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Primary Care Trust

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University Teaching Hospital

Salford COPD Treatment Pathway

Development led by Helen Pyne with Salford Asthma and Respiratory Team (SART)

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Start at the level appropriate to the patient's symptoms

Diagnosis of COPD

STAGE I — Salbutamol / Terbutaline Aerosol 1-2 puffs PRN (MDI) (or equivalent) via appropriate device suited to the individual's lifestyle and preference

- Remains symptomatic
- Good symptom control → No change to drug treatment

STAGE II — Salbutamol Aerosol 2 puffs QDS (MDI) or Terbutaline Aerosol 2 puffs QDS (MDI). Plus 2 puffs PRN (or equivalent) via appropriate device suited to the individual's lifestyle and preference

- Remains symptomatic
- Good symptom control → No change to drug treatment

STAGE III — Salbutamol / Terbutaline Aerosol 2 puffs QDS (MDI) plus 2 puffs PRN (or equivalent) Plus **ADD IN** Ipratropium Bromide Aerosol 2 puffs QDS (MDI) via appropriate device suited to the individual's lifestyle and preference

- Remains symptomatic
- Good symptom control → No change to drug treatment

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Note for COPD Diagnosis

Criteria

- Post bronchodilator FEV_1 <80% predicted
- FVC/FEV_1 ratio <70% at 6 seconds or SVC
- Lung function that does not change markedly over several months
- Check $Alpha_1$ antitrypsin if severe COPD in individuals under 40-50yrs. If positive screen family

Common symptoms

- Morning cough
- Recurrent respiratory infections
- Shortness of breath on vigorous exertion / manual labour
- Sputum production

Smoking Cessation

Provide advice, support and NRT or Zyban as appropriate. Refer to advisor if additional support required. Keep a record of the patients smoking history.

Depression

A large proportion of COPD patients experience depression at some time. Consider depression and appropriate management through counselling and/or prescription drugs

Spirometry

Recommended periodically establishing the speed of deterioration and stage of disease process and variability if any.

Serial Peak Expiratory Flow Monitoring

Recommended if reversible element to obstruction suspected

Flu & Pneumonia Vaccinations

Recommended Influenza vaccination every October / November to all COPD patients and single Pneumonia vaccine. Omit if the patient has an egg allergy or previous sensitivity.

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STAGE IV

Salbutamol Aerosol 4 puffs QDS (MDI) Plus 2 puffs PRN (or equivalent)
Plus ⇧ Ipratropium Bromide Aerosol to 4 puffs QDS (MDI)
via inhaler device suited to the individual's lifestyle and preference

Remains symptomatic

Good symptom control

No change to drug treatment

STAGE V

Salbutamol Aerosol 2-6 puffs PRN / QDS (MDI) (or equivalent)
Via inhaler device most suited to the individuals lifestyle and preference
STOP Ipratropium Bromide Aerosol 4 puffs QDS (MDI)
Plus **ADD IN** Tiotropium Bromide 1 cap (18mcg) OD via handihaler

Remains symptomatic

Good symptom control

No change to drug treatment

STAGE VI

STOP Tiotropium Bromide for a period of 4/52
ADD IN Salmeterol Aerosol 2 puffs BD (MDI) (or equivalent)
Plus Ipratropium Bromide Aerosol 2-4 puffs QDS (MDI)
Salbutamol Aerosol 2-6 puffs PRN / QDS (MDI) (or equivalent)
Via inhaler device most suited to the individual's lifestyle
and preference

Remains symptomatic

Good symptom control

No change to drug treatment

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Combined Therapies

Are to be considered only when optimum therapies have been established. If these therapies are initiated before drug effectiveness has been established optimum therapy will be difficult to identify. Combined therapies may aid patient concordance because of, convenience and tolerability, therefore effectiveness of the drugs.

Combined Therapies (During Trials of Treatment)

Are only recommended during trials of treatment, if concordance, cost, convenience or tolerability is highlighted as a problem.

(CONSIDER AFTER STAGE VIII) Theophyllines

May be considered for a trial period once all other therapies have been trialed.

Uniphyllin Continuous 200mg BD for 1 week then increases to 300mg BD. Over 70kg can increase to 400mg BD. If effective continue and monitor levels annually.

Measure PEAK blood level 6 hours post dose. Target range is 55-110 micromol/Litre.

Exacerbation of COPD

At any stage exacerbation can occur

Criteria

- Worsening of previously stable condition
- Sputum purulence
- Increased sputum volume
- Increased wheeze
- Increased dyspnoea
- Chest tightness
- Fluid retention

Treatment

- Increase short acting Beta II agonist usage, upto 6 puffs QDS (MDI) + 2 PRN or equivalent
- Short course of oral steroids 30-40mgs for 5-14 days.
- Antibiotics : If fever, leukocytosis or purulent sputum. Amoxicillin 500mg TDS - 7 DAYS (21 capsules). If patient has an allergy to penicillin use Erythromycin 500mgs QDS - 7 DAYS (28 capsules)

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STAGE VII

Stop Ipratropium Bromide Aerosol 2-4 puffs QDS (MDI).
Reintroduce Tiotropium Bromide 1 cap (18mcgs) OD
Plus continue Salmeterol Aerosol 2 puffs BD (MDI) (or equivalent)
Plus continue Salbutamol Aerosol 2-6 puffs PRN (MDI) (or equivalent)
Via inhaler device most suited to the individual's lifestyle and preference

Remains symptomatic

Good symptom control

No change to drug treatment

Discontinue Tiotropium Bromide. Continue Salmeterol Aerosol 2 puffs BD (MDI) (or equivalent) if previous benefit noted. Via inhaler device most suited to the individual's lifestyle and preference

Inhaled Steroid

If FEV_1 <50% predicted with 2 exacerbations of COPD requiring antibiotics and oral steroids over the previous 12 months.
A minimum effective dose of inhaled steroid Beclomethasone Dipropionate 1000mcgs or equivalent.

DAILY IN TWO DIVIDED DOSES

Via inhaler device most suited to the individuals lifestyle and preference.

Advise the patient to rinse their mouth after use.

For patient on inhaled steroid and LABA it is cost effective to use Seretide 500/50 Accuhaler 1 puff BD

STAGE VIII

WEEKS 1 AND 2* ***This stage based in dedicated clinic***
Salbutamol 2.5mg nebule 1 QDS
Plus Ipratropium Bromide Aerosol 4 puffs QDS
Plus Salbutamol Aerosol 2 puffs PRN
Plus Salmeterol Aerosol 2 puffs BD if previous benefit noted

WEEKS 3 AND 4* ***This stage based in dedicated clinic***
Salbutamol 5mg nebule 1 QDS
Plus Ipratropium Bromide Aerosol 4 puffs QDS
Plus Salbutamol Aerosol 2 puffs PRN
Plus Salmeterol Aerosol 2 puffs BD if previous benefit noted

WEEKS 5 AND 6* ***This stage based in dedicated clinic***
Combivent nebule 1 QDS
Plus Salbutamol Aerosol 2 puffs PRN
Plus Salmeterol Aerosol 2 puffs BD if previous benefit noted

Decide with the patient which treatment has been most effective

Inhaled Steroids

Are not routinely recommended for COPD patients. Nonetheless are recommended for prevention of recurrent exacerbation.

Criteria

- FEV_1 <50% predicted with TWO exacerbations of COPD requiring antibiotics and oral steroids over the previous 12 months.

Nebulised Drug Therapies

It is recommended that nebulised drugs should not be prescribed for any COPD patient that has purchased their own nebuliser until assessment completed at the hospital. Discourage any COPD patients from purchasing his or her own compressor and nebuliser unit. It is important not to compromise appropriate drug assessment, machine servicing, disposables replacement, education and condition monitoring

Mucolytics

Should be discussed with the patient by the hospital team if more than three exacerbations requiring antibiotics and oral steroids within a twelve-month period, despite inhaled steroids.

Nebuliser Assessment Referral Criteria

Any patient diagnosed with COPD that experience symptoms affecting their activities of living. Patients treated at Stage III and above. Optimisation of therapies must be established through trials of treatment. They may or may not require nebulised therapies.

Nebulised Therapies

If Nebulised Therapies are required the hospital will provide the compressor unit (with replacement filters) on long-term loan. The unit will be serviced annually. Durable nebuliser sets will be provided and replenished annually.

Back up Inhalers

Will be required for emergency use if compressor unit or nebuliser set are not working effectively and for PRN doses.

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Consultant Referral Criteria

- 3 exacerbations in 12 month period
- Stridor
- Symptoms disproportionate to lung function deficit
- Rapid decline in FEV_1
- Uncertain diagnosis / dysfunctional breathing
- Supervised withdrawal from long-term oral steroids for COPD
- Onset cor-pulmonale
- Assessment for pulmonary rehabilitation
- Severe COPD
- Assessment for Long Term Oxygen Therapy
- Assessment for nebuliser therapy

Pulmonary Rehabilitation

Exclusion Criteria

- Cognitive impairment
- Unstable angina
- Unstable cardiac disease

Inclusion Criteria

- Agree to attend programme bi-weekly for 6 weeks
- Respiratory diagnosis
- Seen within last 12 months by respiratory physician or Respiratory Nurse Specialist (refer as appropriate)
- Therapy optimised

Outcome Assessments for Trials of Treatments

- Start the patient at level appropriate to their lung function and symptoms.
- All trials of treatment must be assessed with both objective and subjective outcome measures.
- If neither an objective nor subjective improvement noted the treatment should be discontinued.
- If symptoms persist then continue down the pathway until optimum therapy established.
- At any stage of the pathway if symptoms are controlled then optimum therapy has been established.
- If little or no response to treatment consider concurrent or alternative diagnosis.
- Provide a written self-management plan to all patients with contact number.

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N.B. OXYGEN PRESCRIBING WILL CHANGE IN 2006

Long Term Oxygen Therapy (LTOT) (Concentrator)

Criteria

- Diagnosis of COPD
- Breathless at rest or on exertion
- Refer to the hospital for assessment
- If SaO_2 <92% on room air at rest when condition stable or 6 weeks post exacerbation. **Arterial or Earlobe Blood Gas Sample obtained**
- PaO_2 <7.3kPa (or with right-sided heart failure <8kPa) on room air at rest when condition stable or 6 weeks post exacerbation
- Obtain informed consent and complete order form

  NB Back-up cylinder will be required for emergency use if electrical power failure or concentrator break-down

Assessment

- Overnight assessment on the Medical Investigation Unit to establish appropriate percentage and flow rate

High Usage PRN Oxygen Therapy (Concentrator)

Criteria

- Diagnosis of severe COPD, FEV_1 <30%
- Breathless at rest
- Refer to the hospital for assessment
- If SaO_2 >92% on room air at rest when condition stable or 6 weeks post exacerbation. **Arterial Blood Gas (ABG) Sample obtained to identify CO_2 levels**
- PaO_2 >7.3kPa (or with right-sided heart failure >8kPa) on room air at rest when condition stable or 6 weeks post exacerbation
- Using more than 5 cylinders of oxygen per month
- Unable to tolerate even short periods without oxygen
- Obtain informed consent and refer to the fire brigade

  NB Back-up cylinder will be required for emergency use if electrical power failure or concentrator break-down

Assessment

- Overnight assessment on the Medical Investigation Unit to establish appropriate percentage and flow rate

Guidelines for O_2 assessment will be circulated when available

LTOT / High Use PRN Oxygen Therapy

Back-up cylinder will be required for emergency use if electrical power cut or concentrator breakdown

Differentiating Between LTOT and High Use PRN Oxygen Therapy

Long Term Oxygen Therapy (LTOT) is a term used for oxygen administered to hypoxic patients (PaO_2 <7.3kPa) for a minimum of 15 hours per day. Some patients may benefit from improved symptoms and others may benefit from extended life expectancy. High use PRN oxygen is administered to patients experiencing disabling breathlessness with PaO_2 above 7.3kPa.

Ambulatory Oxygen Assessment

Criteria

- Diagnosis of COPD
- Breathlessness on exertion when stable condition (6 weeks post exacerbation).
- Exercise oximetry proves significant desaturation (<90% for >30 seconds)
- Physical ability to mobilise
- Independently outside the house for more than 2 hours on more than 2 occasions a week
- SaO_2 >92% at rest, if 92% or below refer for LTOT assessment
- Assessment is required

PRN Oxygen Assessment

Criteria

- Diagnosis of COPD
- Breathlessness on exertion even when condition is stable (6 weeks post exacerbation).
- PaO_2 >92% at rest, if 92% or below assess for LTOT
- Assessment is required.
- Advise when to clean and replace mask / mouth-piece
- Advice sheet available
- Note that the evidence-base for PRN oxygen therapy is very weak at present
- Obtain informed consent and complete order form
- PRN O_2 not advised for patients who continue to smoke

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Hospital Referrals

All general referrals will be pooled to Respiratory Physicians. Nonetheless, referrals for patients with specific respiratory conditions will be passed onto the consultant physician with expertise in that area e.g. interstitial lung disease, cancer, TB, bronchiectasis, sleep apnoea.

Dr Ronan O'Driscoll
Clinical Director for Respiratory Medicine
Secretary : Kath Rayson - **206 5154**
Fax - **206 4328**

Dr Peter Turkington
Respiratory & General Medicine Consultant Physician
Secretary : Jane Browne - **206 5155**

Dr Murad Ghrew
Respiratory & Intensive Care Consultant Physician
Secretary : Jane Brown - **206 5155**

Dr Simon Taggart
Respiratory & General Medicine Consultant Physician
Secretary : Win Duffy - **206 4039**

Dr Paul Sullivan
Respiratory & Acute Medicine Consultant Physician
Secretary : Tina Smethurst - **206 2020**

Helen Pyne
Lead Respiratory Nurse & Advanced Practitioner
Telephone - **206 1604**
Bleep Number - **3496**

Norma Linaker, Vicky Sharples, Viv Johnson & Tom Woodrow
Respiratory Nurse Specialists
Telephone - **206 4423** Fax - **206 4691**

Elaine Myers
Respiratory Pharmacist.
Bleep Number - **3115**

Liz Bradshaw
TB Nurse Specialist.
Telephone - **0161 212 4167**

Jeanette Murray
Lung Cancer Nurse Specialists.
Telephone - **206 1498**

Melanie Bainbridge
Smoking Cessation.
Telephone - **0161 212 4050**

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