



## Manage eXacerbations

### Causes of exacerbations include:

- Viral infection
- Bacterial infection – often *Haemophilus influenzae*, *Streptococcus pneumoniae* or *Moraxella catarrhalis*
- Air pollution episode

### Early diagnosis and treatment is essential:

- A self management plan may assist decision making (D)
- Early contact with the GP is recommended (C)
- A supply of antibiotics and/or prednisone may be valuable in selected patients (D)

### In more severely affected patients a key decision is whether it is safe to treat at home:

- Social factors are often important:
  - Able to cope at home?
  - Availability of family/friends to provide support, meals etc?
- Clinical factors to assess include:
  - History of life-threatening episodes/ respiratory arrest
  - Degree of breathlessness
  - Evidence of confusion
  - Symptoms or signs of heart failure or serious co-morbidity especially diabetes
  - Signs of hypoxaemia – cyanosis/oximetry below 90%

### Initial Management Plan:

- Assess severity and co-morbidity
- Use short acting beta-2 agonist via MDI and spacer or nebuliser (A)
- Assess the need for an antibiotic (change in sputum volume or colour, fever) (B)
  - Provide an oral antibiotic for 7-10 days (e.g. amoxicillin 500mg tds)
- Provide a short course of oral corticosteroids (A)
  - Usually prednisone 30-40mg mane for 5-10 days
- Arrange to re-assess in 1-2 days by practice nurse or outreach service if available
- Set criteria for calling an ambulance (deteriorating, confusion, vomiting, chest pain, ankle swelling)

### Further assessment of more severe patients:

- Arrange for assessment at ED or After Hours Medical Centre:
  - Pulse oximetry (should be >90%)
  - Chest radiograph (to exclude pneumonia, left heart failure, pneumothorax)

### Arrange to review after 2-3 weeks:

- Recovery of symptoms, fatigue and energy levels often takes 4-12 weeks
- Consider a multidisciplinary care plan for those with frequent exacerbations (C)
- For those with 2 or more exacerbations in a year and an FEV<sub>1</sub> less than 50% predicted consider inhaled corticosteroid therapy (B)



The Asthma and Respiratory Foundation of New Zealand (Inc.)  
Te Taumatua Huango,  
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### For Evidence Based Summaries of this topic see:

TSANZ Guidelines [www.nzgg.org.nz](http://www.nzgg.org.nz)

BTS/SIGN Guidelines [www.sign.ac.uk/guidelines/fulltext/63/index.html](http://www.sign.ac.uk/guidelines/fulltext/63/index.html)

(Thorax 2004; 59 (Suppl 1): 1-232

## Summary of the COPDX guidelines

### Confirm diagnosis and assess severity

Smoking is the most important risk factor for COPD (A)  
Consider COPD in patients with other smoking-related diseases (A)  
Consider COPD in all smokers and ex-smokers older than 35 years (B)  
The diagnosis of COPD rests on the demonstration of airflow limitation which is not fully reversible (B)  
If airflow limitation is fully or substantially reversible, the patient should be treated as for asthma (D)

### Optimise function

Inhaled bronchodilators provide symptom relief in patients with COPD and may increase exercise capacity (A)  
Long-acting bronchodilators provide sustained relief of symptoms in moderate to severe COPD (A)  
Long-term use of systemic glucocorticoids is not recommended (A)  
Inhaled glucocorticoids should be considered in patients with a documented response or those who have severe COPD with frequent exacerbations (B)  
Identify and treat hypoxaemia and pulmonary hypertension (A)  
Prevent or treat osteoporosis (A)  
Pulmonary rehabilitation reduces dyspnoea, anxiety and depression, improves exercise capacity and quality of life and may reduce hospitalisation (A)  
In selected patients, a surgical approach may be considered for symptom relief (C)

### Prevent deterioration

Smoking cessation reduces the rate of decline of lung function (A)  
General practitioners and pharmacists can help smokers quit (A)  
Treatment of nicotine dependence is effective and should be offered to smokers (A)  
Pharmacotherapies double the success of quit attempts; behavioural techniques further increase the quit rate by up to 50% (A)  
Influenza vaccination reduces the risk of exacerbations, hospitalisation and death (A)  
No medication has yet been shown to prevent the long-term decline in lung function (A)  
Long-term oxygen therapy (>15h/day) prolongs life in hypoxaemic patients (PaO<sub>2</sub><55mmHg or 7.3kPa) (A)  
Inhaled glucocorticoids are indicated for patients with a documented response or who have severe COPD with frequent exacerbations (B)  
Mucolytics may reduce the frequency and duration of exacerbations (B)

### Develop support network and self-management plan

Pulmonary rehabilitation increases patient/carer knowledge base, reduces carer strain and develops positive attitudes towards self-management and exercise (A)  
COPD imposes handicaps which affect both patients and carers (B)  
Multidisciplinary care plans and individual self-management plans may help to prevent or manage crises (B)  
Enhancing quality of life and reducing handicap requires a support team (C)  
Patients and their family/friends should be actively involved in a therapeutic partnership with a range of professional disciplines (C)  
Patients should be encouraged to take appropriate responsibility for their own management (C)

### Manage eXacerbations

Inhaled bronchodilators are effective treatments for acute exacerbations (A)  
Systemic glucocorticoids reduce the severity of and shorten recovery from acute exacerbations (A)  
Non-invasive positive pressure ventilation is effective for acute hypercapnic ventilatory failure (A)  
Exacerbations with clinical signs of infection (increased volume and change in colour of sputum and/or fever, leukocytosis) benefit from antibiotic therapy (B)  
Multidisciplinary care may assist home management (B)  
Early diagnosis and treatment may prevent admission (C)  
Controlled oxygen delivery (28% or 0.5-2L/min) is indicated for hypoxaemia (C)  
Involving the patient's general practitioner in a case conference and developing a care plan may facilitate early discharge (C)



## Diagnosis & Treatment of

# COPD

(Chronic Obstructive Pulmonary Disease)



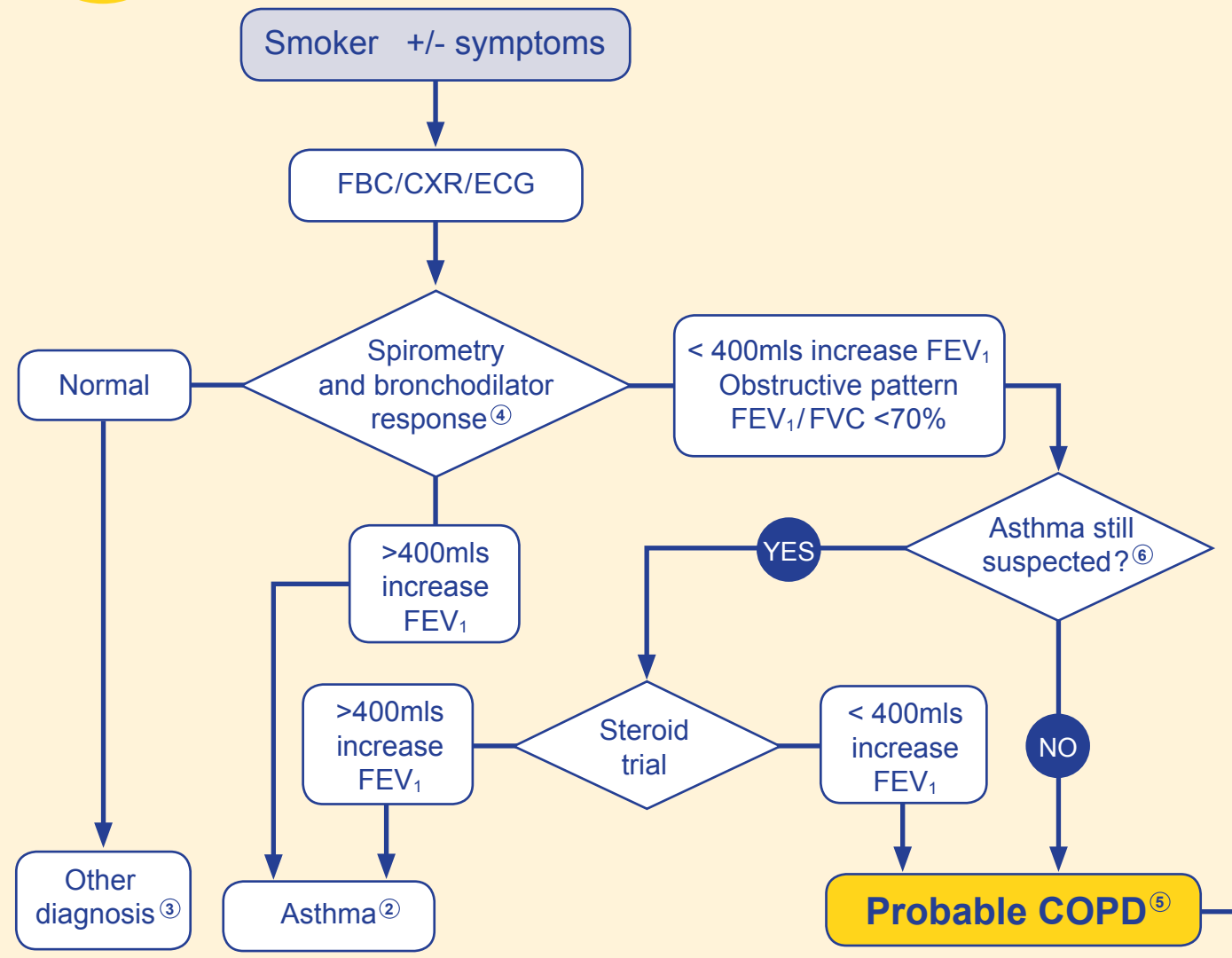
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## Confirm Diagnosis – Is this Asthma or COPD?

Asthma	Features	COPD
Typically begins in childhood	← AGE? →	Patient typically > 40 years of age
No direct relationship	← SMOKING? →	Mainly smokers and ex-smokers
Episodic attacks with exposures to allergen, irritant or exercise	← DYSPNOEA? →	Progressive shortness of breath, usually with exertion
Typically a dry cough at night	← COUGH? →	Productive cough, typically in the morning



## Confirm Diagnosis<sup>①</sup>



## Prevent Deterioration<sup>⑦</sup>

- For all patients:**
- Smoking cessation
  - Flu vaccine annually
  - Pneumococcal vaccine every 5 yrs
  - Exercise programme
  - Nutrition review

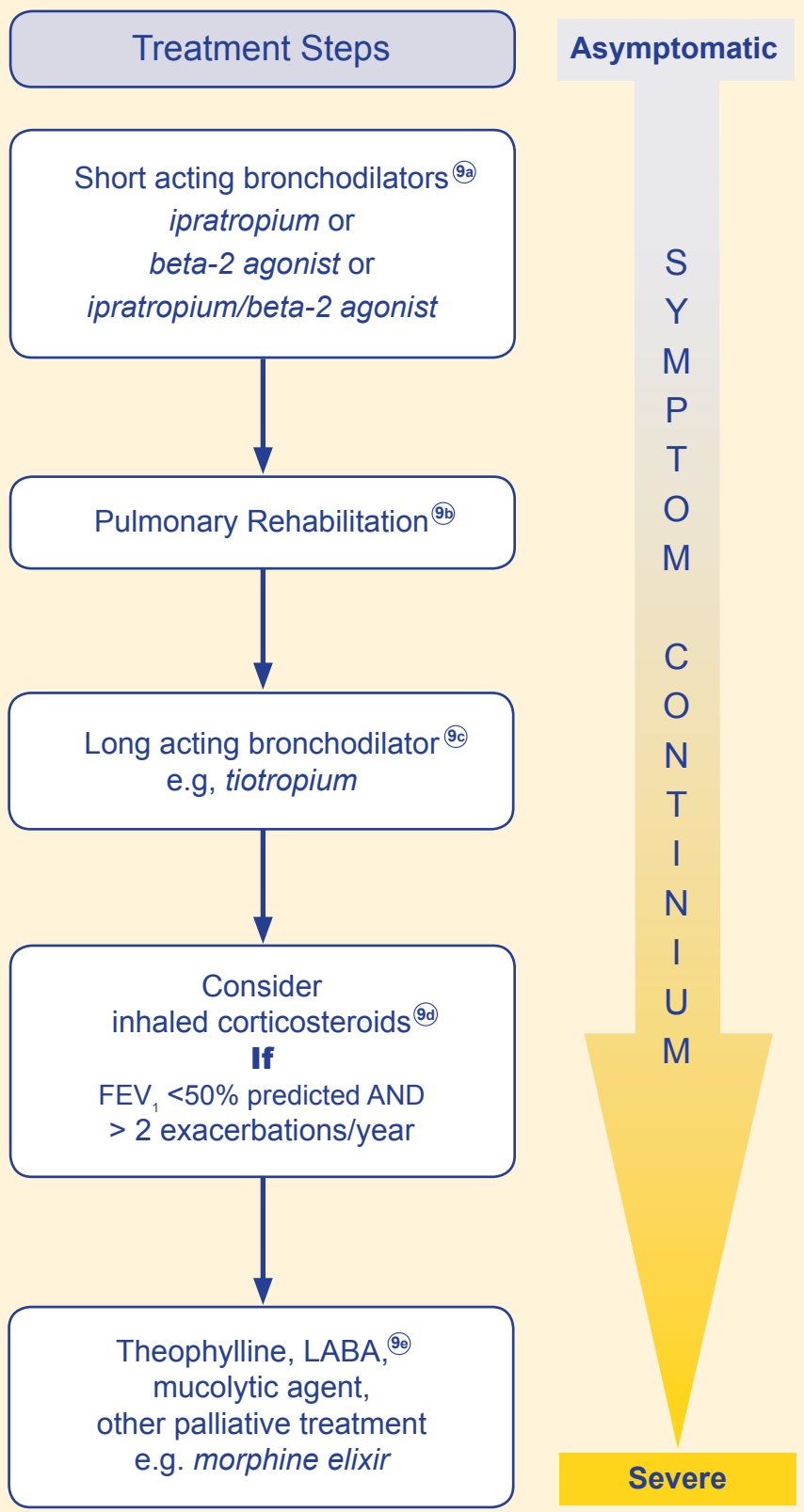


## Develop Care Plan<sup>⑧</sup>

- Coordinated by Primary Care with multidisciplinary input
- Identify and Treat:**
- Anxiety
  - Depression
  - Alcohol dependence



## Optimise Function<sup>⑨</sup>



- For all patients:**
- Choose the most appropriate device
  - Check inhaler technique<sup>⑩</sup>
  - Use spacer with MDI

- For more severe patients consider:**
- Case Conference<sup>⑪</sup>
  - Specialist referral

- In severe patients consider:**
- LTOT referral if O<sub>2</sub> sats <92%<sup>⑫</sup>

For all patients refer **P** and **D**

# Notes

- In establishing the diagnosis of COPD in a patient presenting for the first time it is important to:
  - take a history of relevant respiratory symptoms (shortness of breath, cough and sputum production)
  - integrate this with the smoking and occupational history
  - ensure the patient has recent FBC, chest xray and ECG
- The alternate diagnosis of asthma should always be considered in the first instance. Differences between asthma and COPD are shown in the table. A lack of a smoking history and early age of onset should lead to further investigations for asthma according to the NZ Asthma Guidelines.
- The other main diagnoses in an older age group are heart disease (left and/or right cardiac failure), another form of airways or parenchymal disease (bronchiectasis, sarcoidosis, allergic alveolitis, interstitial lung disease) respiratory muscle or chest wall disorders and obesity with poor cardio-respiratory fitness. Anaemia should be excluded. In more complex cases a referral to a general or respiratory physician may be required.
- A cornerstone of initial assessment is performing spirometry. Spirometry should be performed by trained staff either in the practice or at a local referral centre (testing centre or hospital laboratory). Bronchodilator response can be helpful, but there is no absolute level of response that differentiates between asthma and COPD. An improvement in FEV<sub>1</sub> of 200ml or greater is significant and often seen in COPD. An improvement of greater than 400ml suggests asthma.
- If the spirometry confirms airflow obstruction (ratio of FEV<sub>1</sub> over FVC less than 70%) and there is a small bronchodilator response (less than 400mls) then, in conjunction with the appropriate history, a diagnosis of probable COPD can be made.
- If airflow obstruction is present and there is a poor bronchodilator response, but asthma is still suspected, then an oral or inhaled corticosteroid trial is recommended. Inhaled steroids should be administered in a dose of 800 to 1000 micrograms daily for approximately 6 weeks via a large volume spacer or, in those able to tolerate oral steroids, a course of prednisone (30-40mgs) for 2-3 weeks should be administered to exclude asthma.
- Check [www.nzgg.org.nz](http://www.nzgg.org.nz) for the Smoking Cessation Guidelines and the COPDX Guideline for statements on influenza and pneumococcal vaccination. In preventing deterioration in COPD a regular exercise programme, similar to that devised for pulmonary rehabilitation programmes, with attention to nutrition and maintenance of body weight, has an essential role.
- The development of a Care Plan, with multidisciplinary input, is important for patients with moderate to severe disease. All patients should be screened for anxiety, depression and alcohol dependence, which are common in patients with COPD. Input from a respiratory physiotherapist, occupational therapist, social worker and, in some cases, a psychologist may all assist in the development of this Plan. This should usually be co-ordinated by the primary care team, in many cases in conjunction with services operating from the local hospital.
- Optimising function should focus on both pharmacological and non-pharmacological approaches. Most patients will benefit from short-acting bronchodilators – either prn or in more severe cases regularly. The use of a bronchodilator may not improve spirometry dramatically but may reduce dynamic hyperinflation and relieve breathlessness during exercise by reducing the amount of air trapped in the lung. In many instances a combination agent comprising a beta-2 agonist and ipratropium bromide will be a good initial choice.
- Comprehensive pulmonary rehabilitation is a fully evidence-based intervention for improving quality of life and the management of symptoms such as dyspnoea in those with moderate to severe COPD. All patients should be referred to the local pulmonary rehabilitation programme for this intervention.
- The long-acting bronchodilator tiotropium is a significant advance in the management of COPD. Check the PHARMAC web site [www.pharmac.govt.nz](http://www.pharmac.govt.nz) (Pharmaceutical Schedule) for current availability and pricing.
- Inhaled corticosteroids should be considered in more severe patients who have had more than two exacerbations per year. The evidence for this is not especially strong and if the side effects of these drugs outweigh the benefits, they should be stopped.
- Third-line agents for the management of COPD include the long acting beta-2 agonists (which may be used as an alternative to tiotropium). Another option is theophylline, (which should be used at the lower end of the therapeutic range), mucolytic agents and in selected cases, other palliative treatments such as morphine.
- In all patients prescribed inhaled drugs, regular checks should be made of their inhaler technique. The use of a spacer is recommended for all patients because of the high frequency of difficulties in co-ordination in the older age group.
- A specialist referral or case conference should be undertaken in patients who are having frequent exacerbations and whose clinical course is less than optimal. A case conference would normally be co-ordinated by the primary care service and appropriate other health professionals invited to contribute. A written record of this should be kept, preferably available to all local providers through a secure web interface.
- For patients with an FEV<sub>1</sub> less than 1 litre (less than 30% predicted) hypoxaemia may develop and should be screened for this using pulse oximetry. Those with pulse oximetry values of less than 92% should be referred to their local laboratory for an arterial blood gas assessment on room air. If the PaO<sub>2</sub> is less than 55mmHg they should be referred to a local respiratory specialist service for assessment for eligibility for long term oxygen therapy (LTOT).