist (SAMA, e.g. ipratropium). Short-acting

bronchodilators are likely to be beneficial when used by patients during periods of acute breathlessness.²

Ensure that patients are able to use inhaler devices correctly.

Patients should be educated in the correct use of inhalers and spacers before treatment with an inhaled medicine is initiated, and before stepping up treatment. Patients require sufficient dexterity and breath control to use inhaler devices and must also be able to use them when they are acutely unwell. As few as 10% of patients with COPD may use their inhalation device correctly;² the patient's ability to use an inhaler may dictate the choice of the available medicines. If patients are using a metered dose inhaler (MDI) confirm that they are using a spacer as this overcomes coordination problems, improves lower airway deposition of medicines and increases the clinical benefit of the medicine. Placebo inhaler devices are available for demonstrating correct inhaler technique.

Step 2: For patients with COPD and persistent troublesome dyspnoea

Consider the addition of a long-acting beta2-agonist (LABA, e.g. salmeterol, indacaterol or formoterol) or a long-acting muscarinic receptor antagonist (LAMA, e.g. tiotropium or glycopyrronium under Special Authority if the patient was taking ipratropium at Step 1 and has not responded adequately).²

There is good evidence that both LABA and LAMA improve lung function and symptom severity and reduce exacerbation frequency.²

A combined LABA/LAMA inhaler can be used if treatment with a single medicine is ineffective, however, there are currently no subsidised options available.

Table 1: The stepwise escalation of pharmacological treatment for COPD, based on severity, adapted from Abramson *et al*, 2014¹


Severity	MILD	MODERATE	SEVERE
	<ul style="list-style-type: none"> ■ Few symptoms ■ Breathless on moderate exertion ■ Recurrent chest infections ■ Little or no effect on daily activities ■ FEV₁ ≈ 60–80% predicted 	<ul style="list-style-type: none"> ■ Increasing dyspnoea ■ Breathless walking on level ground ■ Increasing limitation of daily activities ■ Cough and sputum production ■ Infections requiring corticosteroids ■ FEV₁ ≈ 40–59% predicted 	<ul style="list-style-type: none"> ■ Dyspnoea on minimal exertion ■ Daily activities severely restricted ■ Experiencing regular sputum production ■ Chronic cough ■ FEV₁ < 40% predicted
Medicines management	<p>CHECK DEVICE USAGE TECHNIQUE AND ADHERENCE AT EACH VISIT – Up to 90% of patients do not use devices correctly</p> <hr/> <p>FOR ALL PATIENTS: Inhaled short-acting reliever, e.g. salbutamol, terbutaline or ipratropium</p> <hr/> <p>SYMPTOM RELIEF IF PERSISTENT TROUBLESOME DYSPNOEA: Add a long-acting beta agonist (LABA, e.g. salmeterol, indacaterol or formoterol) OR a long-acting muscarinic antagonist (LAMA, e.g. tiotropium* or glycopyrronium*).</p> <p>This may also help to prevent exacerbations.</p> <p>* Special Authority criteria apply; must have tried ipratropium first, see NZF for details</p> <hr/> <p>EXACERBATION PREVENTION IF TWO OR MORE EXACERBATIONS IN LAST 12 MONTHS AND FEV₁ < 50% PREDICTED: CHANGE TO inhaled corticosteroid (ICS)/LABA combination treatment (fluticasone/salmeterol OR budesonide/formoterol*); ADD a LAMA (e.g. tiotropium* or glycopyrronium*) if the patient continues to experience frequent exacerbations.</p> <p>N.B. When considering the use of inhaled corticosteroids in patients with COPD it is important to consider the risk of adverse effects, particularly pneumonia</p> <p>* Special Authority criteria apply; must have tried ipratropium first, see NZF for details</p>		

Step 3: For patients with an FEV₁ < 50% of predicted and two or more exacerbations in a 12-month period

Consider prescribing a fixed-dose inhaled corticosteroid, in combination with a LABA, e.g. fluticasone + salmeterol or budesonide + formoterol under Special Authority.²

If the patient begins combination treatment remember to withdraw any LABA monotherapy.

Patients who continue to experience frequent exacerbations may also benefit from the addition of a LAMA to a combination corticosteroid and LABA inhaler.

 When considering the use of inhaled corticosteroids in patients with COPD it is important to **balance the risks versus benefits of inhaled corticosteroid treatment**

The long-term use of inhaled corticosteroids (ICS) has been shown to reduce the rate of exacerbations and slow the decline in quality of life in people with COPD.^{2,3} However, the role of ICS in the treatment of COPD is an evolving area of research and it is now accepted that their use can cause significant harm to patients with COPD; in particular, an increased risk of pneumonia and other respiratory co-morbidities.

ICS should only be considered for a patient with COPD once their condition has progressed to the point where the reduced risk of exacerbations and increased quality of life outweigh the increased risk of pneumonia and other adverse effects. The current trend among respiratory physicians in New Zealand is to tend to withdraw treatment of ICS, rather than initiate them; it is suggested that general practitioners consult a respiratory physician if they are considering initiating long-term ICS treatment in a patient with COPD.

A Cochrane systematic review of 55 studies with over 16 000 patients with stable COPD found that the use of ICS for more than six months was associated with 0.26 fewer exacerbations per patient per year. However, analysis of long-term studies (> six months) found an increased risk of pneumonia* (odds ratio [OR] 1.56), oropharyngeal candidiasis (OR 2.65) and hoarseness (OR 1.95).⁴ The review also found that the benefits of treatment were not matched with statistically significantly reduced rates of decline in FEV₁ or mortality.⁴


An analysis of 25 trials, including over 22 000 patients, found that patients with COPD taking an ICS were more than twice as likely to develop tuberculosis than patients with COPD who were not taking an ICS.⁵

Treatment with ICS in patients with COPD has also been linked in a dose-dependent manner to an increased risk of non-tuberculous mycobacterial (NTM) pulmonary disease.⁶

Prophylactic or continuous use of antibiotics is not currently recommended to prevent exacerbations in patients with COPD on the balance of adverse effects versus benefits.³ The use of antibiotics in patients with COPD should be reserved for treating infectious exacerbations and other bacterial infections.³

Mucolytics, e.g. bromhexine hydrochloride, have a limited role in exacerbation prevention and there are currently no fully subsidised mucolytic medicines in New Zealand for the treatment of patients with COPD.

Theophylline is now rarely used in the treatment of COPD.

 See Table 2 for information on subsidised medicines for COPD available in New Zealand

Routine follow-up is essential

As the patient's lung function can be expected to decline, routine follow-up is an important part of COPD management to assess efficacy of treatment and also reduce problematic polypharmacy. The success of treatment should be largely determined by the patient's response as improvements in lung function may not be reliably detected on spirometry. A period of six weeks is reasonable to detect clinically significant changes in symptoms such as dyspnoea, however, longer periods are likely to be required to detect changes in the patient's quality of life.²

Managing exacerbations


Patients with COPD who have frequent exacerbations are more likely to experience a rapid decline in FEV₁ and are more likely to die of COPD-related complications.² Prompt treatment of exacerbations is important as a delay of greater than 24 hours in presentation for the treatment of an exacerbation approximately doubles the likelihood of hospital admission.² An exacerbation in the previous 12 months is the greatest risk factor for a future exacerbation.²

Management of a patient with an acute exacerbation of COPD includes:

- Inhaled bronchodilator (increased dose), every three to four hours
- Breathing relaxation techniques
- Oral corticosteroids for five days, if moderate to severe exacerbation
- Oral antibiotics for five to ten days, but only if signs of chest infection

Symptom control during an exacerbation

Advise patients to take increased doses of bronchodilators during exacerbations, e.g. salbutamol, 400 – 800 micrograms (four to eight puffs of a standard strength, 100 micrograms per puff inhaler), every three to four hours, titrated to response.² If the patient requires an inhaled bronchodilator more frequently than three-hourly during an exacerbation they should be advised to seek medical assistance.² Correct device usage is essential during an exacerbation.

 If during an exacerbation the patient feels panicked and overwhelmed, the following advice may help them relax:

1. Stop what you are doing
2. Relax your shoulders and neck
3. Breathe low and slow using a pursed lip technique, i.e. in through the nose and out slowly through pursed lips, with the diaphragm moving and the chest and shoulders relaxed
4. In a comfortable position concentrate on a relaxed breathing rhythm

* An estimated incidence rate of pneumonia in patients with COPD is 2.4 cases per 100 people per year. A study of 163 514 patients with COPD found that over a period of 5.4 years, 20 344 patients had a serious pneumonia event. Reference: Suissa S, Patenaude V, Lapi F, *et al.* Inhaled corticosteroids in COPD and the risk of serious pneumonia. *Thorax* 2013;68:1029–36.

Table 2: Subsidised inhaled medicines for the treatment of patients with stable COPD in New Zealand⁷

Medicine	Dose	Frequency	Maximum dose	Subsidised device
Bronchodilators				
Beta2-agonists				
Salbutamol (short-acting)	100 – 200 micrograms (1 to 2 puffs of 100 micrograms)	As needed, up to four times daily	200 micrograms, four times daily	Metered dose inhaler (MDI)
Terbutaline (short-acting)	250 – 500 micrograms (1 to 2 puffs of 250 micrograms)	As needed	Maximum single dose 1.5 milligrams, maximum daily dose 6 milligrams	Dry powder inhaler (DPI), breath-activated device (Turbuhaler®)
Salmeterol (long-acting)	25 – 50 micrograms (1 to 2 puffs of 25 micrograms)	Twice daily	50 micrograms, twice daily	DPI, breath-activated device with each dose contained in a disc of eight doses (Accuhaler®) and standard MDI
Indacaterol* (long-acting)	150 – 300 micrograms (one capsule, 150 or 300 microgram strength)	Once daily	300 micrograms daily	DPI, breath-activated device with each dose contained in a capsule (Breezhaler®)
Formoterol (long-acting, partially subsidised)	12 micrograms	Once or twice daily	Up to 24 micrograms, twice daily	DPI, breath-activated device
Anticholinergics				
Ipratropium (short-acting)	40 micrograms	Four times daily	Maximum single dose 80 micrograms, maximum daily dose 240 micrograms	MDI
Tiotropium (long-acting) Will not be subsidised if patient also taking subsidised glycopyrronium. Special Authority criteria apply. ^a	18 micrograms	Once daily	18 micrograms daily	DPI, breath-activated device with each dose contained in a capsule (HandiHaler®)
Glycopyrronium* (long-acting) Will not be subsidised if patient also taking subsidised tiotropium. Special Authority criteria apply. ^a	50 micrograms	Once daily	50 micrograms daily	DPI, breath-activated device with each dose contained in a capsule (Breezhaler®)

Combination inhalers				
Budesonide + formoterol Special Authority criteria apply. ^b	200 + 6 micrograms Two puffs	Twice daily	Four puffs daily	DPI, breath-activated device (Turbuhaler®) and standard MDI
	400 + 12 micrograms One Puff	Twice daily	Two puffs daily	
Ipratropium + Salbutamol	20 + 100 micrograms Two puffs	Four times daily	12 puffs in 24 hours	MDI
Fluticasone + salmeterol	125 + 25 micrograms Two puffs	Twice daily	500 + 50 micrograms, twice daily	MDI
	250 + 25 micrograms. Two puffs	Twice daily		MDI
	250 + 50 micrograms One puff	Twice daily		DPI, breath-activated device (Accuhaler®)
Corticosteroids				
Beclomethasone	50 – 400 micrograms	Twice daily	400 micrograms, twice daily	MDI
Fluticasone	100 – 500 micrograms	Twice daily	1 mg, twice daily	MDI, DPI
Budesonide	100 – 800 micrograms	Twice daily	800 micrograms, twice daily	DPI

MDI = metered dose inhaler, DPI = dry powder inhaler


* These medicines recently underwent a change in funding status and are now fully-subsidised, see: "Two newly funded medicines for COPD", BPJ 65, Dec, 2014).

- a Patient must have trialed a short-acting bronchodilator of at least 40 micrograms ipratropium, four times daily for one month; and have grade 4 or 5 breathlessness; and measured FEV₁ below 60% of predicted; and been offered smoking cessation counselling if appropriate; and offered influenza immunisation.
- b Patients must aged over 12 years; and have been treated with inhaled corticosteroids of at least 800 micrograms per day beclomethasone or budesonide, or 500 micrograms per day fluticasone; and the prescriber considers that the patient would receive an additional clinical benefit from a combination product.

Airway clearing techniques, e.g. percussion, vibration, or active cycles of breathing, may be useful for patients if secretions are troublesome.² The active cycle of breathing involves controlled breathing to relax the airways, then deep breathing to get air behind sputum lodged in the small airways, and finally huffing to dislodge sputum where it can then be removed by coughing.

Five-day course of corticosteroids improves outcomes

Oral corticosteroids reduce the severity of COPD exacerbations and improve recovery time for the patient. They have the advantage of being rapid-acting, more convenient, and may be more effective than intravenous corticosteroids.² Prednisone 30 – 50 mg, once daily in the morning, for five days can be prescribed for patients with moderate or severe exacerbations.² Prescribing corticosteroids for periods of 14 days to reduce the severity of exacerbations is no longer considered necessary.⁸ Corticosteroid use does not need to be tapered in patients prescribed treatment courses of less than two weeks.

 For further information see: “Shorter courses of oral corticosteroids for the management of exacerbations in patients with COPD”. See: www.bpac.org.nz/BPJ/2015/february/updates.aspx

When to prescribe antibiotics

If patients show clinical signs of infection, i.e. fever, increased volume or colour of sputum, they can be prescribed oral antibiotics for five to ten days. Bacterial infection is thought to be involved in approximately half of COPD exacerbations.² Antibiotic regimens for the treatment of patients with infective COPD exacerbations vary. Recommended treatments include: amoxicillin, 500 mg, three times daily or doxycycline, 100 mg, twice daily*.² Sputum culture is not routinely required unless the patient is not responding to antibiotic treatment or has had multiple bacterial infections over a period of several months.² Intravenous antibiotics are unlikely to be required in a community setting and are only appropriate for patients with an impaired mental state, inability to swallow, or X-ray evidence of pneumonia requiring hospitalisation.²

Prophylactic or continuous use of antibiotics is not currently recommended to prevent exacerbations in patients with COPD on the balance of benefits versus adverse effects.³

* Recommended doses for doxycycline for acute exacerbations of COPD range from 100 – 200 mg, twice daily on day one, followed by 100 mg, once or twice daily, on days two to five.

Consider “back-pocket” prescriptions for select patients


Patients with COPD who are considered to have good self-management skills can be provided with “back-pocket” prescriptions for antibiotics and corticosteroids for the treatment of exacerbations.² A written action plan should be provided to the patient that indicates how to recognise if their condition has changed, what to do if this occurs and the medicines, doses and action that should be taken.²

When to refer to hospital

Patients with COPD who are experiencing an exacerbation should be considered for referral to hospital if they display:²

- A significant increase in symptom intensity
- An inadequate response to community-based treatments
- An inability to walk between rooms when they were previously mobile
- Dyspnoea that is affecting their ability to sleep or eat
- An inability to cope at home
- Features suggestive of respiratory failure, i.e. confusion, drowsiness, restlessness, and cyanosis
- New-onset arrhythmia
- SpO₂ < 92% on pulse oximetry
- Deteriorating cor pulmonale

Controlled oxygen, delivered at a rate of 0.5 – 2.0 L/min, is indicated for patients with hypoxaemia during a COPD exacerbation.² High-flow oxygen is avoided in patients with COPD as this may cause hypoventilation and acute respiratory failure.²

 **Pulmonary embolism should be considered** if a patient's condition merits hospitalisation, but the typical features of an exacerbation of COPD are absent, such as fever, productive cough and wheezing.² It is estimated that as many as one in four patients with an atypical COPD exacerbation may have an underlying pulmonary embolism causing acute dyspnoea.⁹

Follow-up after discharge from hospital

Following discharge from hospital it is reasonable for the primary care team to expect to receive a hospital discharge plan within 24 hours.² The patient should then be followed-up by a member of the primary care team within seven days. Follow-up should include an assessment of the patient's:²

- Level of physical activity
- Coping ability

- FEV₁ (if equipment and skills to perform spirometry) and performance status (e.g. Modified Medical Research Council Dyspnoea Scale, Page 14)
- Medicine adherence and ability to use inhaler devices
- Effectiveness of treatments, with optimisation if necessary using a stepwise approach
- Influenza and pneumococcal vaccination status
- Risk of osteoporosis
- Risk of future exacerbations with a review of the patient's action plan


Following an exacerbation requiring hospitalisation, patients with COPD should be referred for pulmonary rehabilitation, once they are stable.² Patients with abnormalities on X-ray should be followed up within four to six weeks of discharge from hospital.² Depending on the clinical circumstances, a follow-up x-ray may be required.

Pharmacological treatment in patients with advanced COPD

Low-dose morphine, benzodiazepines, and eventually oxygen, may be considered for patients with COPD who have reached the stage when their lung function cannot be improved.

Opioids can relieve dyspnoea at low-doses by decreasing the patient's respiratory rate without causing hypercapnia or hypoxia.¹⁰ Initially, low doses of morphine can be trialled on an "as needed" basis for refractory dyspnoea, e.g. 2 mg of morphine oral solution pre-measured in a syringe or 2.5 mg of an immediate-release tablet (one-quarter of a 10 mg tablet of morphine). If the patient requires regular dosing, 2 – 2.5 mg of morphine can be given every four to six hours; this dose can be increased in steps of 30% if tolerated.¹¹ It is unknown what the exact mechanism for opioids relieving dyspnoea is. One possibility is that opioids modulate the patient's perception of dyspnoea, in the same way they do for pain, without reducing the patient's ventilation drive.¹²

Benzodiazepines can be very effective at reducing the anxiety associated with dyspnoea, although there is no evidence that they can relieve breathlessness itself.¹¹ Lorazepam 0.5 mg (half of a 1 mg tablet), every four to six hours, as required, is an appropriate starting dose.¹¹


 For further information see: "Managing breathlessness in palliative care", BPJ 47 (Aug, 2012).

Oxygen treatment in a consistently hypoxic patient may reduce polycythaemia, improve sleep quality, prevent right-

sided heart failure and reduce mortality.^{2,13} Patients with COPD who are stable but have persistent hypoxaemia, consistent with a SpO₂ < 92% on pulse oximetry, should be referred to a respiratory physician to assess their need for long-term oxygen therapy.² For patients to be eligible for long-term treatment with oxygen it is a requirement that the patient and their home be smoke-free.

Nutritional advice for patients with COPD

Weight loss and reduced muscle mass are common in people with advanced COPD as they need to exert more energy while breathing. This can result in a deterioration in lung and heart function, a reduced ability to exercise and increased mortality.¹⁴ People with COPD need to ensure that their nutritional intake is adequate enough to support their extra energy requirements. It is estimated that approximately 23% of people with COPD are malnourished, but it is unclear whether this is the cause of their deterioration or a part of the disease process.^{14, 15}


 Five key questions that can be asked to assess food intake and nutritional status are:¹⁶

- "How is your appetite?"
- "Are you managing to eat like you usually do?"
- "Have you noticed any change in your body weight?"
- "Have you noticed any other changes to your body shape or muscle strength?"
- "Do you have concerns about your diet or food intake?"

Nutritional advice:

Patients with BMI <20 kg/m² or any patients with unintentional weight or muscle loss:

1. "Food First". Maximise nutritional intake from the diet:
 - Eat small, frequent meals that are high in protein (meat, chicken, fish, eggs, cheese and milk) and fat (cream, cheese, butter, peanut butter, gravy, sauces and fried foods)
 - Consume six to eight drinks per day; water, milk drinks and soup are better than tea or coffee
 - Offer referral to a "Meals-on-wheels" or a similar service

 A patient leaflet about nutritional advice in underweight patients is available from www.copdeducation.org.uk/graphics/pdf/Red-Leaflet.pdf

2. Oral nutritional supplements can be considered as an adjunct to the “food first” strategy in patients with a BMI <20 kg/m² or in any patients who continue to experience unintentional weight or muscle loss despite optimising dietary intake.¹⁶

The recommended dose of oral nutritional supplements is 600 kcal, daily, for three months, with monthly reviews where possible.¹⁶ If there is no improvement after three months referral to a dietitian is recommended.

Pulmocare is a high-fat, reduced-carbohydrate formula indicated for patients with CO₂-retentive respiratory conditions such as COPD.⁷ The formula is available subsidised with Special Authority on application from a vocationally registered general practitioner, specialist or dietitian for patients who have COPD and hypercapnia (CO₂ value of > 55 mmHg). It is designed to reduce carbon dioxide production and supply nutrients without compromising respiratory function.⁷

Planning end-of-life care with patients with COPD

As the goals of care change, patients with COPD and their family/whānau require realistic advice, as well as support, from health professionals to make informed decisions and to plan for the future appropriately.

Initiating conversations about end-of-life issues with patients who have COPD can feel daunting to many health professionals, especially in judging the right time to do so. However, it is best that these discussions take place early. Giving patients sufficient time, e.g. 12 months, before end-of-life care is required, allows them to plan with their family/whānau how they want their care to be managed.

Discussions about end-of-life issues are generally less stressful when patients are relatively well; it is reported that the majority of patients with life-limiting conditions prefer to discuss preferences for end-of-life care early.¹⁷ Increased communication with patients who have a terminal illness is also associated with better end-of-life care and a reduced number of medical interventions.¹⁸ Furthermore, the subject of end-of-life care is easier to revisit with patients and their family if it has been broached previously. In general, patients and their family/whānau want an honest conversation that is balanced between realistic information and appropriate hope.¹⁹ Current evidence does not support suggestions that discussing end-of-life care increases the patient’s feelings of anxiety, depression or hopelessness.¹⁹


When is it appropriate to discuss “end-of-life care” with a patient with COPD?

The greater uncertainty in predicting mortality in patients with COPD compared to patients with other terminal respiratory conditions, such as lung cancer, makes it difficult for clinicians to know when it is appropriate to initiate end-of-life discussions.

The presence of two or more of the following markers is an indication for a discussion centred on the patient’s preferences for end-of-life care:¹⁷

- FEV₁ < 30% of predicted
- Age over 70 years
- Dependence on oxygen treatment
- One or more hospitalisations in the previous year for an exacerbation
- Left heart failure
- Weight loss or cachexia


- Decreased ability to function
- Increasing dependence on family or carer

 Another useful strategy when deciding if end-of-life discussions are appropriate is to consider the question: "Would I be surprised if this patient died in the next 12 months?"

Prognostic markers for COPD

It is also difficult to provide patients with COPD and/or their family with timeframes for disease progression. Decreasing FEV₁ is associated with worsening prognosis in patients with COPD, however, because this measure does not account for other factors affecting a patient's health, e.g. co-morbidities, it is not a good predictor of outcomes when used in isolation.²⁰ Exercise capacity is one of the most important prognostic markers in COPD and is directly related to how well the respiratory and cardiovascular systems are able to supply oxygen to the rest of the body.²⁰ The six-minute walking test is an objective measure of a patient's exercise ability. The Body Mass Index (BMI), Obstruction, Dyspnoea, and Exercise (BODE) scale is used to assess mortality risk in patients with COPD.


Biomarkers are not widely used for prognostic assessment in patients with COPD; biopsies and lavage are extremely invasive, breath sampling is highly variable, and serum markers have yet to be validated.²⁰

 A copy of the BODE index for COPD can be found at: www.pulmonaryrehab.com.au/pdfs/BodeIndexForCOPD.pdf

What does advanced care planning involve?

Advanced care planning refers to the process of assisting patients with terminal illnesses to:

- Gain a better understanding of their current and likely future health
- Consider their personal views and values regarding end-of-life care
- Understand the treatment and care options that are available to them
- Initiate discussions around end-of-life issues with their family/whānau

 A suggested way to begin a conversation involving advanced care planning is: "What is your understanding of where you are now with your illness?"¹⁹

What do most patients want to know?


Having entered into this discussion many patients will want to know what they can expect in the weeks and months ahead.

For patients with COPD, advanced care planning should specifically prepare them for complications such as panic and severe dyspnoea. The patient should also be asked if they have any fears or concerns that they would like to discuss.


Encouraging patients to focus on what matters to them

Advanced care planning should identify the patient's goals for treatment. This may be assessed by asking: "If your health worsens, what are your most important goals?"

Discussions on critical functions should also be attempted, e.g. "What abilities are so critical to your life that you cannot imagine living without them?"¹⁹

 Some patients may wish to discuss a ceiling of care with a respiratory physician.

During advanced care planning some patients may wish to create a "ceiling of care". This is a document that is usually put together by a respiratory physician, and outlines interventions that in the context of the patient being severely incapacitated are considered futile, burdensome and contrary to the patient's wishes.²¹ This can be particularly useful if the patient is admitted to hospital and is unable to contribute to decision-making at the time it is required; rather than focusing on intensive interventions to prolong life, other health professionals, who have never met the patient, are able to provide supportive care that is consistent with the patient's desires and beliefs. For example, if the situation arose, would the patient wish to have a trial of mechanical ventilation for acute respiratory failure? A ceiling of care document is non-binding and patients are free to make alternative decisions about their treatment at any stage.

 Asking: "If you become sicker, how much are you prepared to go through for the possibility of more time?", is one way to encourage patients to think about the level of intensity of treatment they are prepared to tolerate in their last days.

It is important to ask patients with advanced COPD if their family is aware of their priorities and wishes, e.g. if the situation arose, would they want to be intubated or have cardiopulmonary resuscitation attempted? This allows patients to consider appointing a substitute decision maker (also known as an enduring power of attorney [medical]) in case they are admitted to intensive care and are unable to communicate their wishes.

 Further information on advanced care planning, including resources that can be provided to patients, can be found at: www.advancecareplanning.org.nz

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