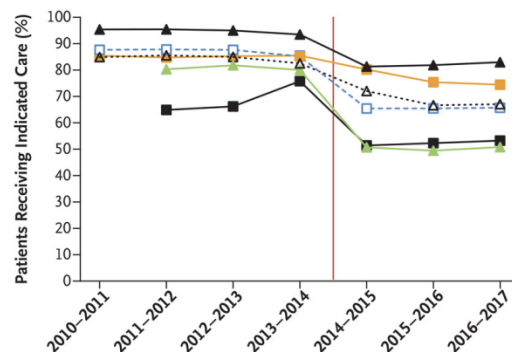


COPD – NICE / GOLD – moving
forward with two guidelines and
some clinical tips from the specialist
community

Dr Robert Stone

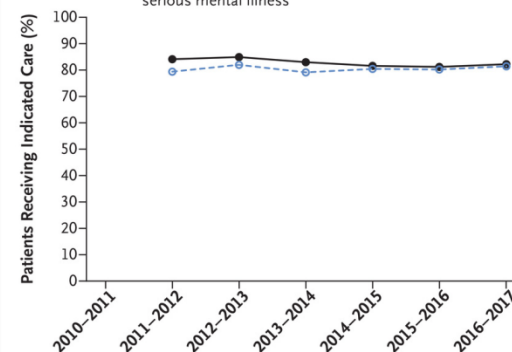
A Clinical-Process Indicators, Incentives Removed

- ▲ Thyroid function tested in patients with hypothyroidism
- Smoking status documented in all adults
- ▲ Diabetes retinopathy screening documented
- Cholesterol tested in patients with stroke or TIA
- ▲ Body-mass index documented in patients with serious mental illness
- Glycated hemoglobin tested in patients with serious mental illness



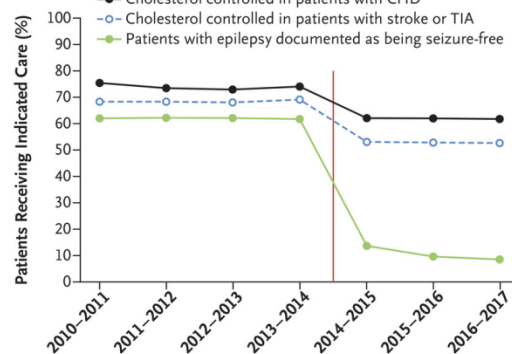
B Clinical-Process Indicators, Incentives Maintained

- Blood pressure documented in patients with serious mental illness
- Alcohol consumption documented in patients with serious mental illness



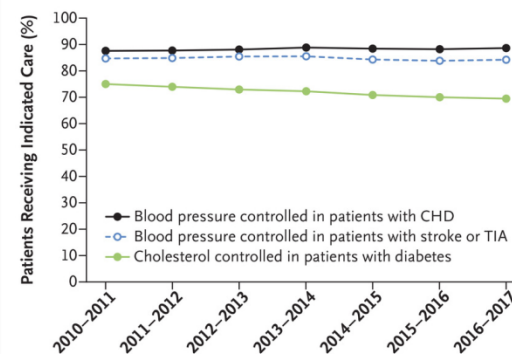
C Intermediate-Outcome Indicators, Incentives Removed

- Cholesterol controlled in patients with CHD
- Cholesterol controlled in patients with stroke or TIA
- Patients with epilepsy documented as being seizure-free



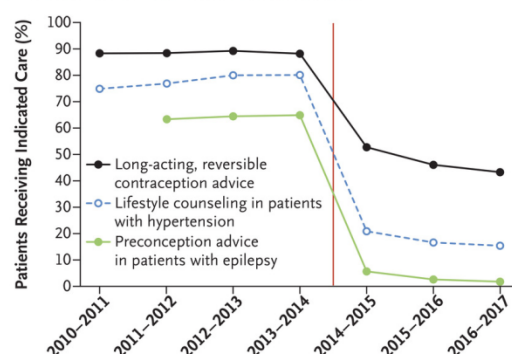
D Intermediate-Outcome Indicators, Incentives Maintained

- Blood pressure controlled in patients with CHD
- Blood pressure controlled in patients with stroke or TIA
- Cholesterol controlled in patients with diabetes



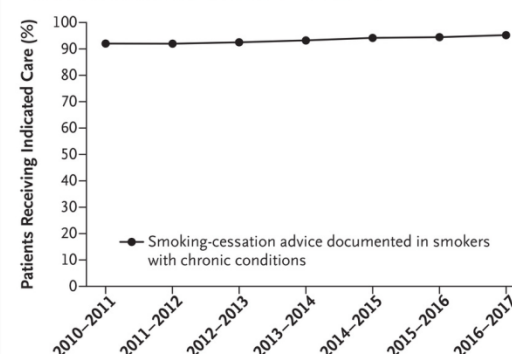
E Health-Advice Indicators, Incentives Removed

- Long-acting, reversible contraception advice
- Lifestyle counseling in patients with hypertension
- Preconception advice in patients with epilepsy



F Health-Advice Indicators, Incentives Maintained

- Smoking-cessation advice documented in smokers with chronic conditions



Outline

- A brief mention of the guidelines
- Managing the patient with COPD
- Some relevant information from the National COPD audit
- Some emergent information: lung growth profiles
- Take home messages

GOLD or NICE? NICE or GOLD?

Global Initiative for Chronic Obstructive Lung Disease



**GLOBAL STRATEGY FOR THE DIAGNOSIS,
MANAGEMENT, AND PREVENTION OF
CHRONIC OBSTRUCTIVE PULMONARY DISEASE**
2018 REPORT

DRAFT FOR CONSULTATION

**NATIONAL INSTITUTE FOR HEALTH AND CARE
EXCELLENCE**

Guideline

**Chronic obstructive pulmonary disease in over
16s: diagnosis and management**

Draft for consultation, July 2018

This guideline covers diagnosing and managing chronic obstructive pulmonary disease in people aged 16 and over. The 2018 update makes recommendations on the most effective inhaled therapies, oxygen therapies, lung volume reduction procedures, and self-management and exacerbation plans.

Who is it for?

- Healthcare professionals
- Commissioners and providers
- People with COPD, their families and carers

This guideline will update NICE guideline CG101 (published June 2010).

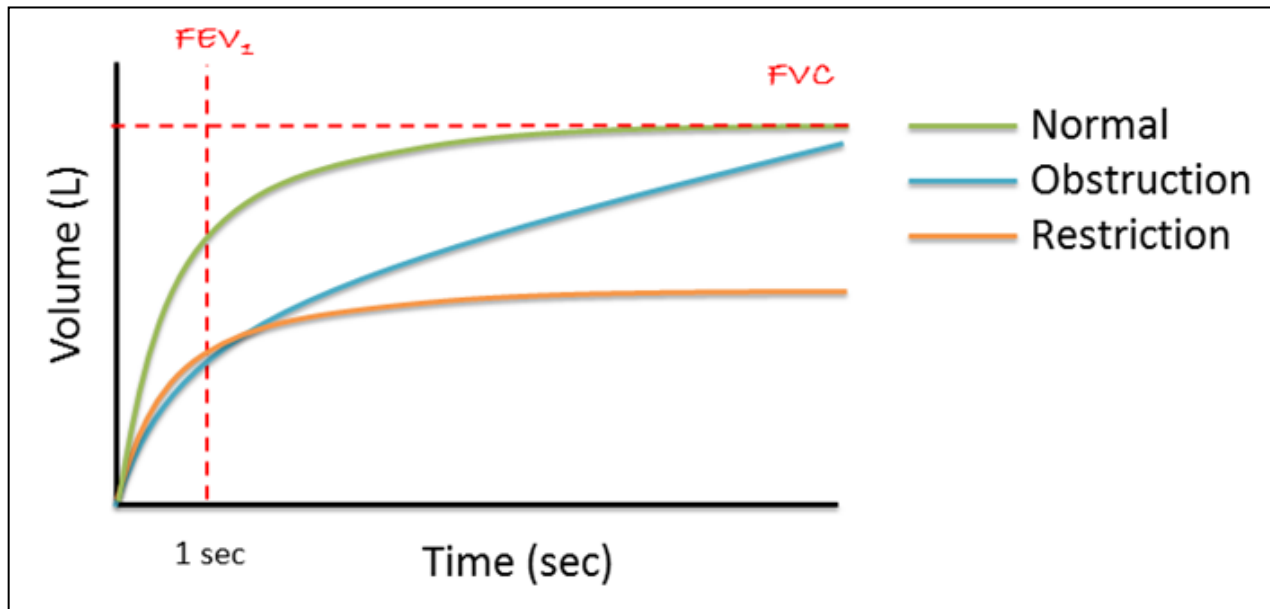
We have reviewed the evidence on diagnosis and prognosis, inhaled combination therapies, prophylactic antibiotics, oxygen therapy, managing pulmonary hypertension and cor pulmonale, lung surgery and lung volume reduction procedures, education, self-management and telehealth monitoring for COPD. You are invited to comment on the new and updated recommendations. These are marked as **[2018]**.

You are also invited to comment on recommendations that NICE proposes to delete from the 2010 guideline.

MANAGING THE PATIENT WITH COPD

Is it COPD?

- Risk factor(s)
- Symptoms
- Post-bronchodilator Spirometry





asthma



pollution



smoking

40+



age



chemical exposure



AAT deficiency



chronic bronchitis



How severe is it: physiology?

$FEV_1/FVC < 0.7$

- Mild
 - $FEV_1 > 80\%$
- Moderate
 - FEV_1 50-79%
- Severe
 - FEV_1 30-49%
- Very Severe
 - $FEV_1 < 30\%$

$FEV_1/FVC < 0.7$

- GOLD Stage 1
- GOLD Stage 2
- GOLD Stage 3
- GOLD Stage 4

How severe is it: symptoms?

Your name:

Today's date:



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 0 **X** 2 3 4 5 I am very sad

	0	1	2	3	4	5		SCORE
I never cough	0	1	2	3	4	5	I cough all the time	
I have no phlegm (mucus) in my chest at all	0	1	2	3	4	5	My chest is completely full of phlegm (mucus)	
My chest does not feel tight at all	0	1	2	3	4	5	My chest feels very tight	
When I walk up a hill or one flight of stairs I am not breathless	0	1	2	3	4	5	When I walk up a hill or one flight of stairs I am very breathless	
I am not limited doing any activities at home	0	1	2	3	4	5	I am very limited doing activities at home	
I am confident leaving my home despite my lung condition	0	1	2	3	4	5	I am not at all confident leaving my home because of my lung condition	
I sleep soundly	0	1	2	3	4	5	I don't sleep soundly because of my lung condition	
I have lots of energy	0	1	2	3	4	5	I have no energy at all	
TOTAL SCORE								

COPD Assessment Test and the CAT logo is a trade mark of the GlaxoSmithKline group of companies.
© 2006 GlaxoSmithKline group of companies. All rights reserved.
Last Updated: February 26, 2012

MRC DYSPNOEA SCALE (for COPD patients)

Grade	Impact
1	Not troubled by breathlessness except on vigorous exertion
2	Short of breath when hurrying or walking up inclines
3	Walks slower than contemporaries because of breathlessness, or has to stop for breath when walking at own pace
4	Stops for breath after walking about 100 m or stops after a few minutes' walking on the level
5	Too breathless to leave the house or breathless on dressing or undressing

What are the disease characteristics? (phenotyping)

- Exacerbation frequency?
 - Frequent
 - Infrequent
- Inflammatory/asthmatic features?
- Bronchitic or emphysematous profile?

Any co-morbidities?

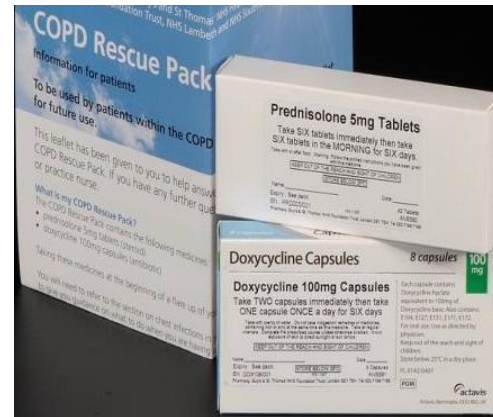
	National audit (13414)	
→ Alcohol-related condition	3%	456
→ Atrial Fibrillation	12%	1553
Cor pulmonale	3%	427
Dementia/confusion	4%	575
→ Diabetes	16%	2142
Hearing impairment	0.9%	124
→ Hypertension	31%	4215
→ Ischaemic heart disease	21 %	2798
Kidney disease	7%	916
Left Heart failure (LVF)	6%	845
Locomotor problems	11%	1517
Lung cancer	2%	335
→ Mental health disorder	11%	1447
Neurological condition	5%	725
→ Osteoporosis	7%	949
Stroke	7%	900
Thromboembolic disease (pE, DVT)	4%	573
Visual impairment	2%	326
Other Respiratory disease	13%	1804
Other cardiovascular disease	11 %	1504
Other endocrine disorder	7%	891
→ Other gastro-intestinal condition	12%	1555
Other malignant disease	8%	1047

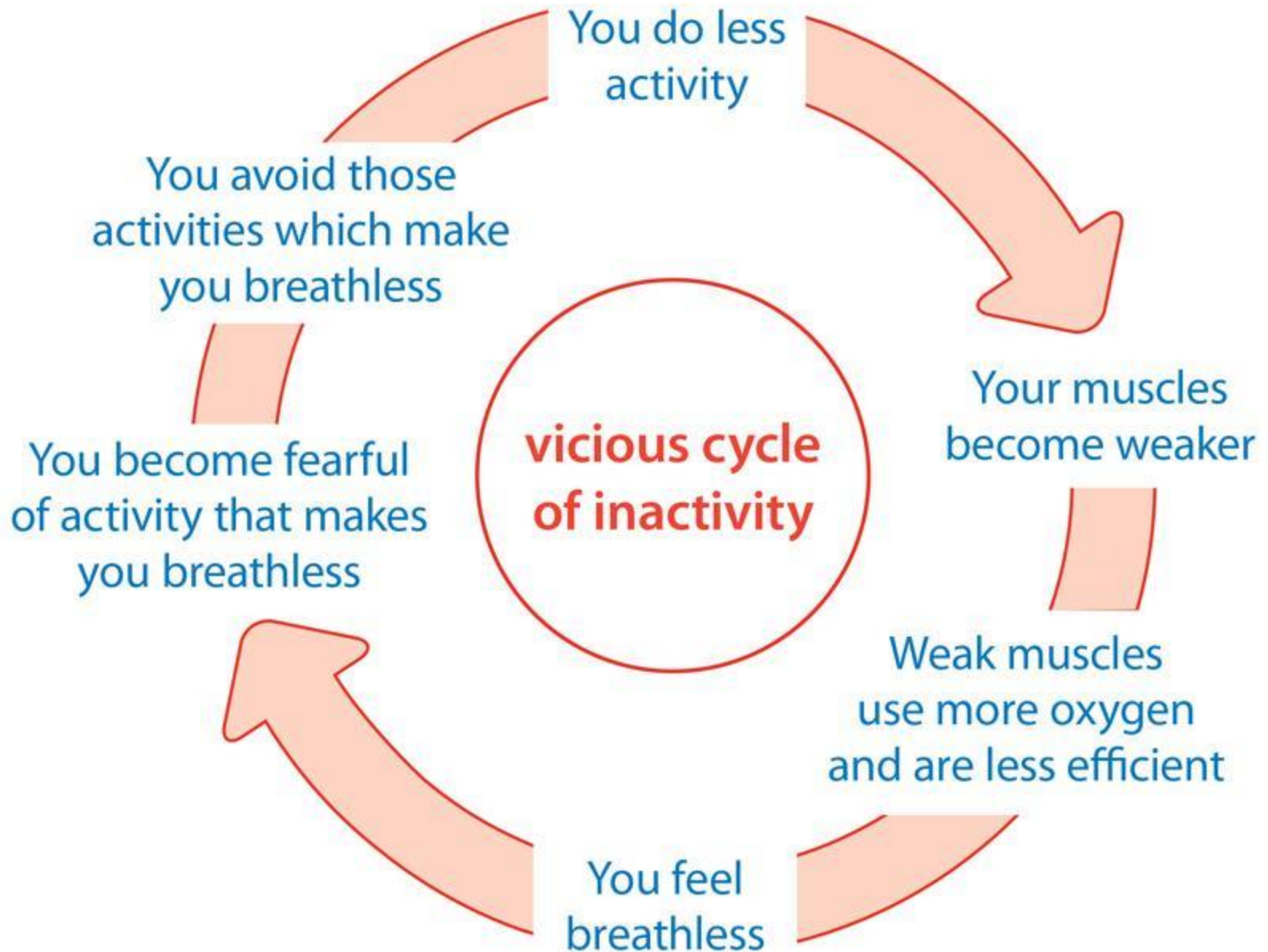
Treatment: what do I need to think about, even **BEFORE** the airways?

- High value interventions
 - Smoking Cessation
 - Pulmonary Rehabilitation
 - Vaccinations
- Nutrition
- Mental Health
- Bones
- Cardiovascular co-morbidities

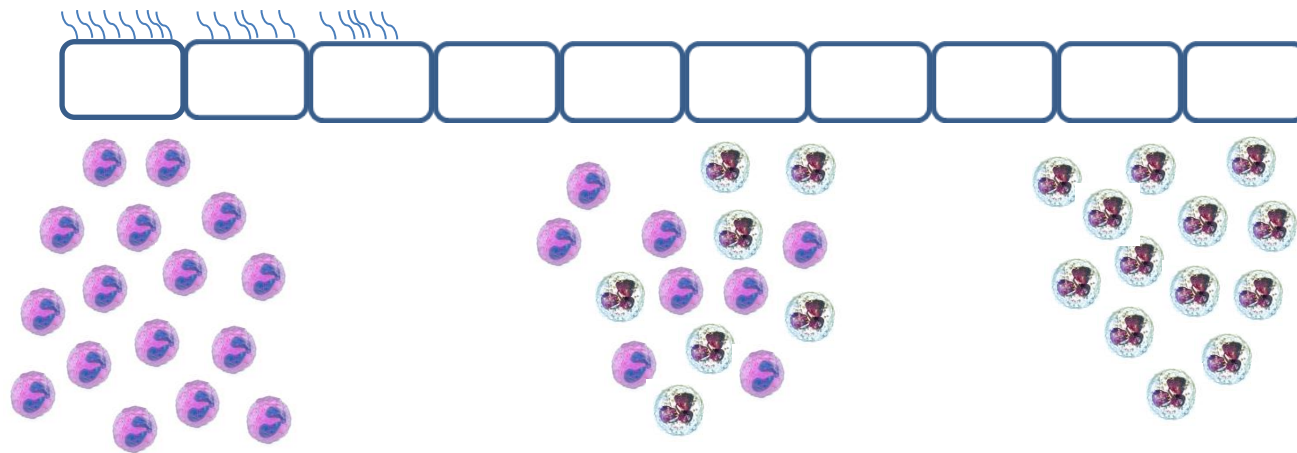
- Rescue medication/Exacerbation advice
- Keeping well advice
- Named contact

Top tips for keeping well!





Treating the airways: considering the inflammatory profile



Eosinophilic
Steroid response
Airways' hyper-reactivity
Dry cough
Asthma profile

Eosinophilic/Neutrophilic
Some steroid response
Mixed symptoms
Asthma/COPD profile

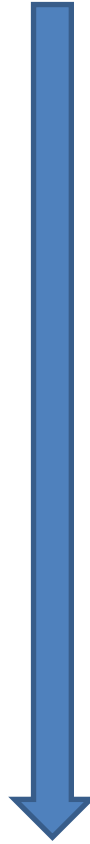
Neutrophilic
Poor steroid response
Bronchitic cough
'pure' COPD profile
(bronchitis/emphysema)



Treating the airways

Mild or moderate disease
Fewer symptoms
No Inflammatory Symptoms
Not eosinophilic
Infrequent exacerbations

More severe disease
More symptoms
Inflammatory Symptoms
Eosinophilic
Exacerbations



LAMA

Or

LAMA/LABA

LAMA/LABA

LAMA/LABA/ICS

Does my patient (still) need inhaled corticosteroids?

- Yes if:
 - Past/ongoing asthma
- Probably yes, if:
 - Inflammatory features
 - Eosinophils > 0.3
 - Advanced disease with frequent exacerbations
- Probably no, if:
 - No past/ongoing asthma
 - Mild/moderate disease
 - Few exacerbations
 - Eosinophils < 0.3

Should I/How should I withdraw this patient's ICS?

- Consider withdrawal if:
 - No prior/continuing asthma
 - Non-eosinophilic
- If withdrawing:
 - Do so slowly, reducing the ICS over several months
 - Monitor symptoms and exacerbation rate

What about exacerbations?

- Treatment duration?

- Long-term macrolides?

Somerset 2-page synopsis

SOMERSET RESPIRATORY PROGRAMME GROUP: HOLISTIC COPD MANAGEMENT



INITIAL NOTES: IT IS VERY IMPORTANT TO MANAGE COPD PATIENTS HOLISTICALLY – don't merely consider the airways	
Diagnosis and risk assessment	- Take a history and examine: in particular, note any prior history of asthma (will still need ICS) - Confirm poorly reversible airflow obstruction (FEV₁/FVC <70%, post-bronchodilator) - Stage airflow obstruction according to GOLD (mild/moderate, severe/very severe) or GOLD (GOLD 1/2, 3/4) - Note symptom impact using CAT score/MRC dyspnoea scale (see overview) - Note exacerbation frequency: infrequent <2, frequent >2 per annum; frequent exacerbators need enhanced care and surveillance (ie a minimum of 2 reviews per annum) - Bronchitis-predominant patients tend to run into problems with more frequent flare-ups - Note/manage co-morbidities robustly, especially CVS/heart failure, reflux, bones, psyche - Check ECG (AF), FBC, Vitamin D, CXR - FBC: note eosinophil count (see below)
General care of the COPD patient, including high value interventions	- Vaccinations: 'flu/pneumococcal polysaccharide vaccine (not conjugate adsorbed) - Offer referral to smoking cessation, a cost-effective TREATMENT for COPD - Offer pulmonary rehabilitation for MRC 3 and above or those who are symptomatic and disabled by their COPD; it has a strong evidence base in COPD, is highly cost-effective and underutilised - Promote self-care & an active lifestyle: all need a personalized plan with named contact - Encourage use of the British Lung Foundation COPD 989000 - Consider respiratory physiotherapy for sputum clearance and breathing technique advice - If BMI >30 or <20, dietary advice (Remember Vitamin D levels are often low in COPD) - Consider mental health - Consider bone and cardiovascular health - Consider benefits / social support / home adaptations - Ensure correct inhaler technique on prescribing and before changing inhaled medication.

INHALER MANAGEMENT:		
Assess need for, and response to, inhalers against symptoms and exacerbation profile Use objective measures of disease impact to assess response: CAT score, MRC dyspnoea scale, spirometry (FEV₁) Consider the other causes of breathlessness (including anxiety/depression) when reviewing your patient's inhaled treatment Trial inhalers for 8 weeks, using a device appropriate to the patient's capabilities (right Device, right Drug and right Dose?) Drug cautions: take care with muscarinic agents if dysrhythmia, recent MI/AF, glaucoma, prostate hyperplasia Steroid Card for those on high dose inhaled steroids (>= 1000 mcg BDP or equivalent a day)		
Confirm airflow obstruction, FEV ₁ /FVC < 70%	Infrequent exacerbator with symptoms (≤ 2 per annum)	Frequent exacerbator with symptoms (> 2 per annum)
Determine inhaled treatment according to symptom impact/response, exacerbation profile and disease severity (latter also important for prognosis) Mild to moderate COPD (GOLD I and II) FEV₁ > 50% predicted to > 80% predicted Severe to very severe COPD (GOLD III and IV) FEV₁ < 49% predicted to < 30% predicted	Start with SABA or SAMA if few symptoms Or start with LAMA LAMA/LABA if ineffective Consider LAMA/LABA/ICS if LAMA/LABA ineffective Review treatment response regularly and maintain without ICS if possible	Start with LAMA/LABA if no prior/coexistent asthma LAMA/LABA/ICS if poor response, coexistent asthma or persistent eosinophilia (> 0.3) Review treatment response regularly: if triple therapy of no apparent benefit, no prior or coexistent asthma, eosinophils < 0.3, consider tapering ICS to maintain on LAMA/LABA

EXACERBATIONS: aim to transform frequent into infrequent exacerbators. Treat frequent exacerbators for longer		
Antibiotics/prednisolone	Infrequent Exacerbator	Frequent Exacerbator
Start when increase in sputum/deteriorating SOB	Amoxicillin 500mg tds or Doxycycline 100mg od as 1 st line 5-7 days	Amoxicillin 500mg tds or Doxycycline 100mg od as 1 st line 10-14 days
Follow-up call/consult at 2 weeks	Clarithromycin, 500mg bd or co-trimoxazole, 960mg bd, 2 nd line or penicillin allergic 5-7 days	Clarithromycin, 500mg bd, or co-trimoxazole, 960mg bd, 2 nd line or penicillin allergic 10-14 days
	Prednisolone 30mg daily for 5-7 days	Prednisolone 30mg daily for 10 days

SELF CARE	
Ensure all patients have a self-care plan, a BLF Passport , breathlessness management advice, a named contact & have been considered for pulmonary rehab if > MRC 3	Managing Breathlessness

TIPS FOR MANAGING COPD: offer smoking cessation support and Pulmonary Rehabilitation at every opportunity

- What features in the history suggest COPD?
 - Slowly progressive breathlessness that varies little from day to day; cough and phlegm; a risk factor: most often, but not exclusively, smoking.
- What are the important features to note on examination?
 - BMI and muscle mass; does the chest appear emphysematous? Wet cough or difficulty expectorating (suggests bronchitic profile)? Features of right or left heart failure? Atrial fibrillation? Oedema (may be transient during exacerbation)? Risk factors for sleep disordered breathing (obese, large neck, Pickwickian profile - particularly common in bronchitis-predominant cases)?
- What are the best objective measures of respiratory health in COPD, and what about prognosis?
 - The CAT score gives a snapshot of disease and treatment impact; MRC score considers breathlessness alone; % predicted FEV₁ shows severity of airflow obstruction. Prognostication can be very hard in COPD; those with very frequent exacerbations, multiple hospital admissions, low BMI, home oxygen, high impact measures, respiratory failure and multi-morbidity do less well.
- What investigations should I do for a new patient?
 - Confirm the diagnosis by noting airflow obstruction (FEV₁/FVC <70%) post-bronchodilator; Note the MRC score and undertake a CAT score; Check saturation; CXR and QRSK2score (prognosis worse if there is CVS disease); Fbc (note eosinophils)/renal/glucose/cholesterol; Remember some may be Vitamin D deficient if poor exposure to sunlight. Consider A1AT if younger patient or non-tobacco smoking.
- How do I manage COPD?
 - Refer to smoking cessation
 - Vaccinations
 - Refer for pulmonary rehab (MRC >3)
 - Follow the guidance overview; remember it's not just about inhalers; treating the wider aspects of the disease, managing breathlessness and co-morbidities is especially important; airways care includes secretion management (carbocysteine/physio/adequate hydration) as well as bronchodilation; pay particular attention to CVS co-morbidities; do not shy from beta-blockers in COPD – they are cardio-protective; Think social, motivation, work and retirement, holidays, insurance (ie holistic care).
- What else do I need to think about?
 - Mood; bones; nutrition; rescue medication; self-care plan; enhanced surveillance (at least biannual for frequent exacerbators); is my patient on the right dose of ICS, or does my patient really need an ICS (see section below on inhaled steroids in COPD, a rapidly changing area of care)?
- What about pulmonary rehabilitation (PR)? THIS IS A GRADE A EVIDENCE-BASED, COST-EFFECTIVE AND UNDERUTILISED INTERVENTION
 - Service available across Somerset, so please use. More locally-based courses will run if sufficient patients are referred; PR reduces disease burden, improves health status/survival and reduces service demand; consider referring patients with grade **MRC 3** dyspnoea or above.
- What about nebulisers?
 - There is no nebuliser assessment service in Somerset; nebulisers largely superseded by newer long-acting bronchodilators; should only be prescribed from secondary care as part of a thorough COPD assessment. Nebulisers increase the risk of infection and cardiac arrhythmia.
- How do I separate asthma from COPD?
 - Asthma has variable symptoms and can be separated from COPD if there is a large (>200mls) increase in FEV₁ after a prednisolone or inhaled corticosteroid trial. But
- What about asthma and COPD, or the so-called asthma/COPD overlap syndrome (ACOS)?
 - Both asthma and COPD are common, and can therefore co-exist, and some patients with COPD develop or retain asthmatic features, for whom the term 'asthma/COPD overlap syndrome' has been coined; most patients with COPD should manage with bronchodilator inhalers alone, but those with both asthma/COPD, and those with eosinophilic COPD that exacerbates frequently, should have triple therapy with a combination LABA/LAMA/ICS inhaler (or LABA/ICS + LAMA combination). Do not attempt to withdraw inhaled steroids in asthma patients who go on to develop COPD. Do not use bronchodilators alone if there is suspected asthma.
- Does my COPD patient require an inhaled corticosteroid (ICS), and what about dose reduction/withdrawal in those already on treatment?
 - Patients with COPD or fixed airflow obstruction and a history of asthma should receive an ICS; though review the dose on a regular basis.
 - For newly-diagnosed COPD patients, use the guidance overview to steer initial treatment, but **review progress regularly**
 - Note, there is evidence to suggest that patients with an eosinophil count >0.3 have eosinophilic airways inflammation, and may benefit from ICS. It is therefore reasonable to use the eosinophil count as a pointer in predicting those who might **withdraw** from ICS
 - Patients who have an eosinophil count < 0.3 may be able to withdraw from ICS if there is no prior/coexistent asthma
 - For patients with established COPD already in receipt of ICS, consider whether the ICS component is necessary and if the dose is too high
 - Attempt a steroid reduction/withdrawal in patients where ICS isn't deemed necessary (generally non-eosinophilic disease and no history of asthma). Do so slowly over three months, and remember to ensure the patient remains on LABA/LABA therapy
 - Attempt a steroid reduction if the ICS is necessary but the dose is too high (>2000 mcg BDP equivalent per day). Again, do so slowly over three months or longer, eg to BDP equivalent of 800mcg daily, maintaining the bronchodilator component. Review regularly.
- What about oxygen?
 - Refer for LTOT assessment if saturation < 92% on 2 occasions at least 5 weeks out of exacerbation; consider ambulatory oxygen assessment if active but O₂ sats fall rapidly on exertion (typically in emphysema-predominant cases). Short burst (SBO): only consider if patient does not recover from exertional breathlessness within a few minutes and is medically optimized, including pulmonary rehabilitation.
- What about patients who still have repeated infections/bronchitic spells despite appropriate other treatment?
 - There is evidence that low-dose macrolide therapy is beneficial for some patients with repeated infections. Similarly, riflumilast, a PDE4 inhibitor, may help some patients with recalcitrant chronic bronchitis and severe disease. Refer for further advice.
- Which COPD patients should be referred to secondary care?
 - Unclear diagnosis; queries around treatment regimen; rapidly progressive disease; poor response to treatment; suspected cor pulmonale; unexplained respiratory failure; individual requests second opinion; suspected bulbar lung disease; assessment for lung volume reduction/transplantation; dysfunctional breathing; onset of symptoms under 40 or family history of alpha 1 antitrypsin deficiency; symptoms disproportionate to lung function deficit; frequent infections/suspected bronchiectasis/suitability for macrolides or riflumilast.

SOME USEFUL NUMBERS:

Musgrove Park COPD Team (THREADS): 01823 344756 or 07788728139, THREADS@tst.nhs.uk – happy to receive clinical and COPD management enquiries

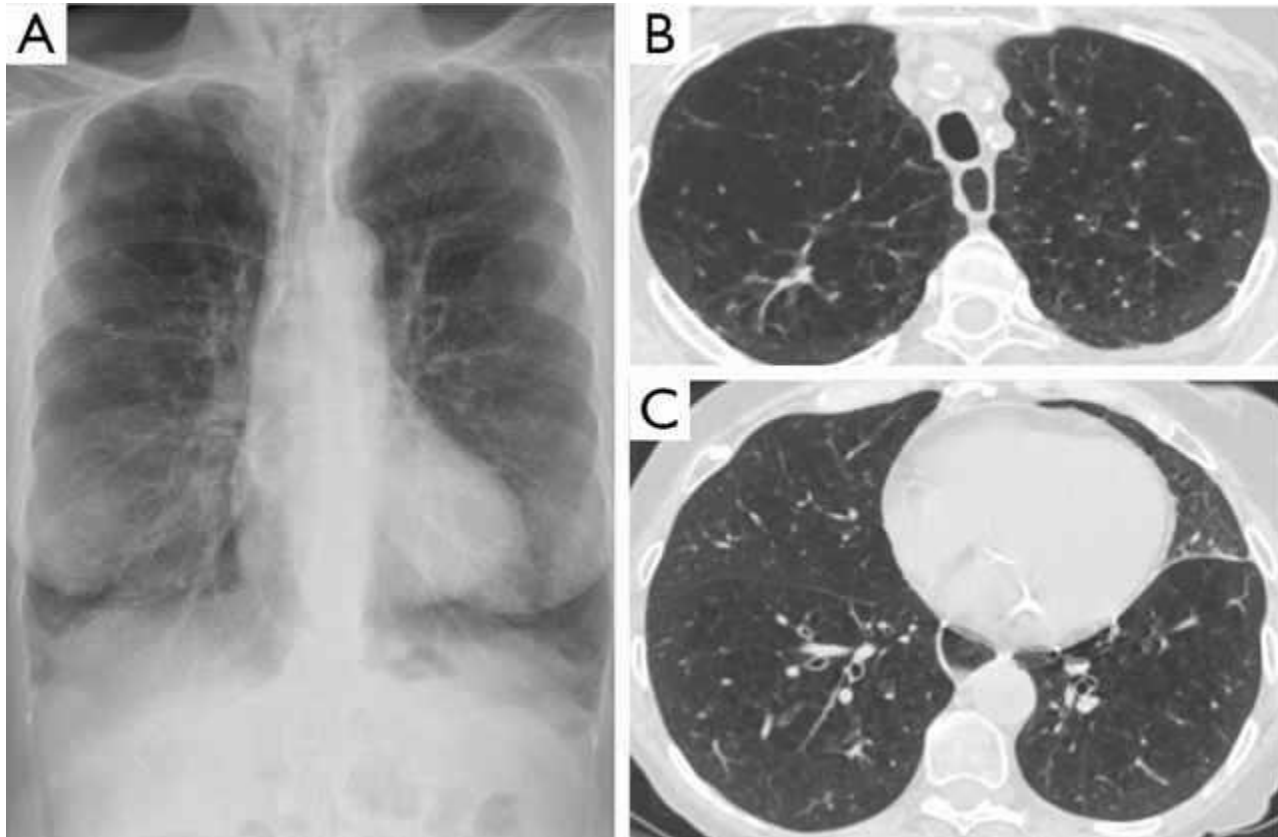
Yeovil Hospital Respiratory Team: 01935 384574 – happy to receive clinical and COPD management enquiries

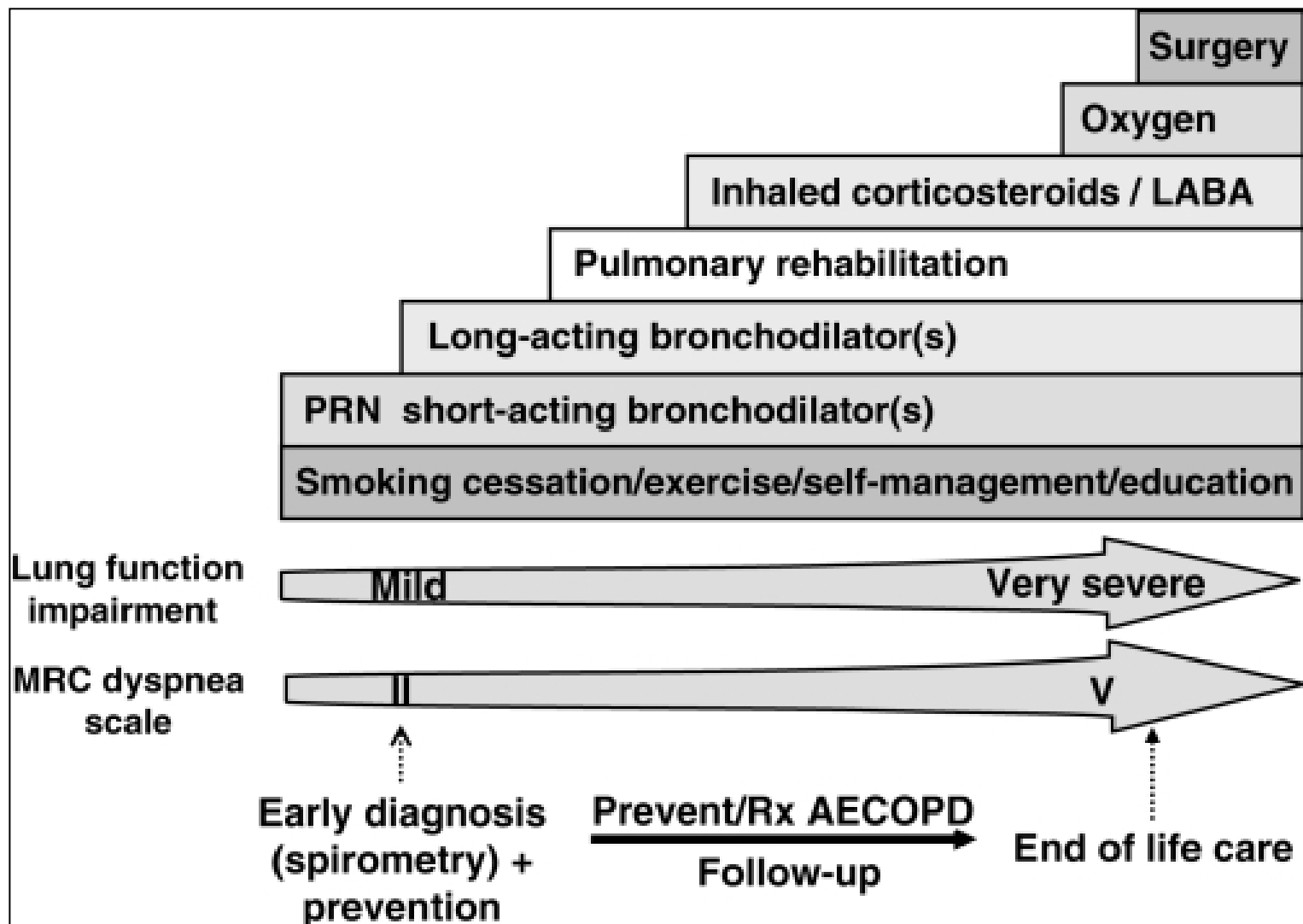
Community Pulmonary Rehabilitation and Oxygen Service (BOCI): Fax: 0845 5600096, Tel: 0800 012858

Somerset Smoking Cessation Service: 01823 396222; www.healthysomerset.co.uk/smokefree, smokefree@somerset.nhs.uk

Patient support groups: Breathability Group (East Area) - 01935 412234; Breathe Easy (Taunton) - 03000 030555

Volume reduction for emphysema?





SOME INFORMATION FROM THE NATIONAL COPD AUDIT

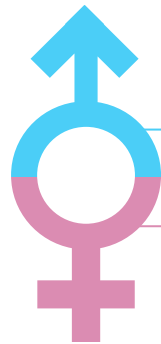


Primary Care - Demographics and comorbidities

Patient demographics

82,696 Patients included

The average age was



50.5% Male

49.5% Female

Patient comorbidities

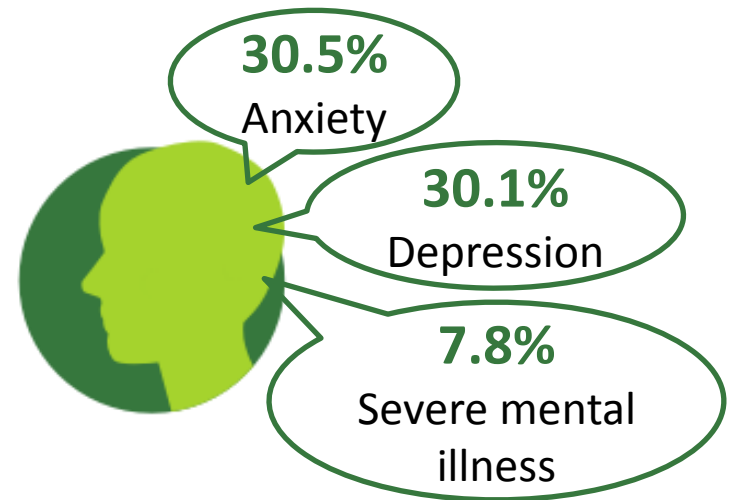


52.7% had hypertension



40.0% had coronary heart disease

Mental health problems were common:





Primary Care - Getting the diagnosis right

Spirometry



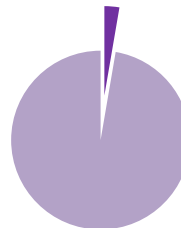
54.3% of patients diagnosed within the last 2 years had a **record of any spirometry ratio** with a result consistent with COPD.



Only **11.1%** of patients diagnosed within the last 2 years had a record of the gold standard diagnostic test for COPD (**post-bronchodilator FEV1/FVC; 339m**).



8.5% of patients had a result for this test (339m) that was consistent with COPD.

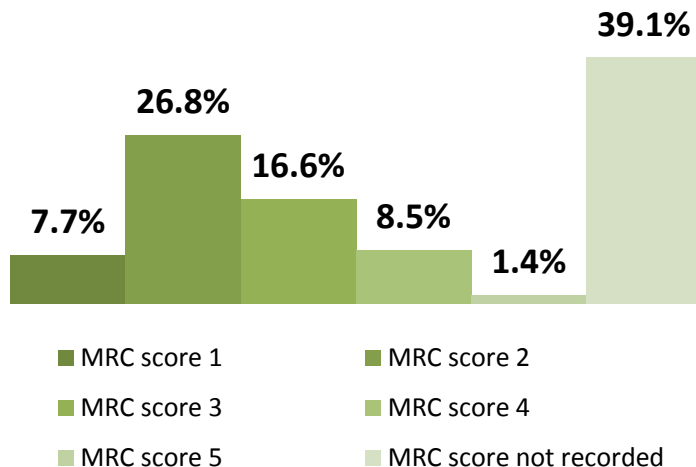


2.7% of patients had a result recorded for 339m that was inconsistent with COPD or was invalid.

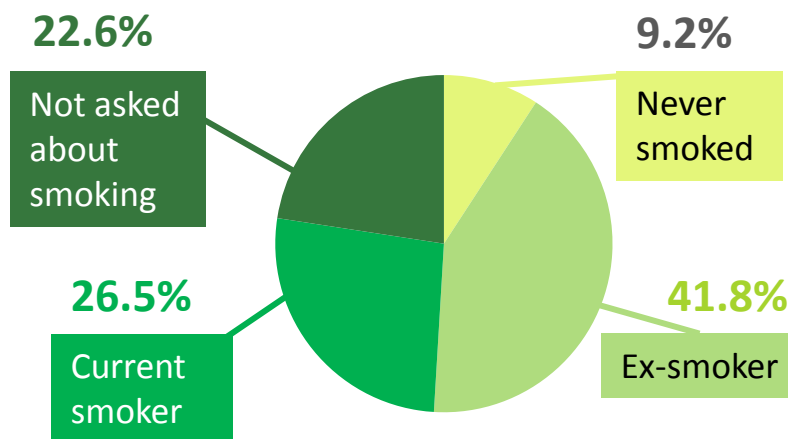


Primary Care - Assessing severity and future risk

Recording of MRC score in the past year



Smoking status recorded in the past year



Exacerbations (using a validated methodology)



58.1% of patients had **0** exacerbations in the past year

18.3% of patients had **1** exacerbations in the past year

9.0% of patients had **2** exacerbations in the past year

14.6% of patients had **>2** exacerbations in the past year



Primary Care - Providing high value care



46.9%

of patients **prescribed an inhaler** had their inhaler technique checked in the past year



34.0%

of patients had **not received a flu vaccination** between 1 August 2016 and 31 March 2017.



50.2%

of patients with an **MRC score of 3-5** had a record of pulmonary rehabilitation referral in the past 3 years.



12.5%

of smokers had a record (in the past 2 years) of:

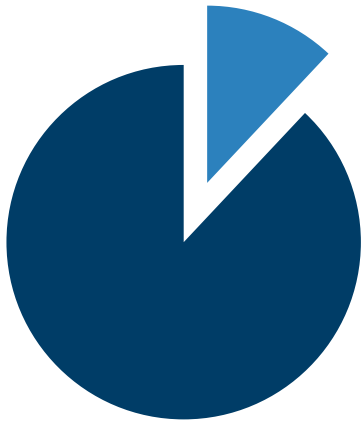
- having received/referred to a combination of **behavioural change intervention** and,
- prescribed **smoking cessation pharmacotherapy**.

Readmission 30/90 days after index discharge

Patients who were readmitted for any reason **within 30 days** (24%), and **within 90 days** (43%).



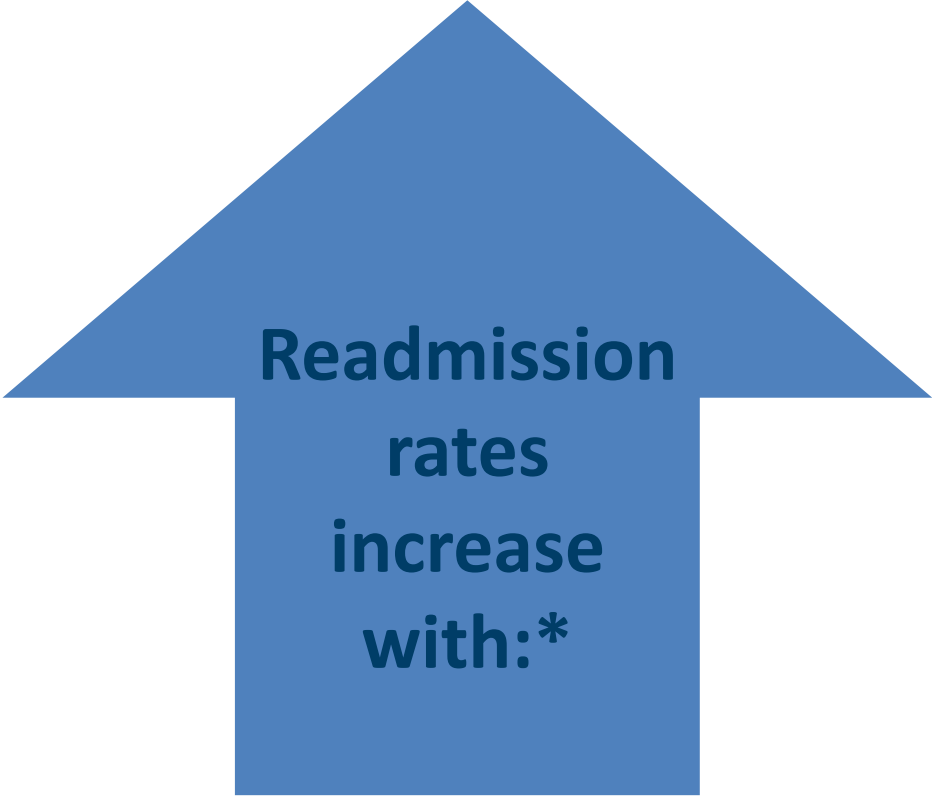
12% were readmitted at least once within 30 days **owing to COPD**.



23% were readmitted at least once within 90 days **owing to COPD**.



Readmission 30/90 days after index discharge



**Readmission
rates
increase
with:***

- Deprivation
- Age
- Number of co morbidities
- Longer LOS
- Disease severity markers
 - Higher MRC score
 - Higher GOLD stage
 - Low initial pH
 - NIV management on HDU during admission

* P < 0.01

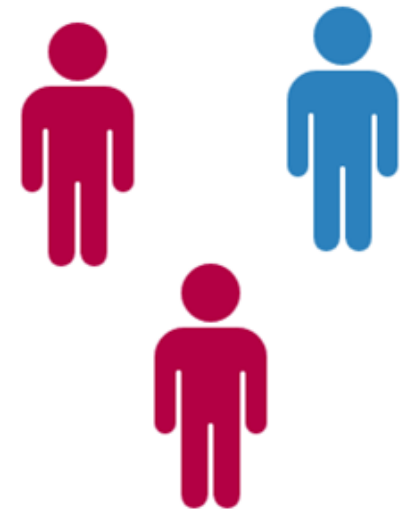
Previous/recent admissions prior to the index admission

36% of patients had ≥ 1 admission in the prior **90 days**



51% of patients had ≥ 1 admission in the prior **180 days**

65% of patients had ≥ 1 admission in the prior **365 days**



PR - health status improvements



For every **100 patients** who completed the **6MWT^A** or the **ISWT^B** both at assessment and discharge:

- **63 improved** by more than the MCID^C,
- **20 improved** but by less than the MCID, and
- **17 had no change** or a worse score.

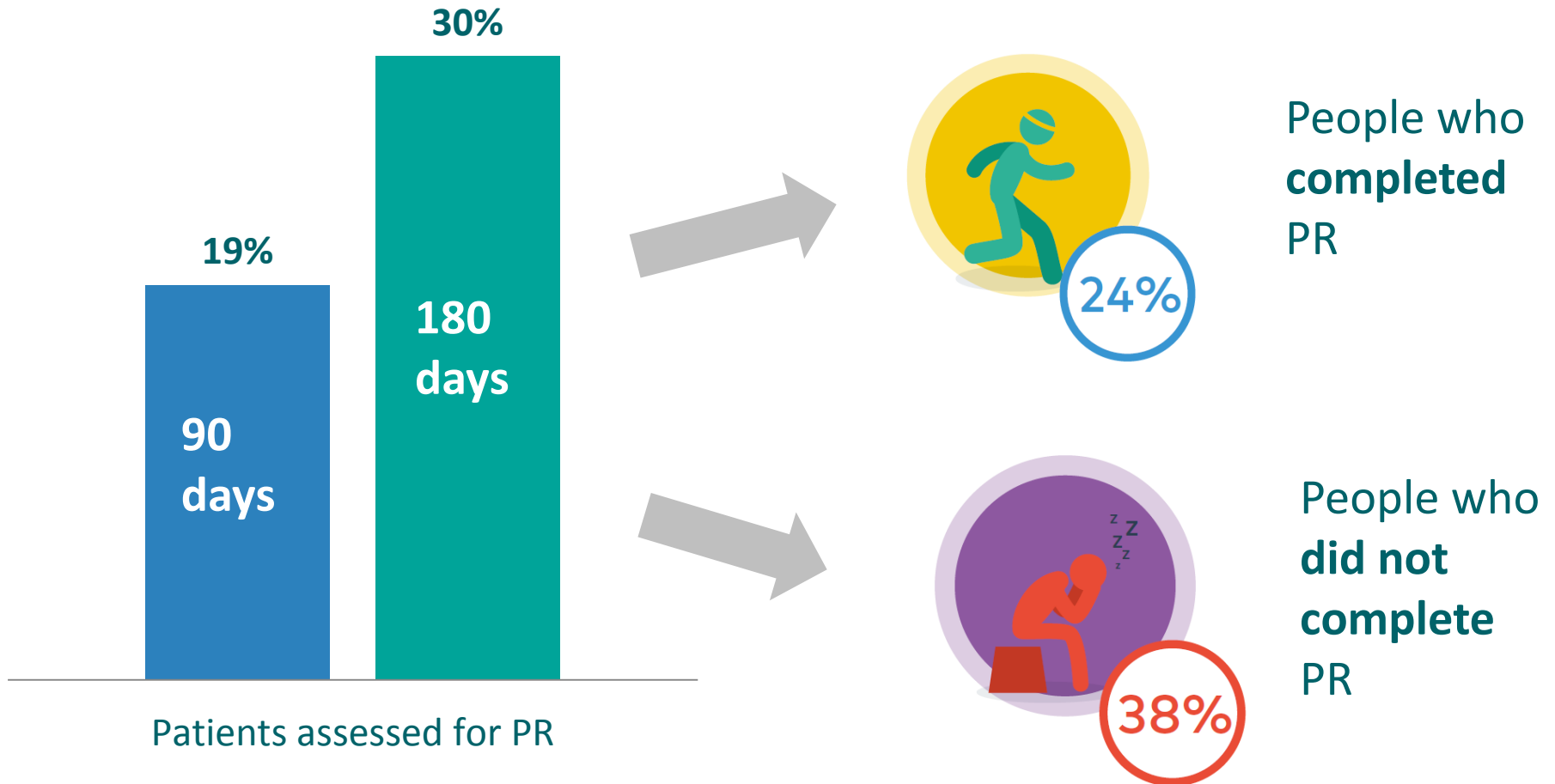
^A Six minute walk test

^B Incremental shuttle walk test

^C Minimal clinically important difference

PR - Admission rates

People with **at least one admission within 180 days** of PR assessment



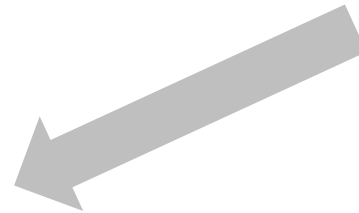
PR - Mortality within 180 days



Overall mortality following assessment for PR:



1.6%

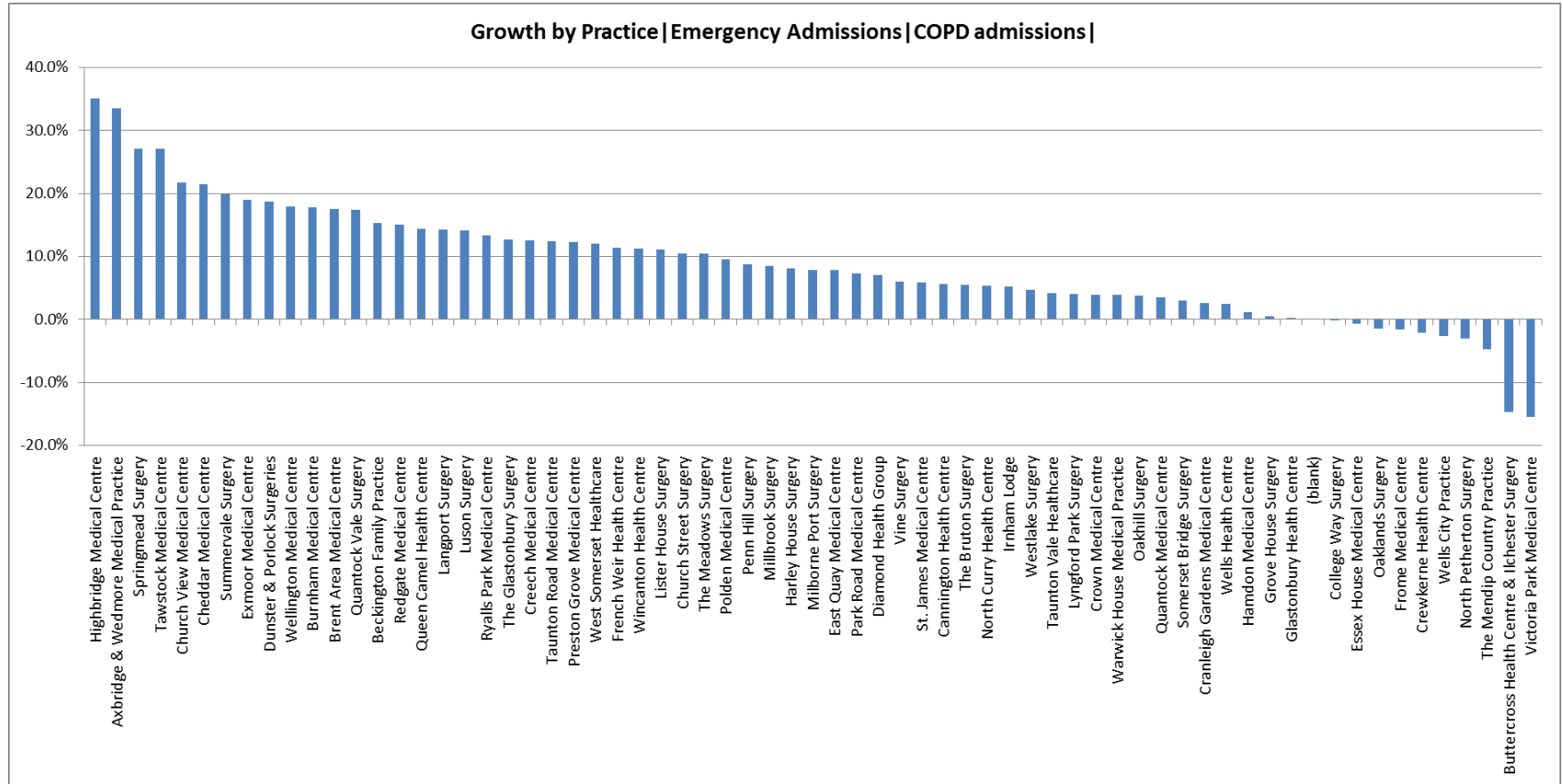


In patients who **did not complete PR**, mortality was **3.2%**.

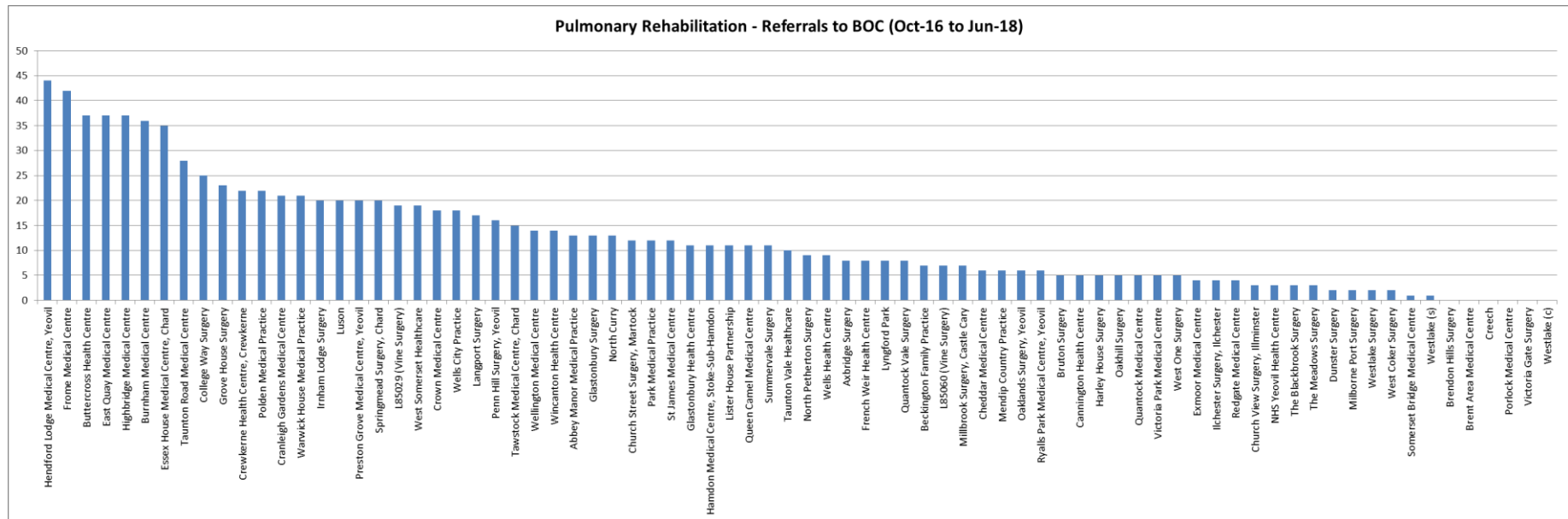


In patients who did **complete PR**, mortality was **0.5%**.

Growth in COPD admissions by Practice



Pulmonary Rehab referrals



SOME EMERGENT INFORMATION: LUNG GROWTH PROFILES

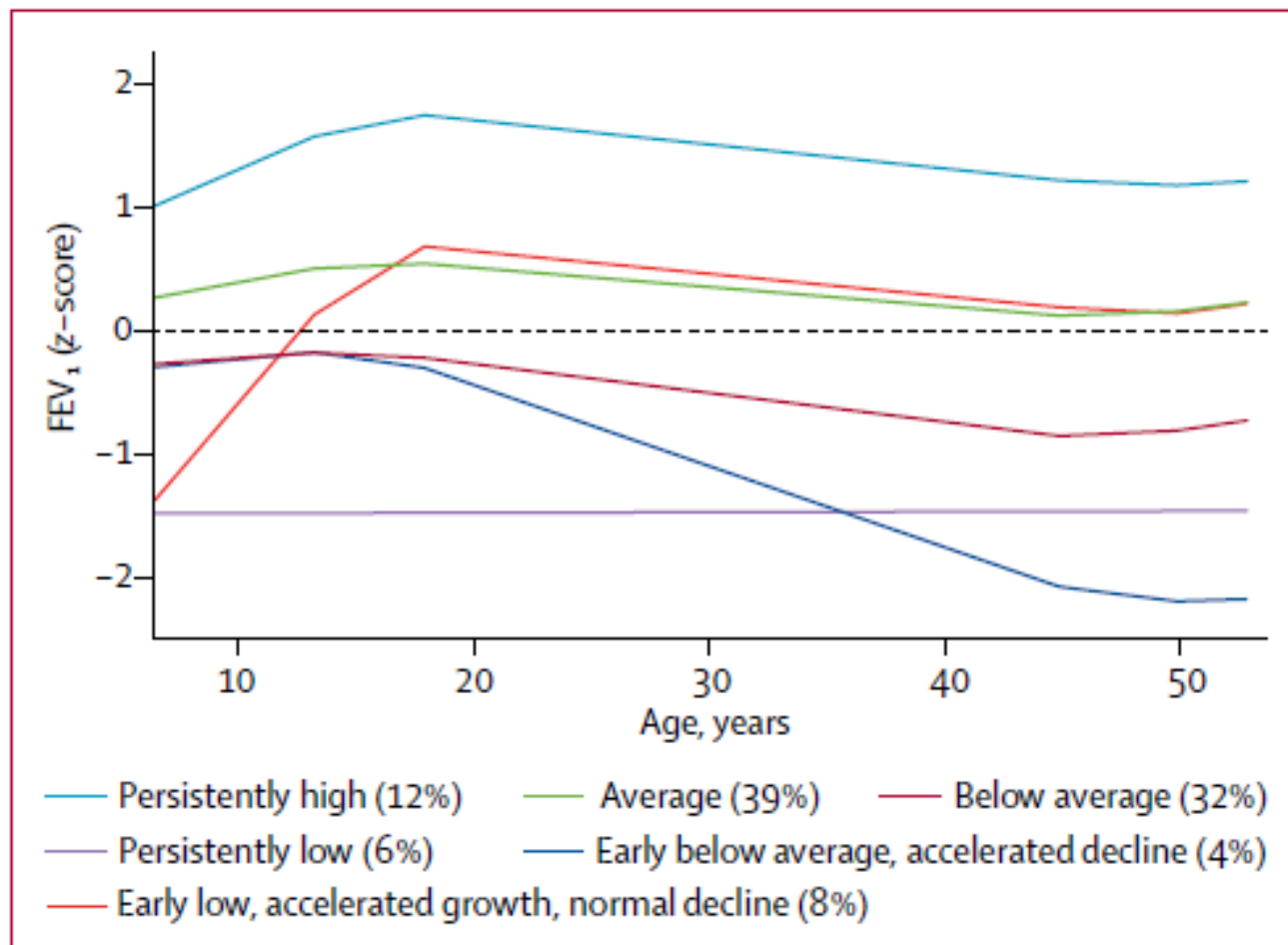


Figure 1: Trajectories of lung function (FEV₁ z-score) from 7 to 53 years of age. The six trajectories represent the latent growth patterns of lung function. The group prevalences do not add up to 100% because of rounding.

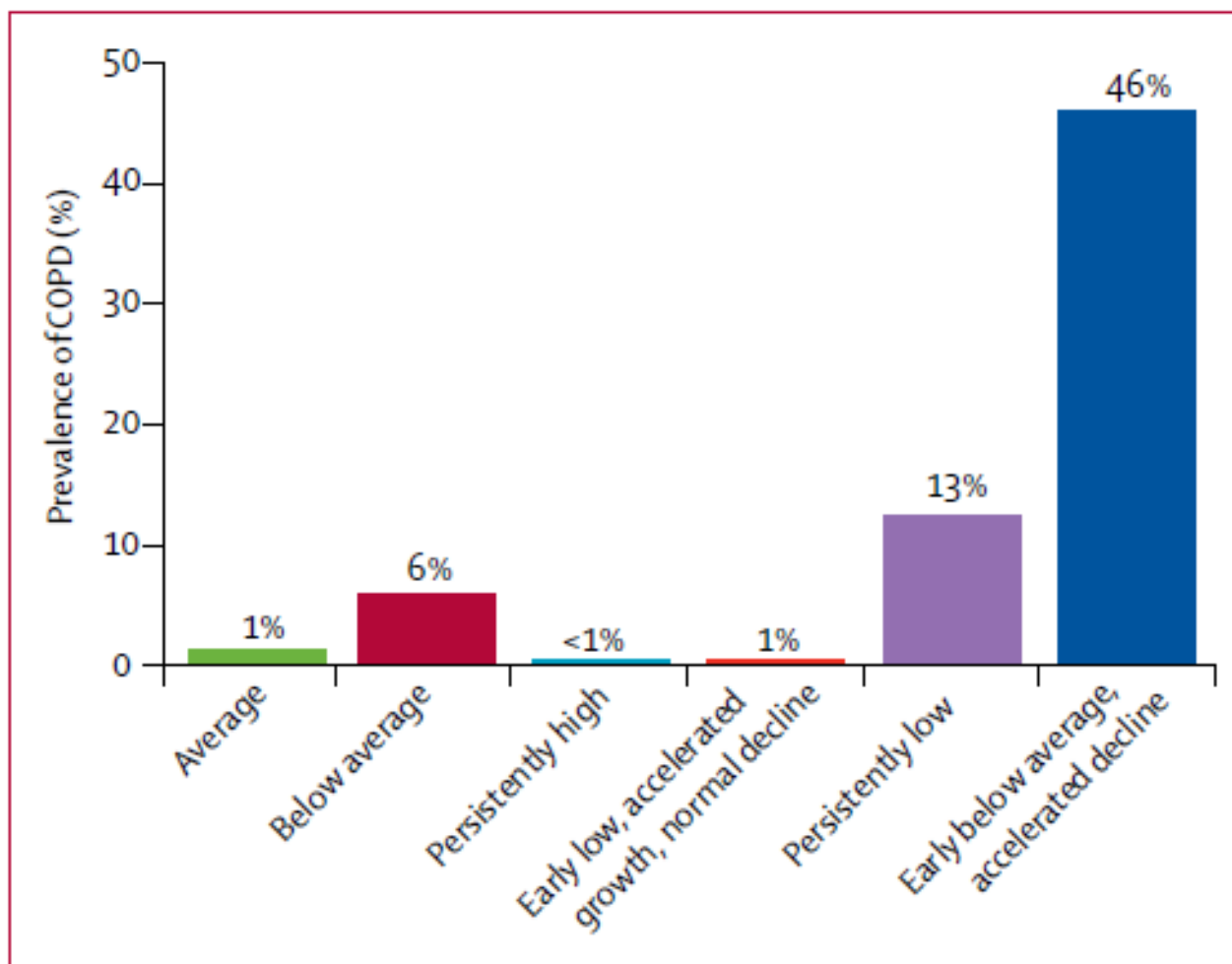


Figure 2: Prevalence of COPD among six lung function trajectories at 53 years
COPD=chronic obstructive pulmonary disease.

Take home messages

- Is the diagnosis, staging and phenotyping correct?
- Have co-morbidities and nutrition been optimised?
- Have high value interventions been instigated?
 - Smoking cessation
 - Vaccinations
 - Pulmonary rehab
- Is the patient on appropriate inhaled treatment?
- Has the risk of admission/readmission been considered?
- Has the patient an exacerbation plan and a contact?