COPD MANAGEMENT IN PRIMARY CARE 2015.
Where are we now?
For your delight and delectation

• Why COPD?

• Patient-centred management

• What’s new in pharmacotherapy?
Why bother?
“Chronic bronchitis with accompanying emphysema is a disease on which a good deal of wholly unmerited attention is frequently spent.

It is a disease of the glutinous, bibulous, otiose, obese and requites a well deserved nemesis for those unlovely indulgences…..the majority of cases are undoubtedly due to surfeit and self-indulgence”

Williams 1925
COPD—the impact

29776 deaths in UK 2012 (British Lung Foundation)


Second Highest cause of hospital admissions in UK (NATIONAL COPD AUDIT 2008)
DIAGNOSIS OF COPD

• POSITIVE HISTORY

• EXAMINATION TO RULE OUT OTHER CAUSES (AND SEVERITY)

• (CXR)

• PRESENCE OF AIRFLOW OBSTRUCTION ON SPIROMETRY
WHAT IS AIRFLOW OBSTRUCTION?

POST-BRONCHODILATOR FEV-1/FVC RATIO <0.7 (20 mins post 4 x 100mcg salbutamol via MDI spacer)
Spirometry: Obstructive Disease

- FEV₁ = 1.8L
- FVC = 3.2L
- FEV₁/FVC = 0.56

© 2015 Global Initiative for Chronic Obstructive Lung Disease
Bert is a 61 year–old refuse collector who still smokes 20 cigarettes per day. He is hypertensive (on Losartan 50mg od) and was diagnosed as having COPD 2 years ago by post-bd spirometry (post bd FEV1/FVC 65%) and FEV-1=2.5 (75% predicted). He is on salbutamol prn via MDI.

He has found he is more short of breath going uphill in the last month and occasionally feels his heart racing. He has no chest pain.

ECG shows Atrial fibrillation, ventricular rate 108.
CXR: Enlarged heart.
FEV-1=2.2 (71% predicted)
U&E, FBC, BNP, TFT ....normal.

WHAT IS YOUR MANAGEMENT?
Management of stable COPD

Assess symptoms/problems - Manage those that are present as below

Patients with COPD should have access to the wide range of skills available from a multidisciplinary team

<table>
<thead>
<tr>
<th>Smoking</th>
<th>Breathlessness and exercise limitation</th>
<th>Frequent exacerbations</th>
<th>Respiratory failure</th>
<th>Cor pulmonale</th>
<th>Abnormal BMI</th>
<th>Chronic productive cough</th>
<th>Anxiety and depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Offer help to stop smoking at every opportunity*&lt;br&gt;* Combine pharmacotherapy with appropriate support as part of a programme*</td>
<td><em>Optimise inhaled therapy using the algorithm (2a) below</em>&lt;br&gt;<em>If still symptomatic consider adding theophylline</em>&lt;br&gt;<em>Offer pulmonary rehabilitation to all patients who consider themselves functionally disabled (usual MRC grade 3 and above) including those who have had a recent hospitalisation for an exacerbation</em>&lt;br&gt;<em>Consider referral for surgery: bullectomy, LVRS, transplantation</em></td>
<td><em>Offer annual influenza vaccination</em>&lt;br&gt;<em>Offer pneumococcal vaccination</em>&lt;br&gt;<em>Give self-management advice</em>&lt;br&gt;<em>Optimise bronchodilator therapy using the algorithm (2a) below</em></td>
<td><em>Assess for appropriate oxygen: LTOT - ambulatory - short burst</em>&lt;br&gt;<em>Consider referral for assessment for long-term domiciliary NIV</em></td>
<td><em>Assess need for oxygen</em>&lt;br&gt;<em>Use diuretics</em></td>
<td><em>Refer for dietetic advice</em>&lt;br&gt;<em>Refer to ‘Nutrition support in adults’ (NICE clinical guideline 32)</em>&lt;br&gt;<em>Give nutritional supplements if the BMI is low</em></td>
<td><em>Consider trial of mucolytic therapy</em>&lt;br&gt;<em>Continue if symptomatic improvement</em></td>
<td><em>Be aware of anxiety and depression and screen for them in those most physically disabled</em>&lt;br&gt;<em>Refer to ‘Depression in Adults with a Chronic Physical Health Problem’ (NICE clinical guideline 91)</em></td>
</tr>
</tbody>
</table>

Palliative care

Opiates should be used when appropriate for the palliation of breathlessness in patients with end-stage COPD unresponsive to other medical therapy<br>Use benzodiazepines, tricyclic antidepressants, major tranquillisers and oxygen when appropriate<br>Involve multidisciplinary palliative care teams


## Patient-Centred Management of Stable COPD in Primary Care

### ALL PATIENTS

<table>
<thead>
<tr>
<th>Smoking cessation advice</th>
<th>Exercise promotion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient education/self management</td>
<td>Pneumococcal vaccination</td>
</tr>
<tr>
<td>Assess co-morbidity,</td>
<td>Annual influenza vaccination</td>
</tr>
<tr>
<td>ASSESS BMI: Dietary Advice &gt;25</td>
<td>Specialist Dietary Referral if BMI &lt;20</td>
</tr>
</tbody>
</table>

### SYMPTOMS?  

**BREATHLESSNESS**
- Short acting bronchodilators (beta agonist/anticholinergic) for relief of symptoms.

**PERSISTENT SYMPTOMS**
- See pharmacotherapy Algorithm

**PRODUCTIVE COUGH**
- Consider mucolytics

### FUNCTIONAL LIMITATION?  

- MRC score ≥ 3
  - Optimise pharmacotherapy (see algorithm)
  - Offer pulmonary rehabilitation
  - Screen for anxiety/depression

### EXACERBATIONS?  

- (Oral steroids/antibiotics/Hospital admissions)
  - Optimise pharmacologic therapy
  - Discuss action plans including use of standby oral steroids and antibiotics

### HYPOXIA?  

- Oxygen saturation < 92% at rest in air)
  - FEV-1 < 30%
  - Predicted
  - Refer for oxygen assessment

### HOLISTIC CARE  

- Check social Support (e.g. carers and benefits)
- Treat co-morbidities.
- Consider Palliative therapy or secondary Care referral for Resistant symptoms
- Refer to specialist Palliative care teams For end-of-life care.

### ALL PATIENTS

- Smoking cessation advice
- Patient education/self management
- Assess co-morbidity,
- ASSESS BMI: Dietary Advice >25

### EXACERBATIONS?

- (Oral steroids/antibiotics/Hospital admissions)
  - Optimise pharmacologic therapy
  - Discuss action plans including use of standby oral steroids and antibiotics

### HYPOXIA?

- Oxygen saturation < 92% at rest in air)
  - FEV-1 < 30%
  - Predicted
  - Refer for oxygen assessment

### HOLISTIC CARE

- Check social Support (e.g. carers and benefits)
- Treat co-morbidities.
- Consider Palliative therapy or secondary Care referral for Resistant symptoms
- Refer to specialist Palliative care teams For end-of-life care.
## Patient-Centred Management of Stable COPD in Primary Care

### ALL PATIENTS

- Smoking cessation advice
- Exercise promotion
- Patient education/self management
- Pneumococcal vaccination
- Assess co-morbidity
- Annual influenza vaccination
- ASSESS BMI: Dietary Advice >25
- Specialist Dietary Referral if BMI <20

### SYMPTOMS?

- **BREATHLINESS**
  - Short acting bronchodilators (beta agonist/anticholinergic) for relief of symptoms.

### PERSISTENT SYMPTOMS

- See pharmacotherapy Algorithm

### PRODUCTIVE COUGH

- Consider mucolytics

### FUNCTIONAL LIMITATION ?

- **MRC score > 3**
  - Optimise pharmacotherapy (see algorithm)
  - Offer pulmonary rehabilitation
  - Screen for anxiety/depression

### EXACERBATIONS?

- **(Oral steroids/antibiotics/Hospital admissions)**
  - Optimise pharmacologic therapy
  - Discuss action plans including use of standby oral steroids and antibiotics

### HYPOXIA?

- Oxygen saturation < 92% at rest in air)
  - FEV-1 < 30% Predicted

### HOLISTIC CARE

- Check social Support (e.g. carers and benefits)
  - Treat co-morbidities.

- Consider Palliative therapy or secondary Care referral for Resistant symptoms

- Refer to specialist Palliative care teams For end-of-life care.

### ALL PATIENTS

- Smoking cessation advice
- Exercise promotion
- Patient education/self management
- Pneumococcal vaccination
- Annual influenza vaccination
- Specialist Dietary Referral if BMI <20

### ASSESS BMI:

- **Dietary Advice >25**
- **Specialist Dietary Referral if BMI <20**

### SYMPTOMS?

- **BREATHLINESS**
  - Short acting bronchodilators (beta agonist/anticholinergic) for relief of symptoms.

### PERSISTENT SYMPTOMS

- See pharmacotherapy Algorithm

### PRODUCTIVE COUGH

- Consider mucolytics

### FUNCTIONAL LIMITATION ?

- **MRC score > 3**
  - Optimise pharmacotherapy (see algorithm)
  - Offer pulmonary rehabilitation
  - Screen for anxiety/depression

### EXACERBATIONS?

- **(Oral steroids/antibiotics/Hospital admissions)**
  - Optimise pharmacologic therapy
  - Discuss action plans including use of standby oral steroids and antibiotics

### HYPOXIA?

- Oxygen saturation < 92% at rest in air)
  - FEV-1 < 30% Predicted

### HOLISTIC CARE

- Check social Support (e.g. carers and benefits)
  - Treat co-morbidities.

- Consider Palliative therapy or secondary Care referral for Resistant symptoms

- Refer to specialist Palliative care teams For end-of-life care.
Cardiac drugs.

STATINS: Observational studies show reduce COPD-related exacerbations and mortality …Reuten et al BMJ 2011
? By reducing IL6 and MM9

BETA BLOCKERS:
Retrospective study. All Cause Mortality reduced by 22% and reduction in exacerbations. (Lipworth et al BMJ 2011)

Reduced Mortality after acute exacerbations(Dranesfield et al “Thorax 2008”)

It’s ok to use cardioselective beta blockers in COPD patients unless other contraindications.
Patient-Centred Management of Stable COPD in Primary Care

**ALL PATIENTS**
- Smoking cessation advice
- Patient education/self management
- Assess co-morbidity,
- Assess BMI: Dietary Advice >25
- Exercise promotion
- Pneumococcal vaccination
- Annual influenza vaccination
- Specialist Dietary Referral if BMI <20

**SYMPTOMS?**
- BREATHLESSNESS
  - Bronchodilators (See algorithm)
- PRODUCTIVE COUGH
  - Consider mucolytics
Managing stable COPD: inhaled therapies

Breathlessness and exercise limitation

SABA or SAMA as required*

**FEV₁ ≥ 50%**
- LABA
- Discontinue SAMA
  - Offer LAMA in preference to regular SAMA four times a day
**FEV₁ < 50%**
- LABA + ICS in a combination inhaler
  - Consider LABA + LAMA if ICS declined or not tolerated
- LAMA
  - Discontinue SAMA
  - Offer LAMA in preference to regular SAMA four times a day

Exacerbations or persistent breathlessness

Persistent exacerbations or breathlessness

LABA + ICS in a combination inhaler
  - Consider LABA + LAMA if ICS declined or not tolerated

- LABA + LAMA + ICS in a combination inhaler

* SABAs (as required) may continue at all stages
The Goal of COPD Management is:

Overall COPD Control

- Improving Current Control defined by:
  - Symptom Improvement
  - Improvement in Health Status
  - Reduction in co-morbidity
  - Activity Improvement

- Reducing Future Risk defined by:
  - Reduction in mortality
  - Reduction in Exacerbations
  - Reduction in lung function decline
  - Reduction in Treatment adverse effects
Combined Assessment of COPD

- **Risk** (GOLD Classification of Airflow Limitation)
  - 4
  - 3
  - 2
  - 1

- **Symptoms**
  - CAT < 10
  - (A)
  - (B)
  - (C)
  - (D)

- **Breathlessness**
  - mMRC 0–1
  - mMRC ≥ 2

- **Exacerbation history**
  - ≥ 2
  - or
  - ≥ 1 leading to hospital admission
  - 1 (not leading to hospital admission)
  - 0

© 2015 Global Initiative for Chronic Obstructive Lung Disease
# MRC Dyspnoea Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Degree of breathlessness related to activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not troubled by breathlessness except on strenuous activities</td>
</tr>
<tr>
<td>2</td>
<td>Short of breath when hurrying or walking up a slight hill</td>
</tr>
<tr>
<td>3</td>
<td>Walks slower than contemporaries on level ground because of breathlessness, or has to stop for breath when walking at own pace.</td>
</tr>
<tr>
<td>4</td>
<td>Stops for breath after walking about 100m or after a few minutes on level ground</td>
</tr>
<tr>
<td>5</td>
<td>Too Breathless to leave the house, or breathless when dressing or undressing.</td>
</tr>
</tbody>
</table>
COPD Assessment Test

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

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

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

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

I never cough
I cough all the time

I have no phlegm (mucus) in my chest at all
My chest is completely full of phlegm (mucus)

My chest does not feel tight at all
My chest feels very tight

When I walk up a hill or one flight of stairs I am not breathless
When I walk up a hill or one flight of stairs I am very breathless

I am not limited doing any activities at home
I am very limited doing activities at home

I am confident leaving my home despite my lung condition
I am not at all confident leaving my home because of my lung condition

I sleep soundly
I don’t sleep soundly because of my lung condition

I have lots of energy
I have no energy at all

COPD Assessment Test and the CAT logo are trademarks of the GlaxoSmithKline group of companies. © 1999-2014 glaxosmithkline. All rights reserved.

www.catestonline.co.uk
Global Strategy for Diagnosis, Management and Prevention of COPD

Manage Stable COPD: Pharmacologic Therapy

RECOMMENDED FIRST CHOICE

Exacerbations per year

<table>
<thead>
<tr>
<th>GOLD 4</th>
<th>C</th>
<th>ICS + LABA or LAMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOLD 3</td>
<td>D</td>
<td>ICS + LABA and/or LAMA</td>
</tr>
<tr>
<td>GOLD 2</td>
<td>A</td>
<td>SAMA prn or SABA prn</td>
</tr>
<tr>
<td>GOLD 1</td>
<td>B</td>
<td>LABA or LAMA</td>
</tr>
</tbody>
</table>

CAT < 10 mMRC 0-1
CAT ≥ 10 mMRC > 2

2 or more or ≥ 1 leading to hospital admission
1 (not leading to hospital admission)
0

© 2015 Global Initiative for Chronic Obstructive Lung Disease
Long-acting Beta-2 Agonists
LABA

Indacaterol

Olodaterol
Long-acting muscarinic agents
LAMA

*Spiriva’*
(Tiotropium) via ‘Respimat” 2X2.5mcg od/18mcg via “Handihaler”
£33.50

“Eklira Genuair”
Aclidinium 322mcgbd
£28.60

“Seebrí Breezhaler”
Glycoprronium 50mcgbd
£27.50

“Incruse Ellipta
Umeclidinium 55mcg od
£27.50

**M.D.I.**
Metered –dose inhaler

**D.P.I.**
Dry powdered Inhalers
LABA/LAMA
Long-acting Beta-1 agonist/Long-acting anti-muscarinic agent

“Anoro Ellipta”
Vilanterol 22/
Umeclidinium 55
1 pf od
£32.50

“Duaklir Genuair”
Formoterol
12mcg/
Aclidinium 340
mcg bd
£32.50

“Ultibro Breezhaler”
Indacaterol110mcg/
Glycopyrronium 50mcg od
£32.50

“Spiolto Respimat”
Tiotropium 2.5mcg
Olodaterol 2.5mcg
1 pf od
£32.50

£32.50

M.D.I
Metered-dose inhaler.

D.P.I. Dry-powdered Inhaler
What more do you get for your buck?

LABA +LAMA

v

LABA or LAMA

Less breathless
e.g TDI (NS)

Improved FEV-1
70-100ml

Improved QoL (NS)
SYMPTOM PREDOMINANT, LOW RISK

(FeV-1 ≥50%/<2 exacerbations/yr)

- Intermittent symptoms: SABA
- Persistent symptoms:
  - SABA + LAMA (or LABA)
  - SABA + LABA/ICS + LAMA
- (plus exacerbations): LABA/ICS + LAMA
Check Inhaler technique!
FRED

Fred is a 65 year old assembly worker at a local car factory who gave up smoking 30 cigarettes per day 3 years ago when he was diagnosed as having COPD. Over the winter he has 2 chest infections treated with oral antibiotics and oral steroids but his cough (productive with yellowish sputum) has never really gone away. He has also had to give up playing golf because of worsening shortness of breath and feels fed up because of this.

He suffers from rhinitis but is otherwise well.

He is on Seretide 500mcg bd via “Accuhaler”, salbutamol prn and Aclidinium 322 mcg bd via “Genuair”
On examination oxygen saturations 91% at rest, scattered crackles lung bases, no abnormal cardiovascular signs.

BMI = 21. Fev-1 = 1.3. (43% predicted)

THOUGHTS PLEASE!
THE LUNGS
Lung cancer

RR lung cancer 2.22 in COPD patients. 1.49 for never smokers with COPD (Brenner et al PLoS One 2011)

Look for red flag symptoms
Exacerbations which fail to resolve to baseline and repeated exacerbations
Lung Disorders.

Pneumonia: Increased risk with ICS/LABA RR=1.63 (Rodrigo et al CHEST 2009)

Asthma: Characteristic symptoms and FEV-1 response >400ml to Beta agonist

BRONCHIECTASIS:  
25% patients in primary care with COPD? 
Beware the recurrent bronchitic with crackles 
Diagnose with HRCT.
**FUNCTIONAL LIMITATION?**

- MRC score $> 3$

  - Optimise pharmacotherapy (see algorithm)
  - Offer pulmonary rehabilitation
  - Screen for anxiety/depression

**ALL PATIENTS**

- Smoking cessation advice
- Patient education/self management
- Assess co-morbidity
- ASSESS BMI: Dietary Advice $>25$, Specialist Dietary Referral if BMI $<20$

**Exercise promotion**

- Pneumococcal vaccination
- Annual influenza vaccination

“Pulmonary Rehabilitation should be made available to all appropriate people with COPD including those who have had a recent hospitalisation or exacerbation”

1. During the last month have you often been bothered by feeling down, depressed or helpless?
2. During the last month have you often been bothered by having little interest or pleasure in doing things?
HIGHER RISK
FEV-1 < 50%/ 2 or more exacerbations in year.

SABA + ICS/LABA (or LAMA)

Persistent exacerbations / Worsening symptoms

SABA + ICS/LABA + LAMA
ICS/LABA

Inhaled corticosteroid/Long-acting Beta-1 agonist

M.D.I.
Metered –
dose inhaler

D.P.I. (Dry –
powdered inhaler)

“Fostair”
BDP
100mcg/FOR
M 6mcg 2 pfs
bd
£29.32

“Seretide”
BUD
500
FP
400mcg/FOR
M 12mcg bd
£38.00

“Symbicort”
BUD
M 50mcg bd
£40.92

Duoresp
Spiromax
BUD
160cg/form
4.5 mcg
2 pfs bd
£29.97

Relvar Ellipta
FF
92mcg/Vilant.
22mcg od
£27.80
ICS/LABA or LAMA?

Vilanterol 25mcg/Fluticasone furorate 50mcg more effective in reducing exacerbations than Vilanterol alone if blood eosinophil count > 2%  
*Pascoe S et al Lancet Resp Med 2015*
# Patient-Centred Management of Stable COPD in Primary Care

<table>
<thead>
<tr>
<th><strong>All Patients</strong></th>
<th><strong>Exercise promotion</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking cessation advice</td>
<td>Pneumococcal vaccination</td>
</tr>
<tr>
<td>Patient education/self management</td>
<td>Annual influenza vaccination</td>
</tr>
<tr>
<td>Assess co-morbidity</td>
<td>Specialist Dietary Referral if BMI &lt;20</td>
</tr>
</tbody>
</table>

**HYPOXIA?**

- Oxygen saturation < 92% at rest in air
- FEV-1 < 30%
- Predicted

Refer for oxygen assessment
Meg is a 75 year old retired school teacher, who lives alone in a small house and who was diagnosed with COPD 15 years ago when she was still smoking 20 cigarettes per day. She managed to give up smoking 10 years ago at the time of a gallbladder operation and remained well until 2 years ago when she had several exacerbations of her COPD needing oral steroids/antibiotics, one requiring hospital admission.

She has been admitted to hospital three times in the last 6 months with infective exacerbations of her COPD. No other pathology was found.
MEG

You review her in the Surgery 2 weeks after her latest admission

Oxygen sats 91%, looks thin and withdrawn (BMI 18) FeV-1=0.6 (28% predicted)

What are the issues?
**Patient-Centred Management of Stable COPD in Primary Care**

### All Patients

- Smoking cessation advice
- Patient education/self management
- **Assess co-morbidity**

**ASSESS BMI:**
- Dietary Advice $>25$
- Specialist Dietary Referral if BMI $<20$

### Holistic Care

- Check social support (e.g. carers and benefits)
- **Treat co-morbidities.**
- Consider Palliative therapy or secondary Care referral for Resistant symptoms

### Considerations

1. FEV-1 $<30\%$
2. Recurrent Hospital admissions
3. for acute COPD.
4. Housebound
5. BMI $<20$
6. On LTOT

Would you be surprised if this patient died within the next year? (6 months)
**All Patients**

Smoking cessation advice

Patient education/self management

Assess co-morbidity

ASSESS BMI: Dietary Advice >25, Specialist Dietary Referral if BMI <20

**Supportive Care**

Check social support (e.g. carers and benefits)

Treat co-morbidities.

Consider Palliative therapy or secondary Care referral for Resistant symptoms

Refer to specialist Palliative care teams For end-of-life care.

**Consider Palliative Care:**
- After hospital admission
- Become Housebound
- Advanced symptom and support needs
### Patient-Centred Management of Stable COPD in Primary Care

#### All Patients

- Smoking cessation advice
- Exercise promotion
- Patient education/self management
- Pneumococcal vaccination
- Assess co-morbidity
- Annual influenza vaccination
- ASSESS BMI: Dietary Advice >25, Specialist Dietary Referral if BMI <20

#### Symptoms?

<table>
<thead>
<tr>
<th>Breathelessness</th>
<th>Functional Limitation?</th>
<th>Exacerbations?</th>
<th>Hypoxia?</th>
<th>Holistic Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short acting bronchodilators (beta agonist/anticholinergic) for relief of symptoms.</td>
<td>MRC score ≥ 3</td>
<td>(Oral steroids/antibiotics/Hospital admissions)</td>
<td>Oxygen saturation &lt; 92% at rest in air)</td>
<td>Check social Support (e.g. carers and benefits)</td>
</tr>
<tr>
<td>Persistent Symptoms</td>
<td>Optimise pharmacotherapy (see algorithm)</td>
<td>Optimise pharmacologic therapy</td>
<td>FEV-1 &lt; 30% Predicted</td>
<td>Treat co-morbidities.</td>
</tr>
<tr>
<td>See pharmacotherapy Algorithm</td>
<td>Offer pulmonary rehabilitation</td>
<td>Discuss action plans i including use of standby oral steroids and antibiotics</td>
<td></td>
<td>Consider Palliative therapy or secondary Care referral for Resistant symptoms</td>
</tr>
<tr>
<td>Productive Cough</td>
<td>Screen for anxiety/depression</td>
<td>Refer for oxygen assessment</td>
<td></td>
<td>Refer to specialist Palliative care teams For end-of-life care.</td>
</tr>
<tr>
<td>Consider mucolytics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Holistic Care

- PCRS-UK 2012
The cornerstone of COPD management is non-pharmacological and patient-centred.

The Goal of management is to optimise current control and reduce future risk and pharmacotherapy should be tailored to this.

Remember to check compliance and inhaler technique before stepping up.
BRONCHIECTASIS

IDIOPATHIC (50%)
Middle-aged, non-smoker, female with chronic rhinosinusitis, presenting with chronic productive cough, tiredness, difficulty concentrating

SECONDARY DAMAGE
Infectious. e.g. whooping cough, viral Mucociliary defect, e.g. cystic fibrosis. Autoimmune....association with inflammatory bowel and joint disease and with Allergic bronchopulmonary Aspergillosis.
Investigations for bronchiectasis in primary care

Spirometry

Chest X ray

? Evidence of CF, arthritis, IBD,

Autoimmune screen,
Immunoglobulins, serum electrophoresis, Aspergillus specific IgE.

Refer? HRCT.

NB CT scan delivers 8mSv and confers risk of fatal cancer in 1 in 2500
Bronchiectasis: management

PREVENT FURTHER DAMAGE
(Treat the underlying cause if possible)

MAXIMISE FUNCTION
AND QUALITY OF LIFE

PREVENT AND TREAT
EXACERBATIONS
Bronchiectasis: management

**PHYSIOTHERAPY** .......Postural drainage, cough augmentation, Breathing exercises, nebulised saline, Active cycle of breathing

**TREAT INFECTIONS** ...take sputum sample and get it to lab within 3-4 hours. Looking for “Pseudomonas Aerigunosa” Treat with Amoxicillin 500mg tds or Clarithromycin 500mg for 14 days or Ciprofloxacin 500mg bd. If ≥ 3 exacerbations per year consider prophylactic antibiotics.

**TREAT CO-MORBIDITY**: COPD, Rhinosinusitis.
Azithromycin 500mg 3 times weekly in patients with one or more exacerbations per year reduced exacerbation...rate ratio 0.38 (95% CI 0.26-0.54)
Wang et al Lancet 2012

Azithromycin 250mg od over 12 months in patients ≥ 3 exacerbations/yr reduced median exacerbations median 2 (IQR1-3) to 0 (IQR 0-1)
BUT macrolide resistance 88% and GI symptoms 40%
Attenberg et al JAMA 2013