NHS
Camden
Clinical Commissioning Group

Camden Primary Care Education Event: COPD

Royal College of General Practitioners
16th April 2014

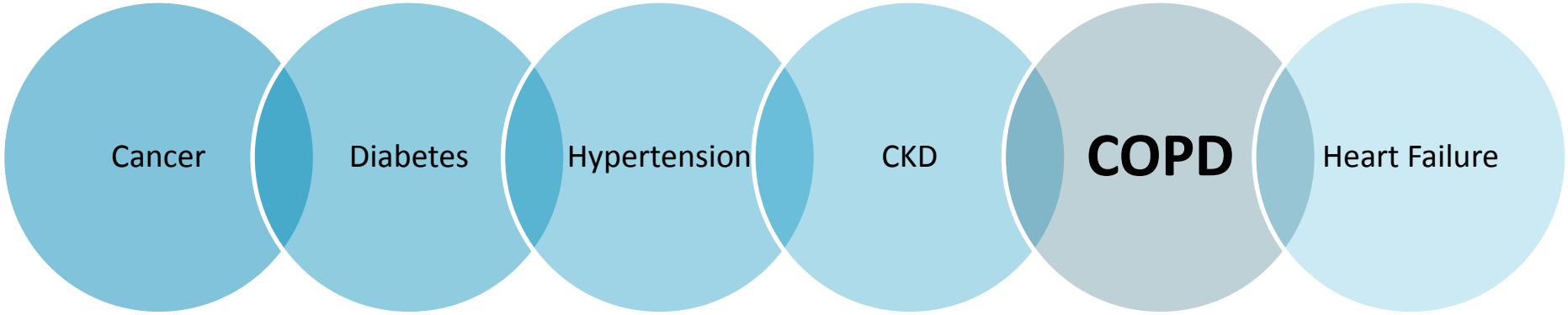
Programme

- 1400: Welcome and Outline. Definitions of COPD. **John Hurst**
- 1415: Epidemiology of COPD - global and local. **Jennifer Quint**
- 1430: A LIFE STORY: MILD DISEASE. Diagnosis, differential diagnosis, who and how to refer to the Community service, smoking cessation, and PR. **Heidi Ridsdale and Team**
- 1515: Tea
- 1545: A LIFE STORY: MODERATE DISEASE. Exacerbations and Co-Morbidity. **John Hurst**
- 1615: A LIFE STORY: SEVERE DISEASE. Hospital Care, Surgery, Respiratory Failure and Palliative Care **Jennifer Quint**
- 1645: Wrap Up and Questions **John Hurst**

Primary Care Education Package

NHS Camden Clinical Commissioning Group

- Aligned with the **Long Term Conditions Locally Commissioned Scheme (LCS)**
- Part of CCG's Long Term Conditions and Cancer programme priorities
- Available to all practices in Camden
- Includes
    1. practice visits
    2. **education events**
    3. peer review meetings



COPD Practice Visits

NHS Camden Clinical Commissioning Group

Now schedule your COPD Practice Visit!

What to expect

- Visit from COPD specialists & Community Respiratory Team
- Discuss difficult cases & challenging aspects of management
- Tailored to practice needs

Who should attend

- Essential - Practice COPD Lead
- All GPs and nurses involved in COPD care

To arrange a COPD visit for your practice:

- Book online: https://www.timecenter.com/gpeducation
- Dates available now

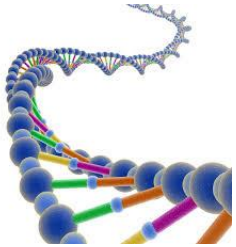
COPD: Definition

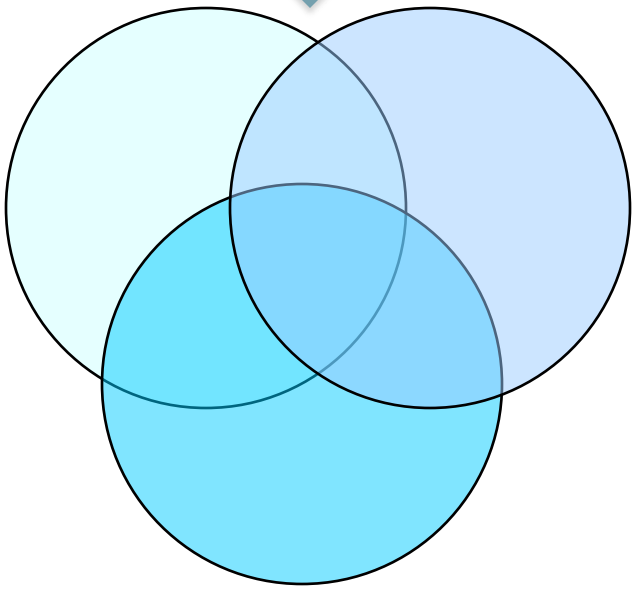
Dr John Hurst PhD FRCP

j.hurst@ucl.ac.uk

Reader in Respiratory Medicine, UCL

Consultant Respiratory Physician, Royal Free London NHS Foundation Trust and Camden and Barnet Community COPD Services





Emphysema

Chronic Bronchitis

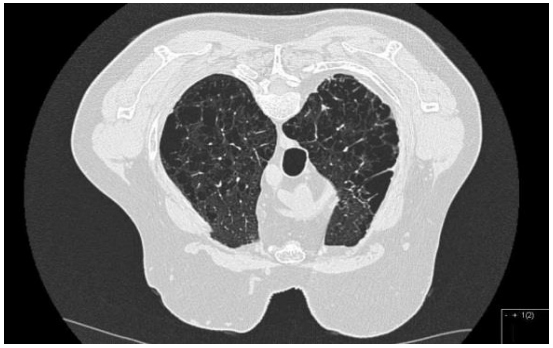
COPD

Emphysema

Chronic Bronchitis

COPD

PATHOLOGICAL diagnosis



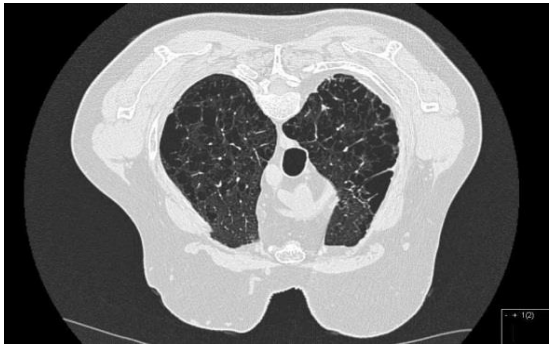
Emphysema

Chronic Bronchitis

PATHOLOGICAL diagnosis

CLINICAL diagnosis

COPD

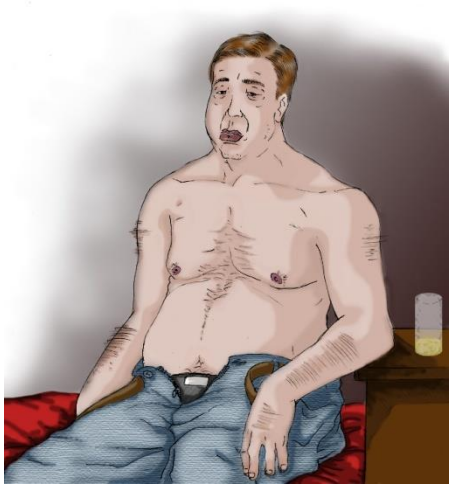


Emphysema

Chronic Bronchitis

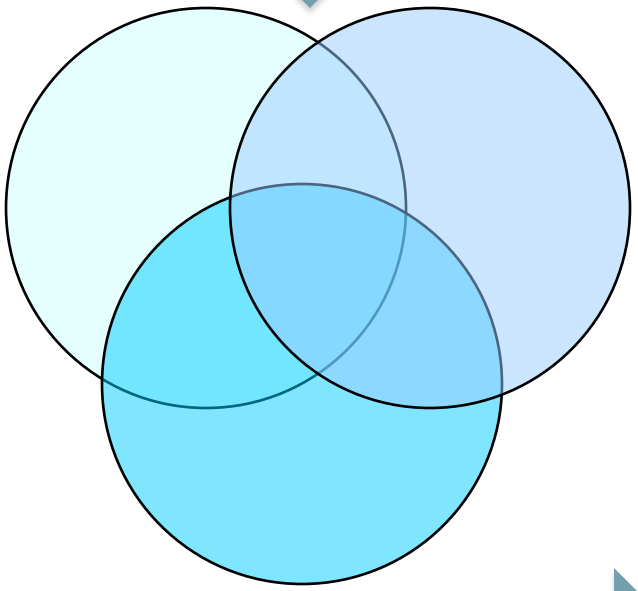
COPD

PHYSIOLOGICAL DIAGNOSIS:
Post-BD $FEV_1/FVC < 0.7$



Chronic Bronchitis

Emphysema



COPD

PHYSIOLOGICAL DIAGNOSIS:
Post-BD $FEV_1/FVC < 0.7$

COPD Definition

COPD, a common preventable and treatable disease, is characterised by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases. Exacerbations and comorbidities contribute to the overall severity in individual patients.

WHO/GOLD 2013 (www.goldcopd.org)

COPD Definition

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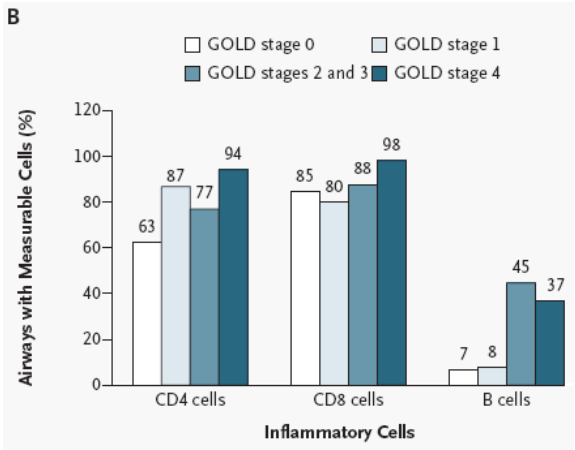
The NEW ENGLAND JOURNAL of MEDICINE

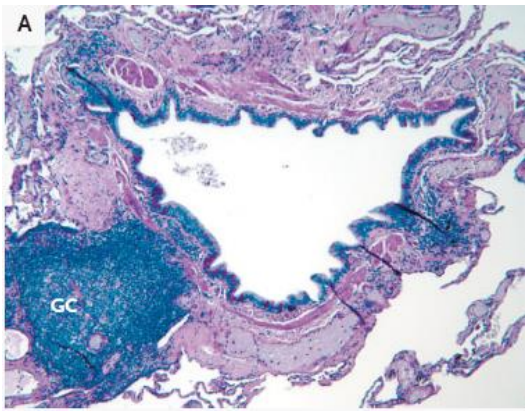
ESTABLISHED IN 1812 JUNE 24, 2004 VOL. 350 NO. 26

The Nature of Small-Airway Obstruction in Chronic Obstructive Pulmonary Disease

James C. Hogg, M.D., Fanny Chu, B.Sc., Soraya Utokaparch, B.Sc., Ryan Woods, M.Sc., W. Mark Elliott, Ph.D., Liliana Buzatu, M.D., Ruben M. Cherniack, M.D., Robert M. Rogers, M.D., Frank C. Sciurba, M.D., Harvey O. Coxson, Ph.D., and Peter D. Paré, M.D.

N Engl J Med 2004;350:2645-53.





COPD: Epidemiology

Global and Local

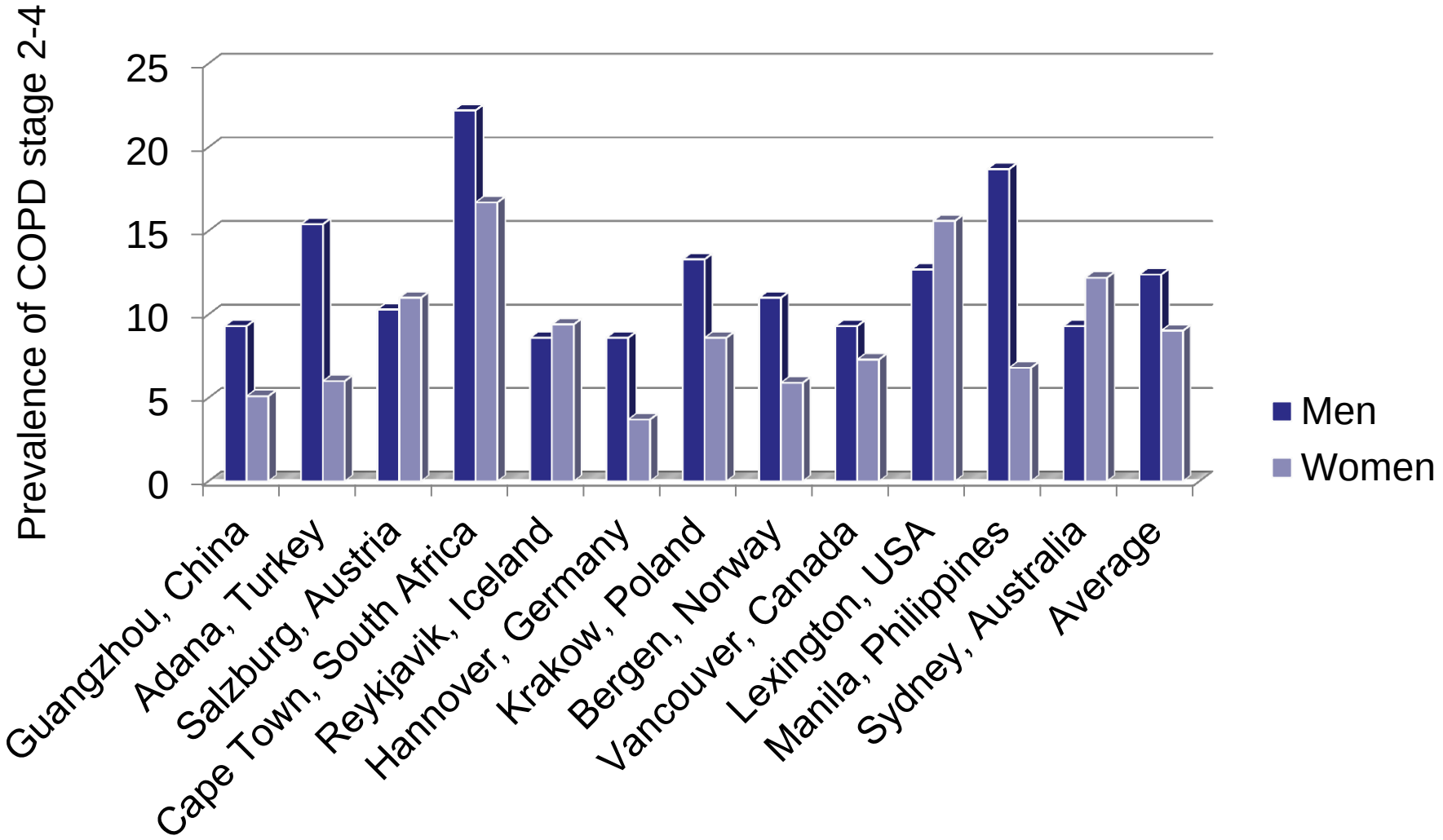
Dr Jennifer Quint

Global burden of COPD

- 65 million people have moderate to severe COPD[1]
- More than 3 million people died of COPD in 2005 (5% of all deaths globally) [1]
- Almost 90% of COPD deaths occur in low- and middle-income countries[1]
- Currently the 4th leading cause of death [2]
- Predicted to become the 3rd by 2020[2]

[1] WHO, [2]GOLD guidelines www.goldcopd.org 2011

COPD Prevalence: worldwide (1)



Buist S. International variation in the prevalence of COPD (The BOLD Study). Lancet 2007; 370: 740-50

COPD Prevalence: Europe (2)

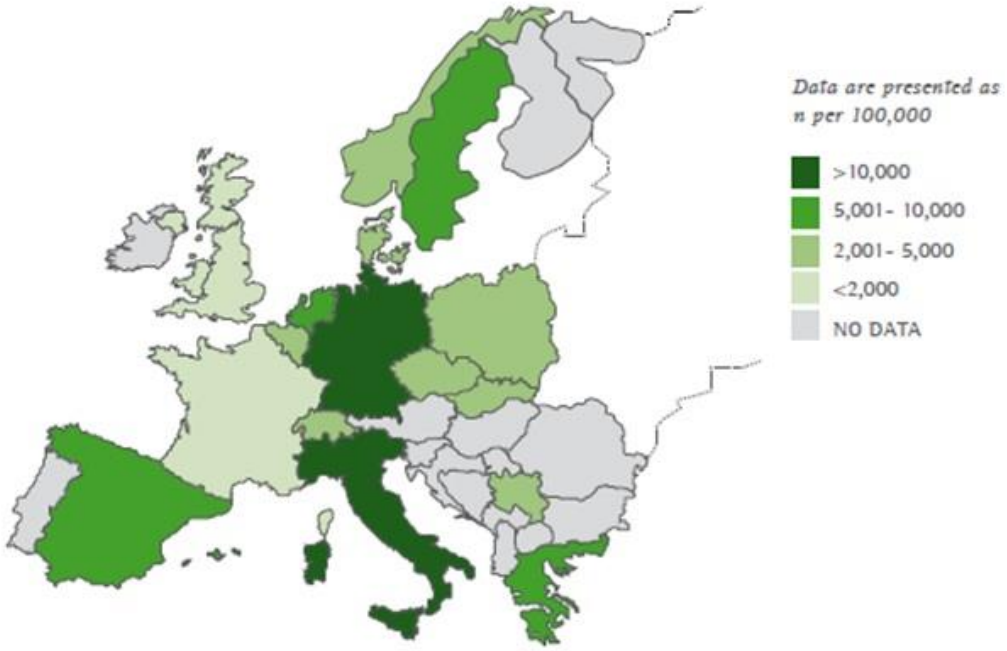
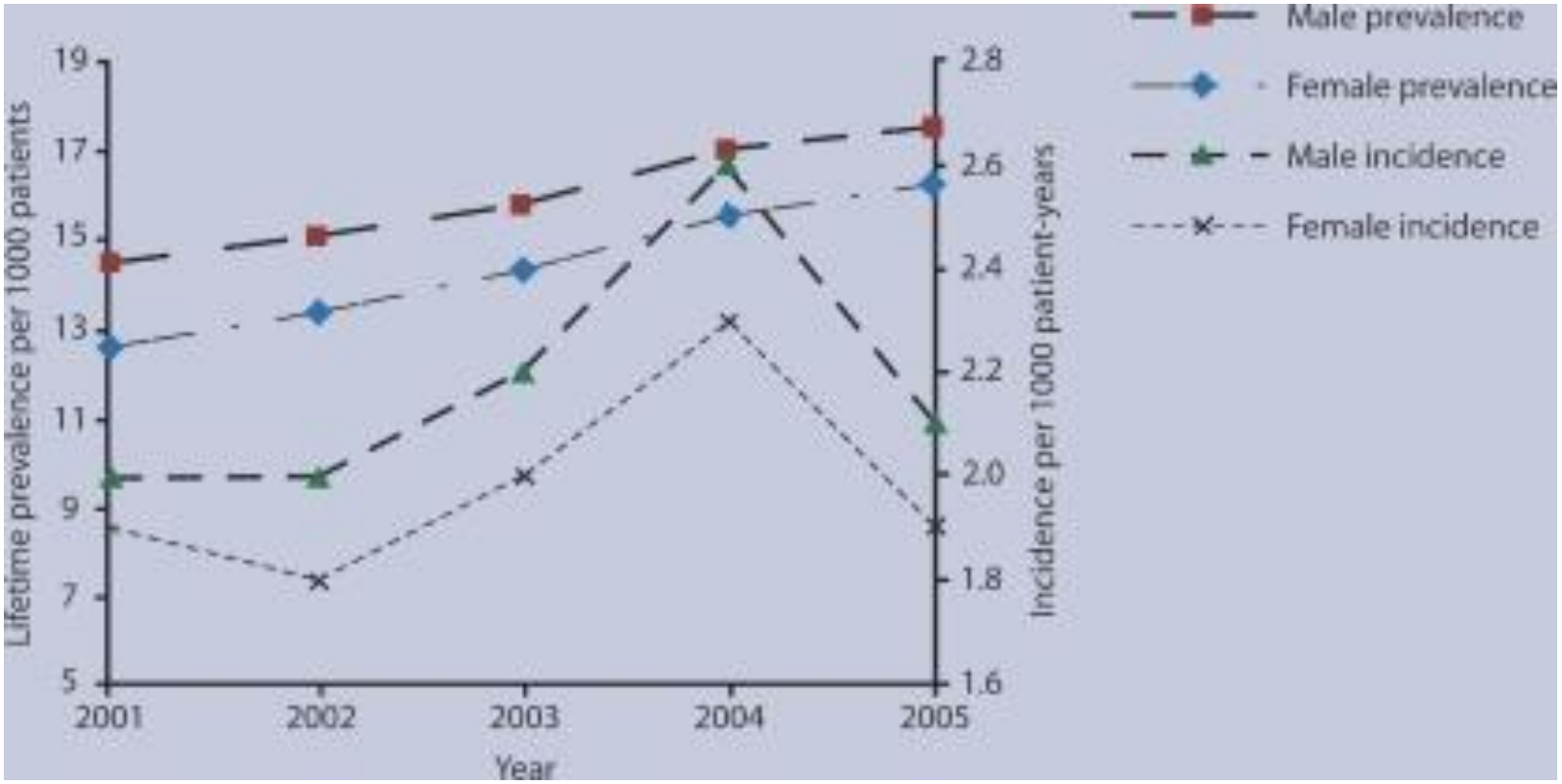


Figure 1. Prevalence of COPD in Europe according to the Organization for Economic Co-operation and Development (www.oecd.org).

Data presented are taken from the Eurostat database (year of access: 2007). They concern mortality from chronic lower respiratory diseases (ICD-10 code J40-J47) only

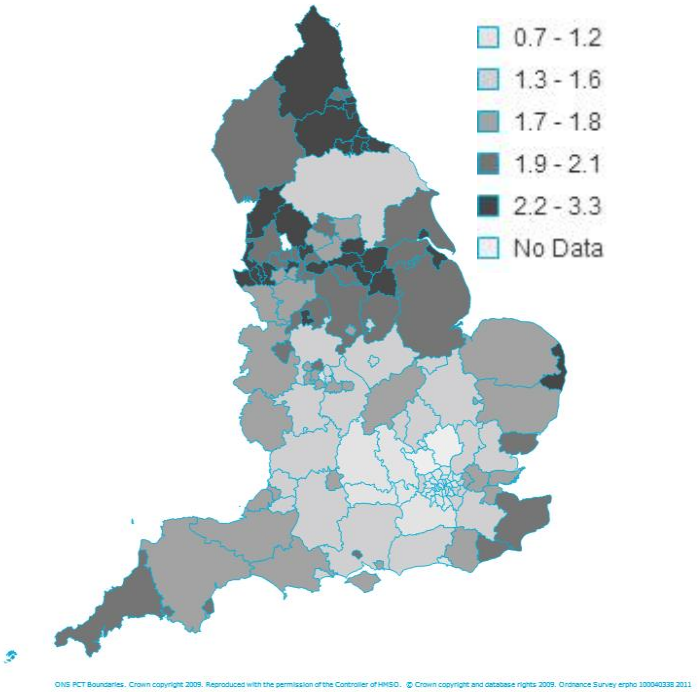
Prevalence in England (3)

Trends in the epidemiology of chronic obstructive pulmonary disease in England:
a national study of 51 804 patients
Simpson et al. **British Journal of General e277 Practice, *July 2010***



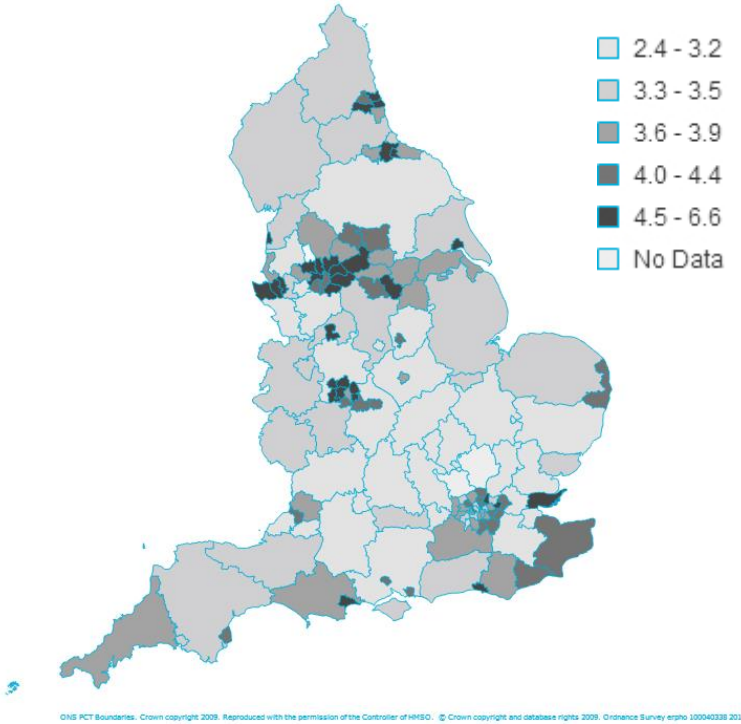
Prevalence of COPD England (4)

Reported prevalence COPD 2010/11



Number of COPD registered patients per 1000 registered population

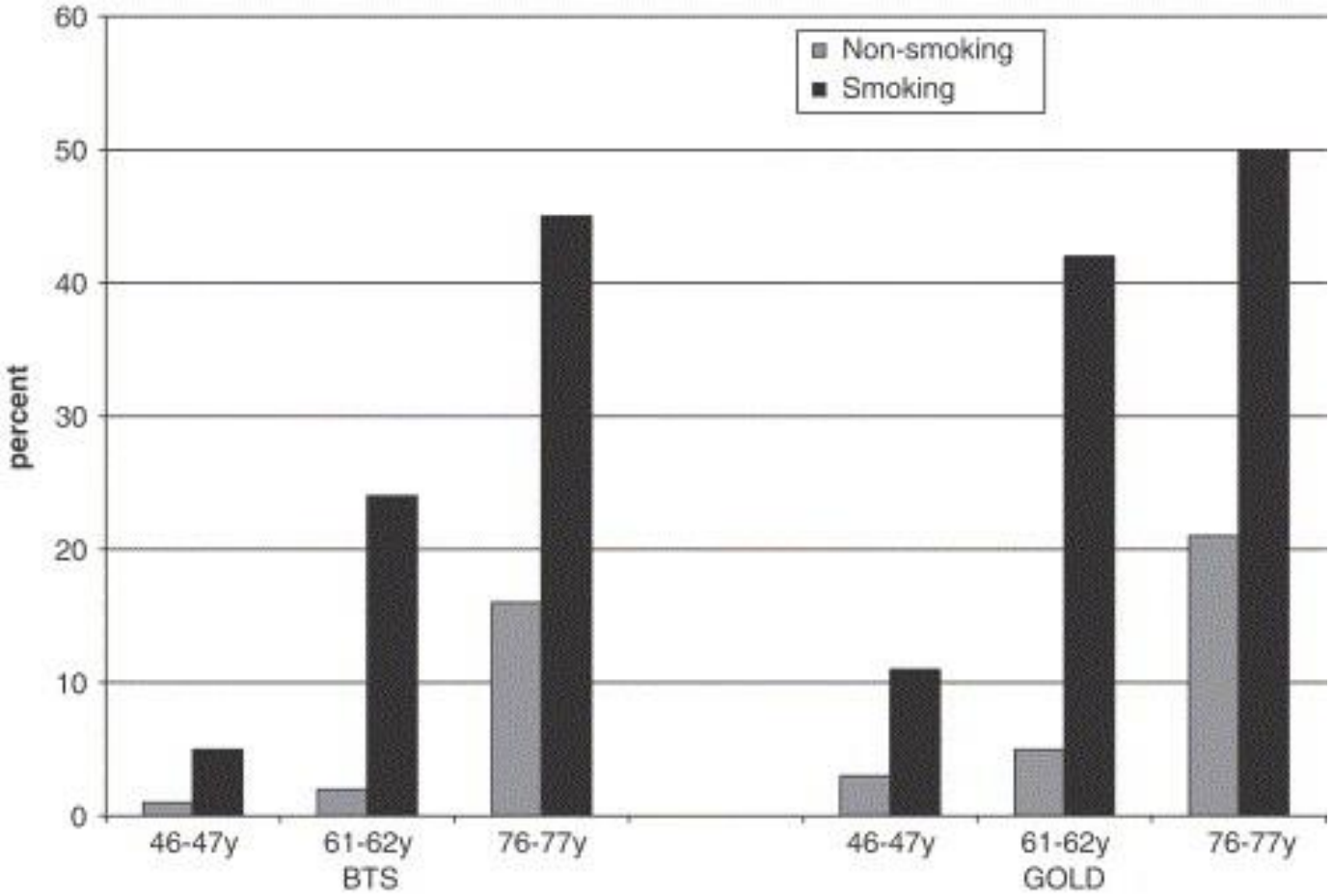
Expected prevalence COPD 2010/11



Estimated no COPD patients per 1000 population based on statistical model using age, sex, deprivation, ethnicity, smoking and rurality.

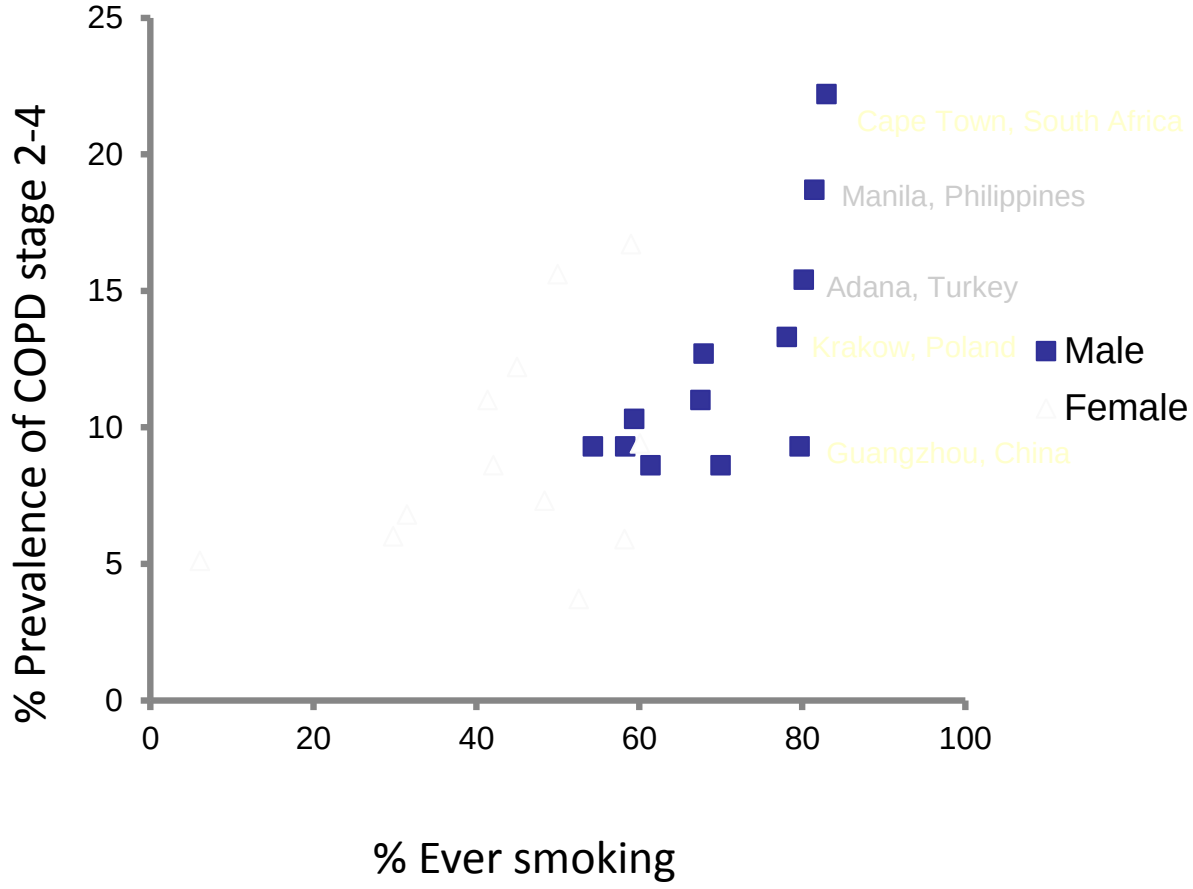
http://www.inhale.nhs.uk/atlas/singles/

Prevalence of COPD by age and smoking



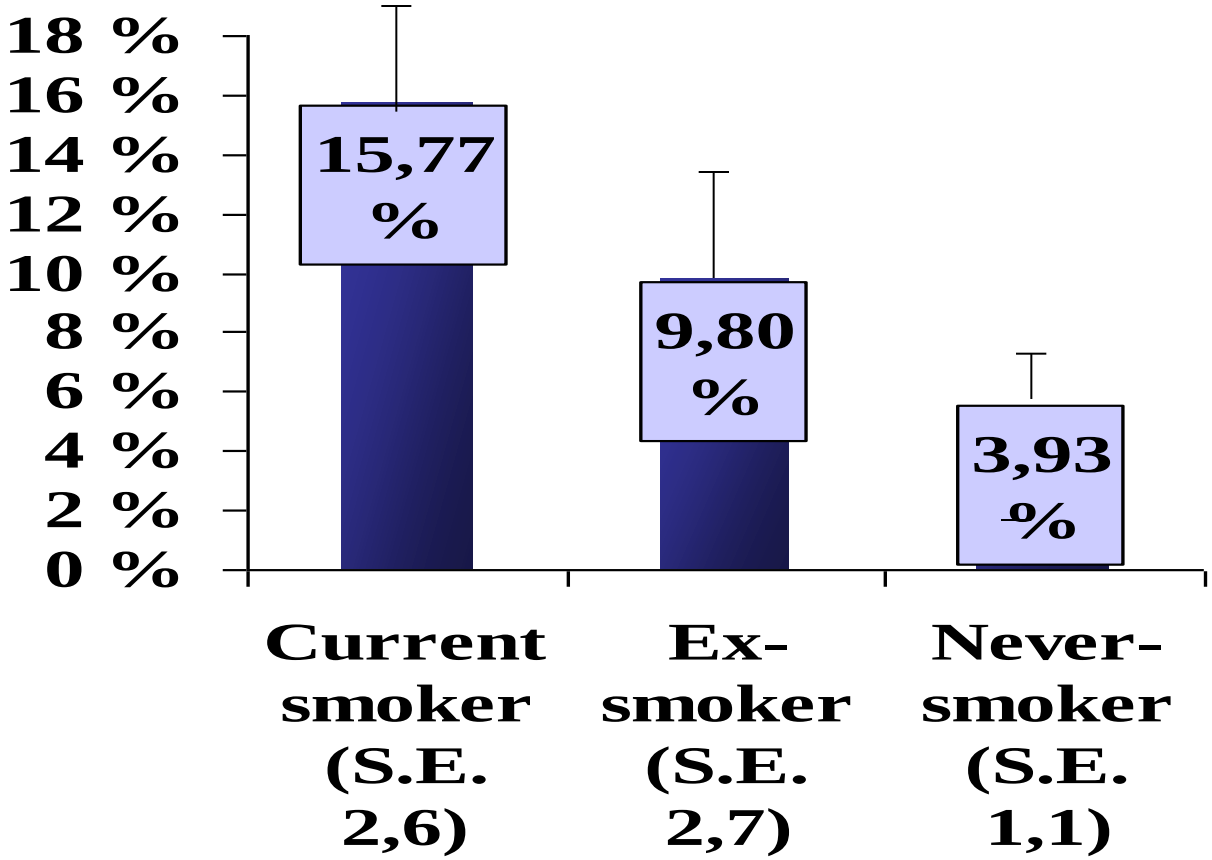
Lindberg A, Respir Med 2005

Effect of Smoking on prevalence of COPD (stages 2-4)



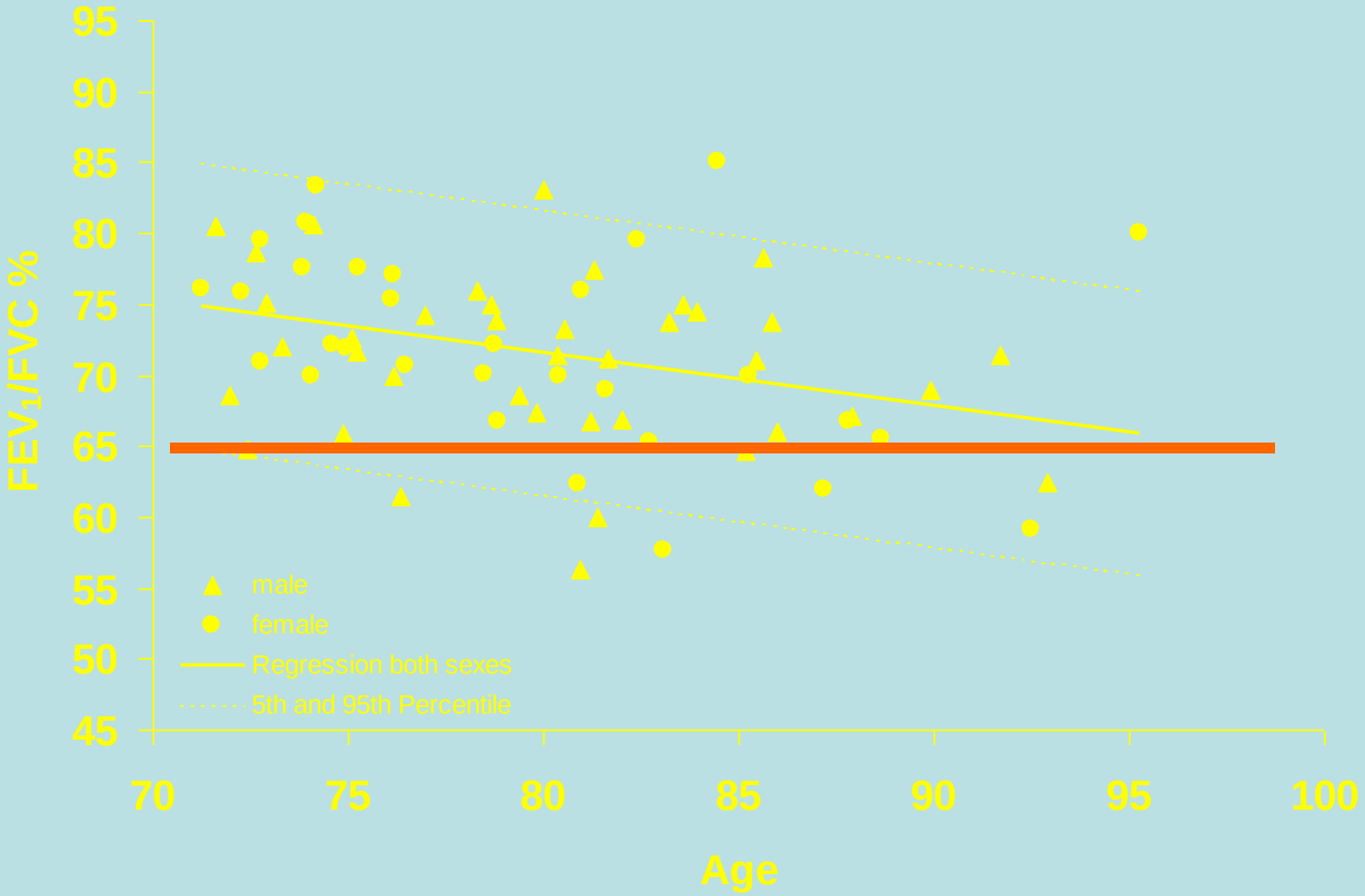
THE LANCET
Volume 370, Issue 9589, 1 September 2007-7 September 2007, Pages 741-750

Incidence of COPD by smoking habits



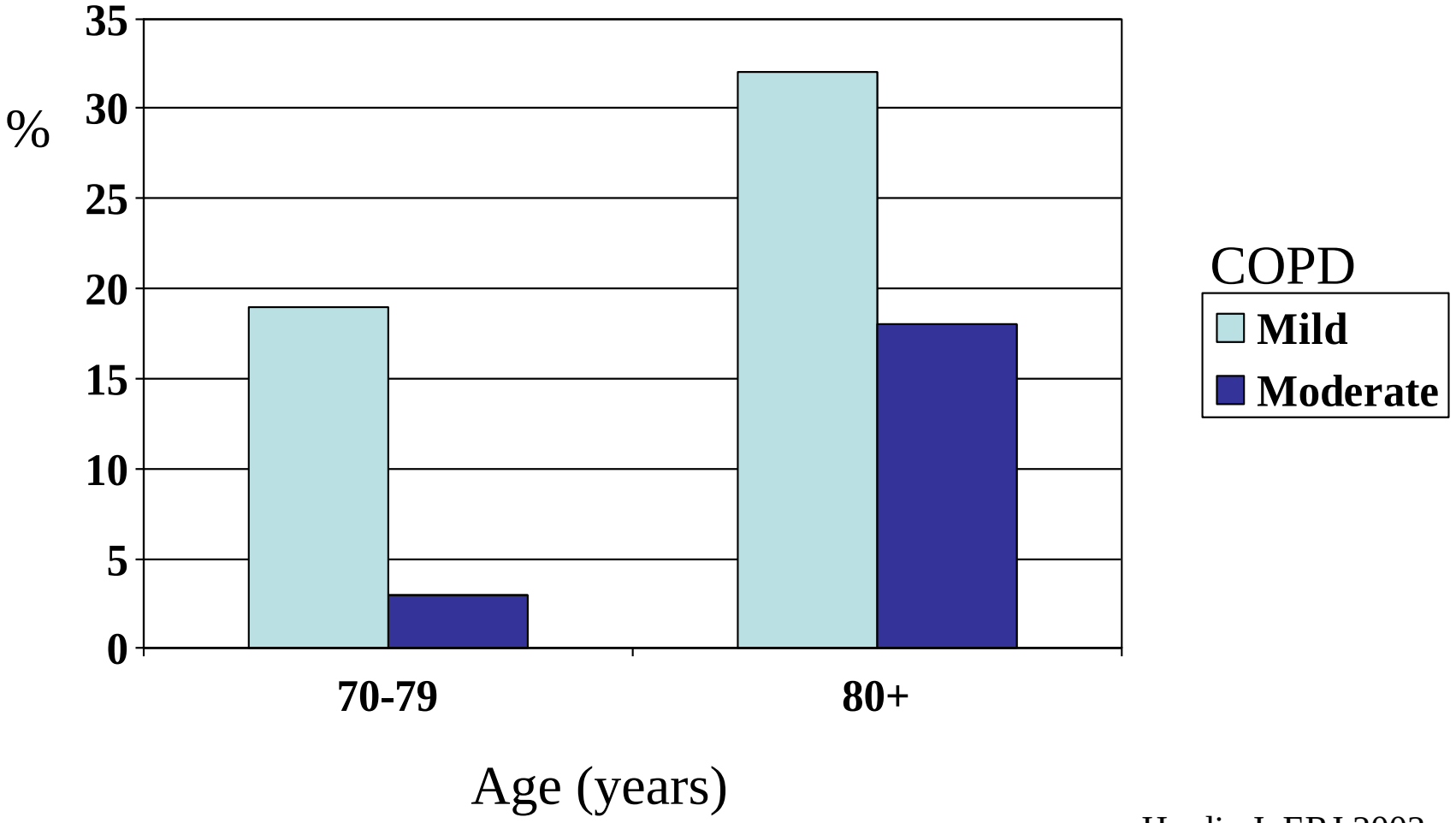
Johannesen A, ERJ 2002

FEV_1/FVC% in asymptomatic, elderly never-smokers



Hardie J, ERJ 2002

Proportion of elderly subjects without respiratory symptoms with COPD



Hardie J, ERJ 2002

COPD and Gender

Women, for the same FEV1, compared to Men

- Smaller pack year history
- Better blood gases (paO2 74 mmHg vs 67 mmHg in men)
- Less comorbidity
- Report more dyspnea
- Poorer 6MWD,
- Poorer Quality of life (SGRQ) scores
- Less responsive to exercise therapy
- Higher exacerbation rates
- Mortality similar to men

De Torres et al. Chest 2006; 128: 2012-6; Celli et al AJRCCM 201; 183: 317-322

Difficulty with estimating prevalence and incidence

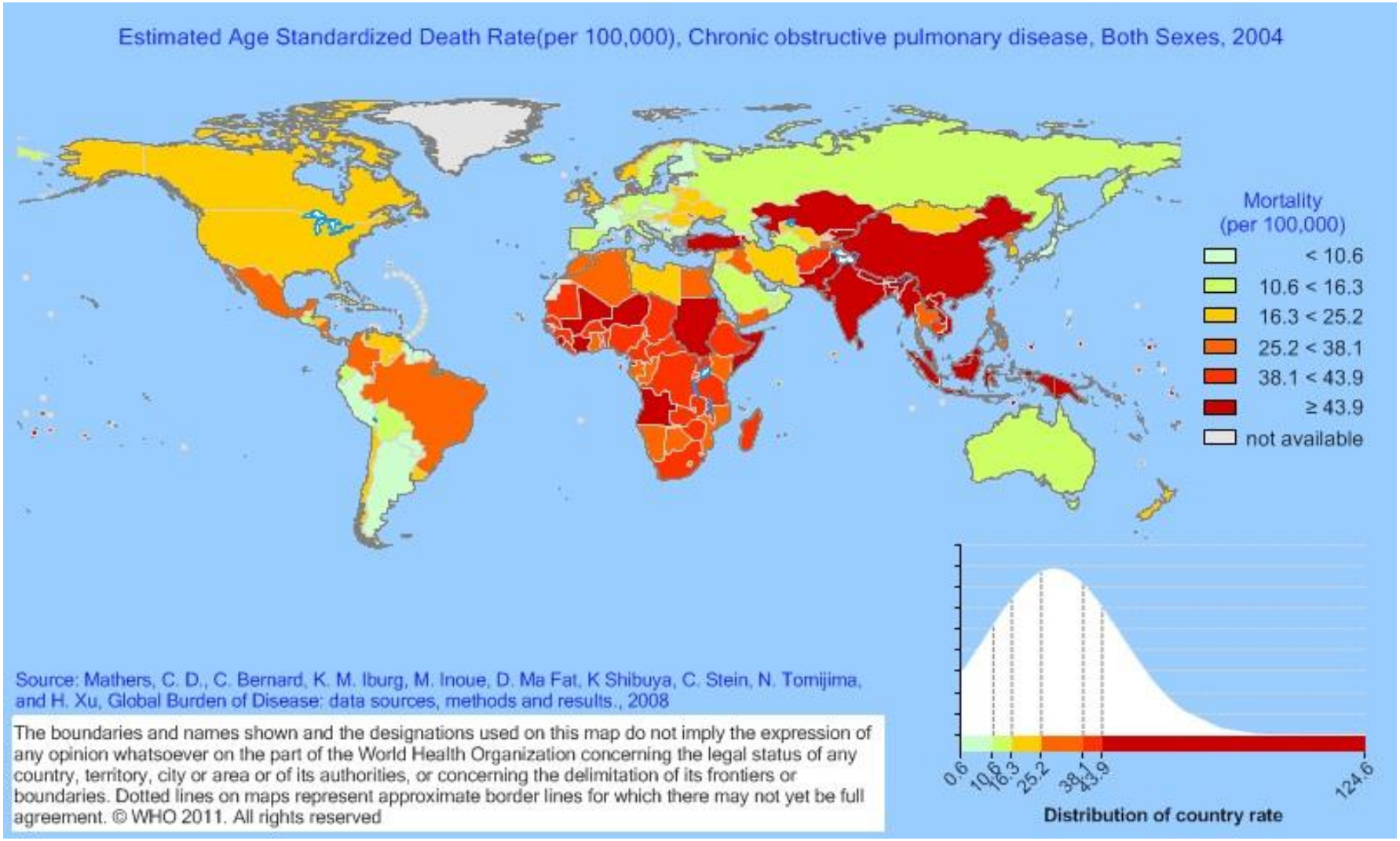
- heterogeneity of studied populations (general, ”targeted”, selected age groups …)
- heterogeneity of methods (symptom-based, medical diagnosis & expert opinion, spirometry-based …)
- underestimation of disease severity by the patients who report their smoking with a sense of guilt
- anxiety and depression that alter the perception of the disease and quality of life with less adherence to treatment, more exacerbations, and more reaction time when the symptoms worsen.
- COPD is often under-diagnosed; the true prevalence rates and the burden of disease may be much higher than the currently available data suggest (Pauwels, 2000; Wouters, 2003; Halbert et al., 2003).
- Estimates of COPD prevalence rates vary widely, from 0.2% to 18.3%, partly as a result of real differences in prevalence among countries and regions, and partly because of other factors.

COPD Mortality (1)

- COPD is the fourth leading cause of death in the USA and Europe, and COPD mortality in females has more than doubled over the last 20 years.

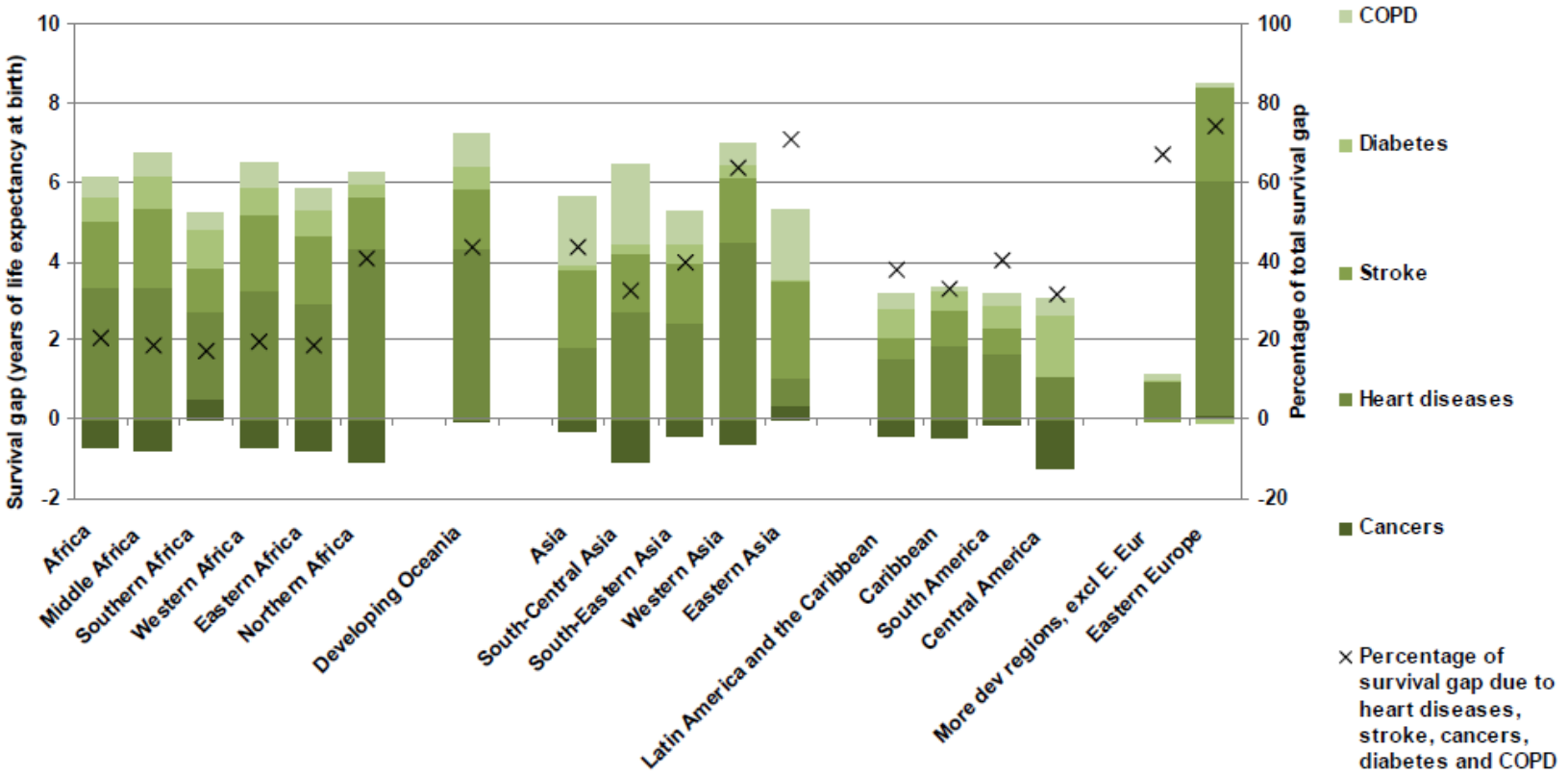
Leading causes of death in the USA, 1998	Number
Heart disease	724,269
Cancer	538,947
Cerebrovascular disease (stroke)	158,060
Respiratory diseases (COPD)	**114,381**
Accidents	94,828
Pneumonia and influenza	93,207
Diabetes	64,574
Suicide	29,264
Nephritis	26,265
Chronic liver disease	24,936
All other causes of death	469,314

COPD Mortality (2)



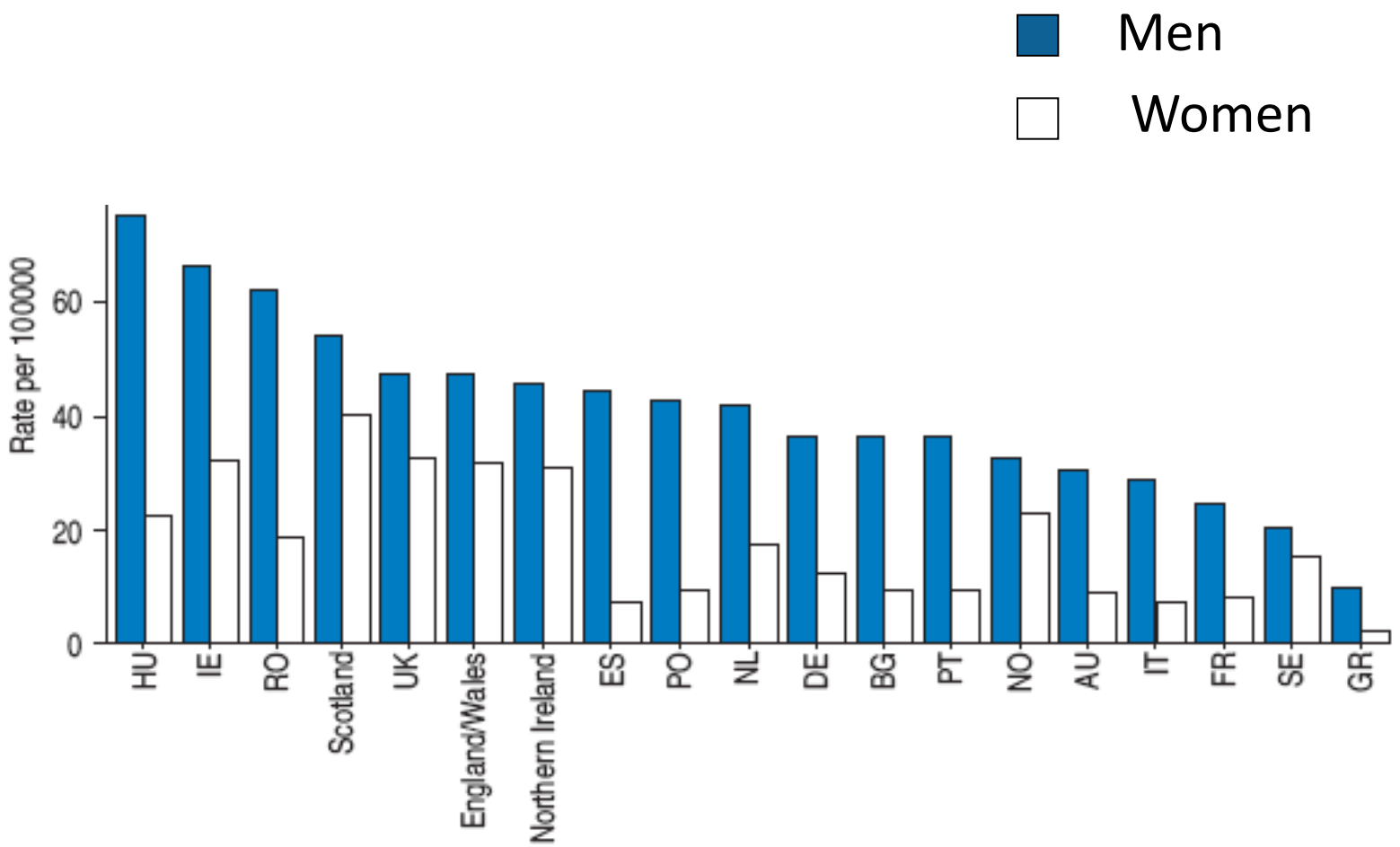
COPD Mortality (3)

Figure III.5. Number of years and percentage of survival gap in selected regions due to excess mortality from heart diseases, stroke, cancers, diabetes, and chronic obstructive pulmonary disease, 2005-2010



United Nations Department of Economic and Social Affairs/Population Division
Changing Levels and Trends in Mortality: The role of patterns of death by cause

COPD Mortality (4)



European Lung White Book, 2003

European COPD mortality (5)

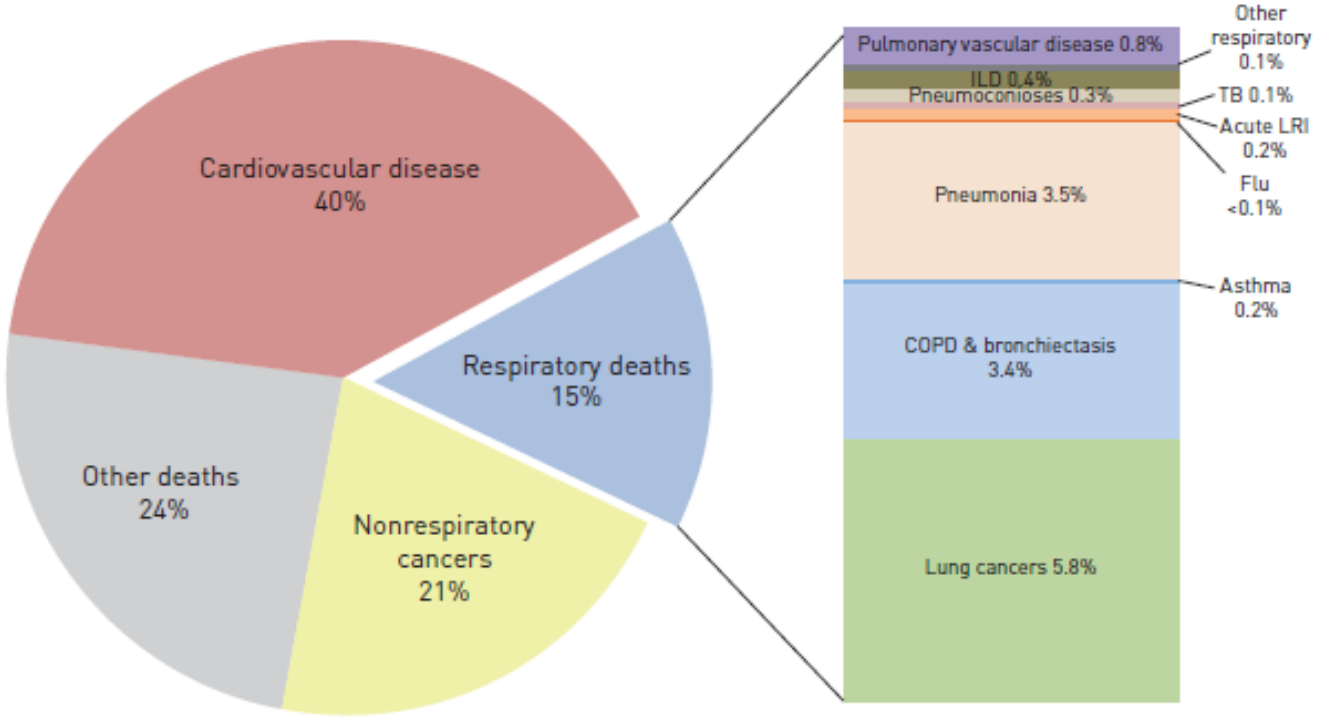
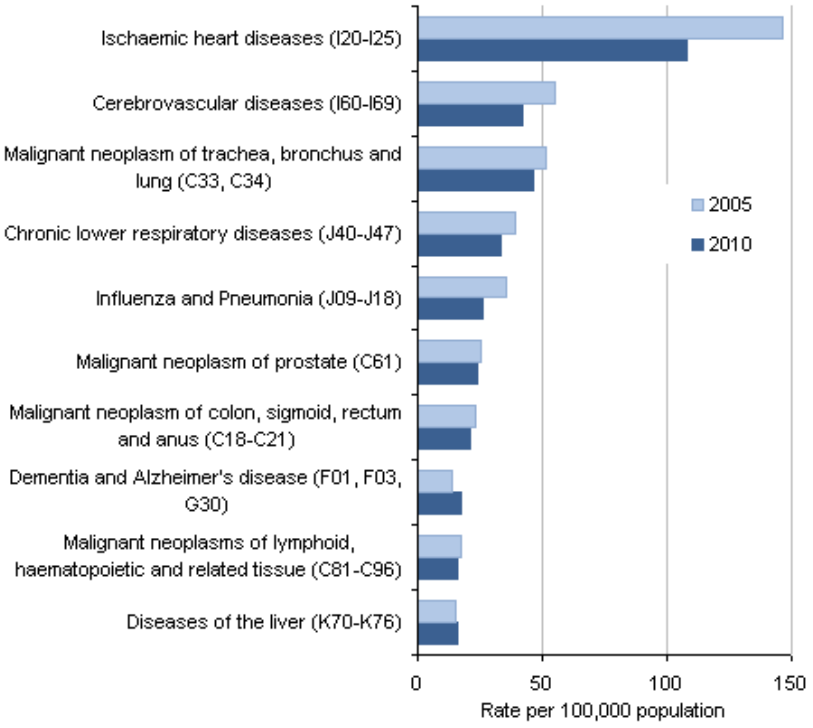


Figure 3 – Percentage of deaths in selected European Union countries, by respiratory condition. ILD: interstitial lung disease; TB: tuberculosis; LRI: lower respiratory infections; COPD: chronic obstructive pulmonary disease. The countries represented are those for which full ICD-10 coding of diagnoses was available for both hospital admissions and deaths (Austria, Croatia, Cyprus, Czech Republic, Denmark, Finland, Latvia, Lithuania, Luxembourg, Malta, Poland, Slovenia, Slovakia, UK). Source: World Health Organization World and Europe Detailed Mortality Databases.

European Lung White Book 2013. Ch 2

COPD Mortality (6)

Male age-standardised mortality rates for the ten leading causes of death, 2010 and comparison rates for 2005 for England and Wales



Female age-standardised mortality rates for the ten leading causes of death, 2010 and comparison rates for 2005 for England and Wales

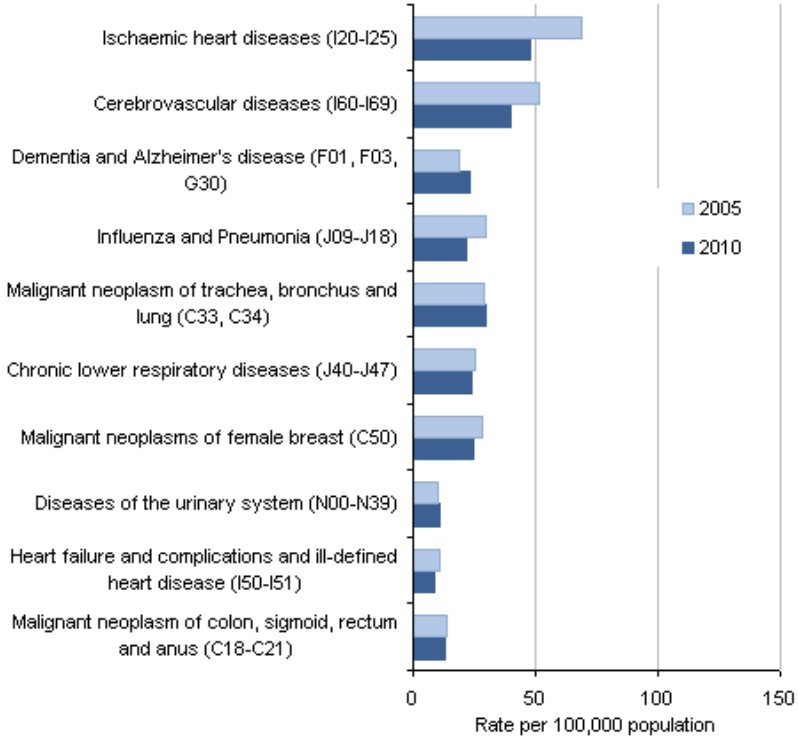
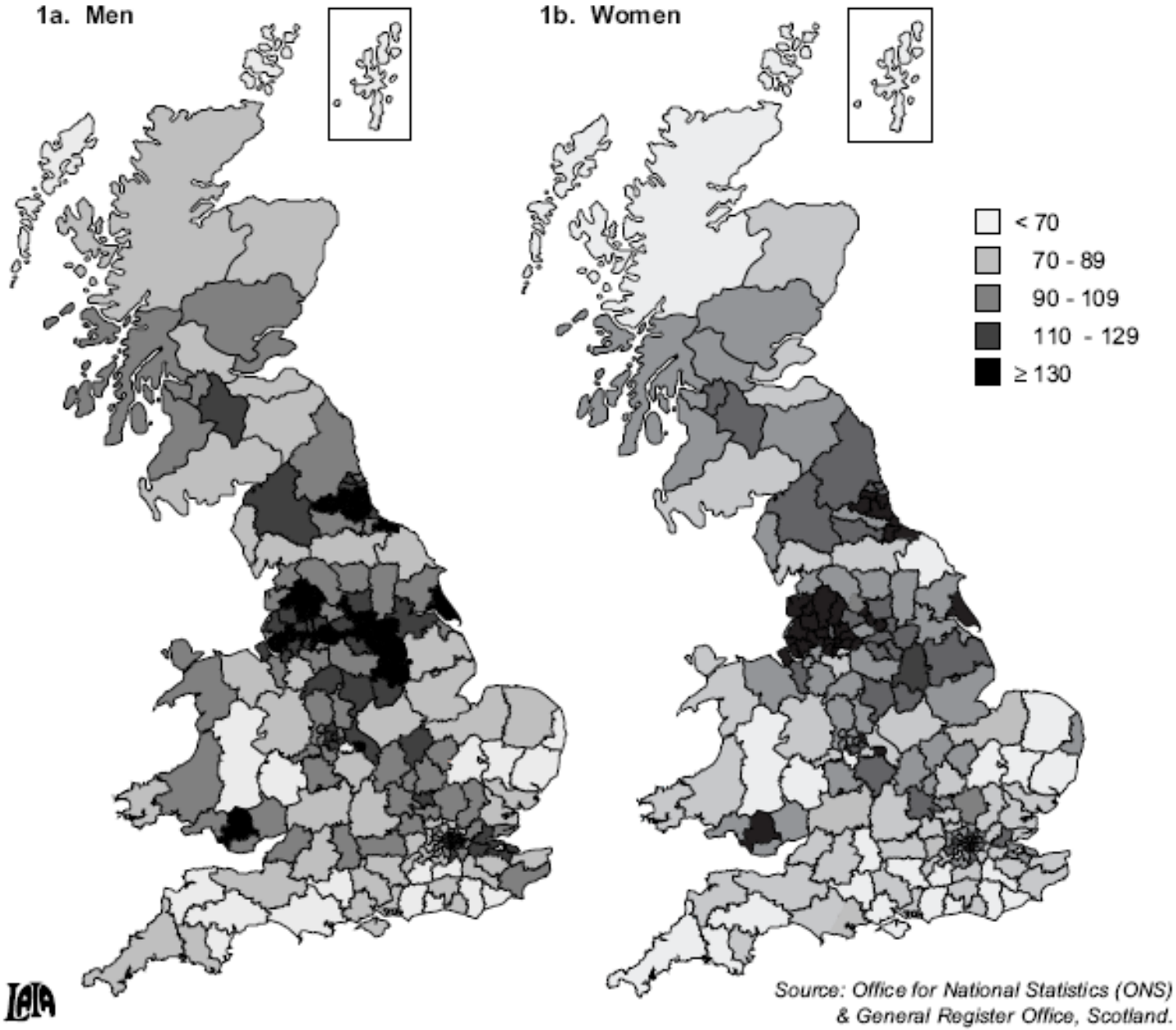


Figure 1: Standardised mortality ratios by District Health Authority in England & Wales and Health Board in Scotland, ages 65+, 1990-92.



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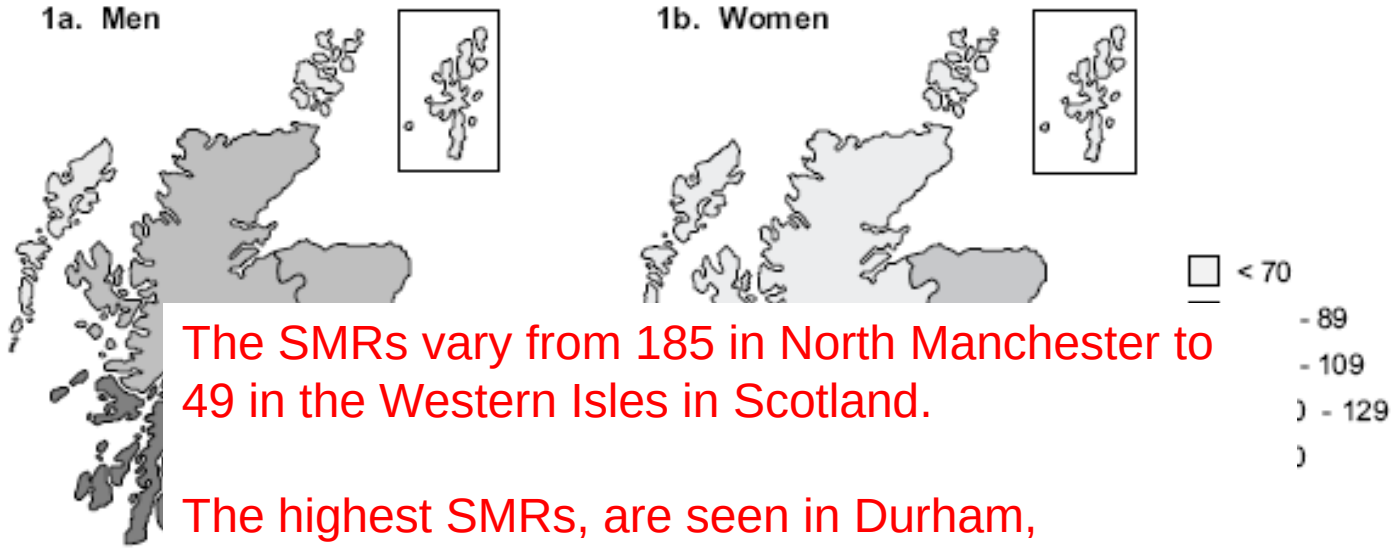


The SMRs vary from 185 in North Manchester to 49 in the Western Isles in Scotland.

The highest SMRs, are seen in Durham, Lancashire, Yorkshire, London and South Wales.

The lower SMRs, indicating relatively low mortality, tend to occur in more rural areas, such as East Anglia, South West England and Mid Wales.

Source: Office for National Statistics (ONS) & General Register Office, Scotland.

UK burden of COPD

- COPD kills ~ 25,000 people a year in England and Wales[1]
- Accounts for 4.8% of all deaths in England between 2007 and 2009[2]
- It is the fifth biggest killer disease in the UK
- There are around 835,000 people currently diagnosed with COPD in the UK
  - an estimated 2,200,000 people remain undiagnosed, which is equivalent to 13% of the population of England aged 35 and over[3]

[1] National Statistics. www.statistics.gov.uk [2] National End of Life Care Intelligence Network. *Deaths from Respiratory Diseases: Implications for end of life care in England. 2011* [3] Shahab L et al. *Thorax 2006*

MILD DISEASE

COPD, A Life Story

Mrs AB, age 54

SYMPTOMS

4/7 increased cough, breathlessness, sputum volume and turned green
Feels 'tight'

OTHER INFORMATION

"I get a bit of 'bronchitis' in winter, and a bit breathless on exertion"
Smoker 20/day for 35 years
PMHx – raised BP, nil else significant
No respiratory medication
Brother had asthma

OBSERVATIONS

SpO_2 96% on air, RR 20/min
CVS: Stable
Apyrexial
Auscultation: Expiratory polyphonic wheeze, occasional expiratory crackles

SHORT TERM GOALS

MEDIUM TERM GOALS → **LONG** TERM GOALS

SHORT TERM GOALS

1.Treat acute infection

2. Hand held screening?

3.

MEDIUM TERM GOALS

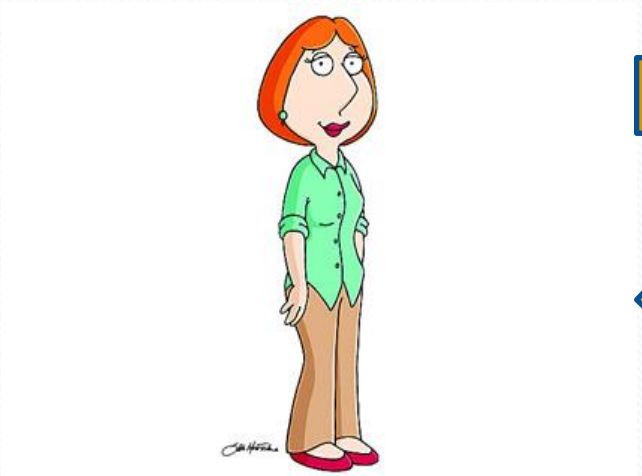
1. DIAGNOSIS

2.

LONG TERM GOALS

COPD

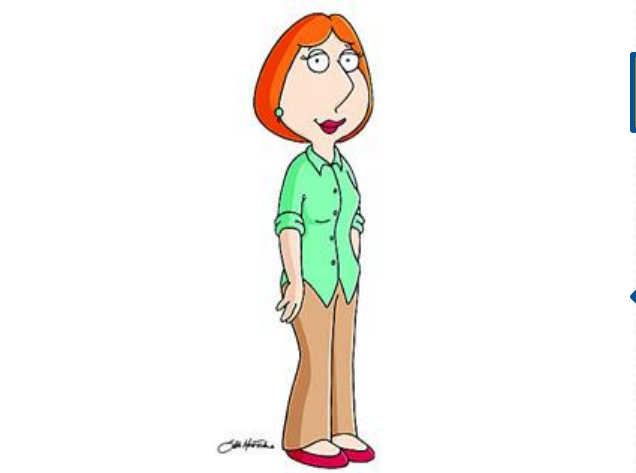
Asthma



‘Other’

COPD

Asthma



Over 35
Smoker or **Ex-smoker**
Less variable Symptoms
- exertional cough
- chronic cough
- regular sputum
- winter ‘bronchitis’
- wheeze

‘Other’

COPD

Asthma

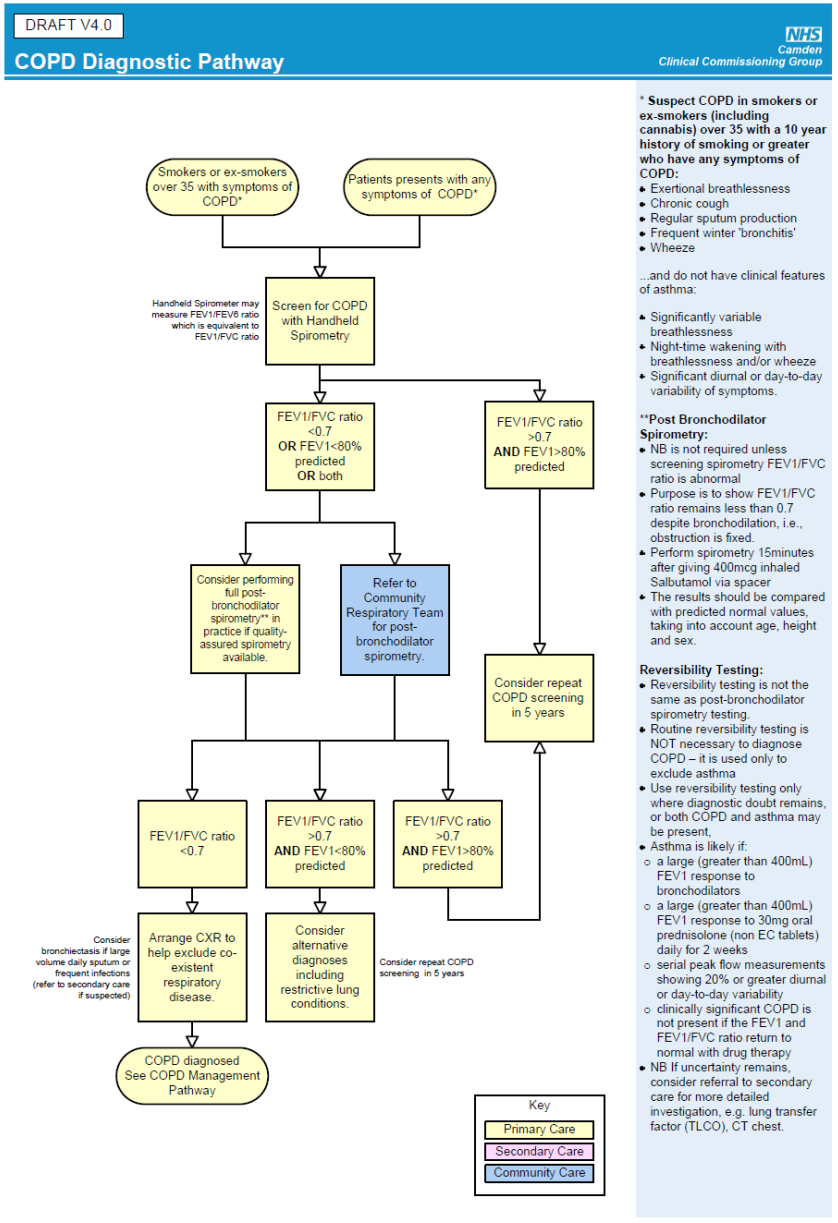
Over 35
Smoker or Ex-smoker
Less variable Symptoms
- exertional cough
-chronic cough
- regular sputum
- winter ‘bronchitis’
- wheeze

Any age
Non-Smoker (smoker or ex)
Diurnal Variability
- Chronic non-productive cough
- significantly variable SOB
- night time wakening with cough/wheeze
History of Atopy

‘Other’

When and Where to refer?

http://www.camdenccg.nhs.uk/gps/pathways



Where to refer for Diagnosis?

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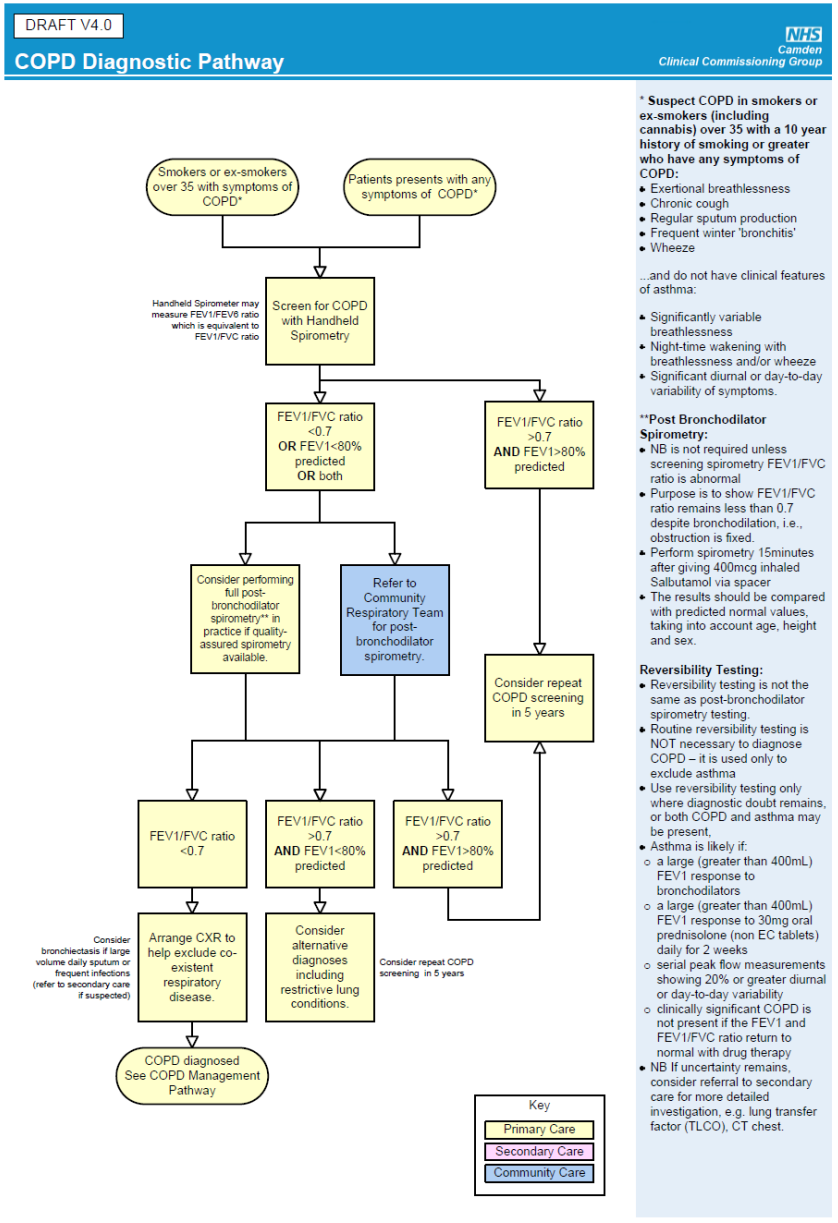
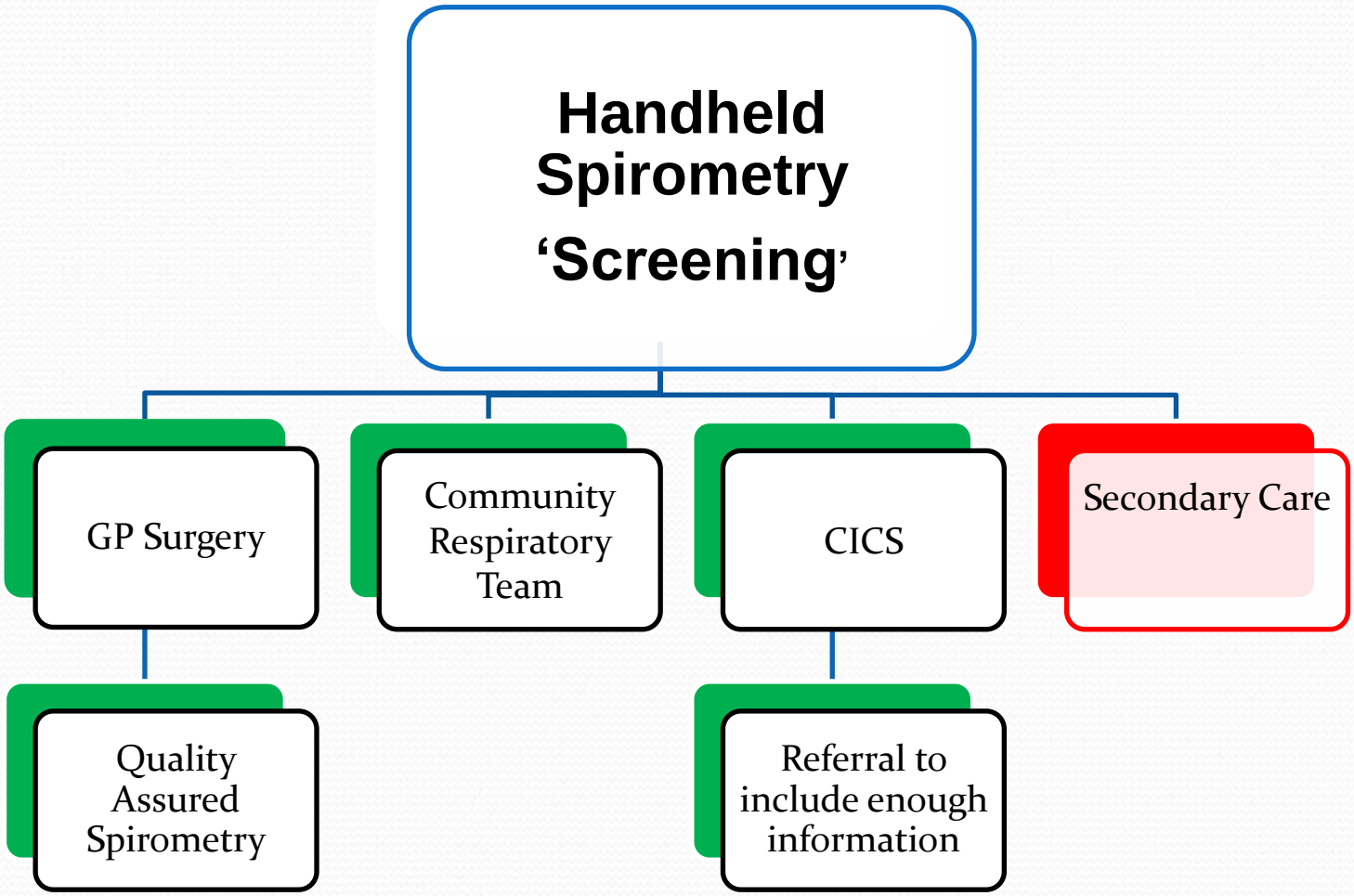


Where to refer for Diagnosis?



Spirometry and Diagnosis

Spirometry

FEV_1 = 80%
FVC = 119%
Ratio FEV_1/FVC = 67%

Post-Bronchodilator
Stage 1 MILD
Stage 2 MODERATE
Stage 3 SEVERE
Stage 4 VERY SEVERE

http://guidance.nice.org.uk/CG101

Diagnosis

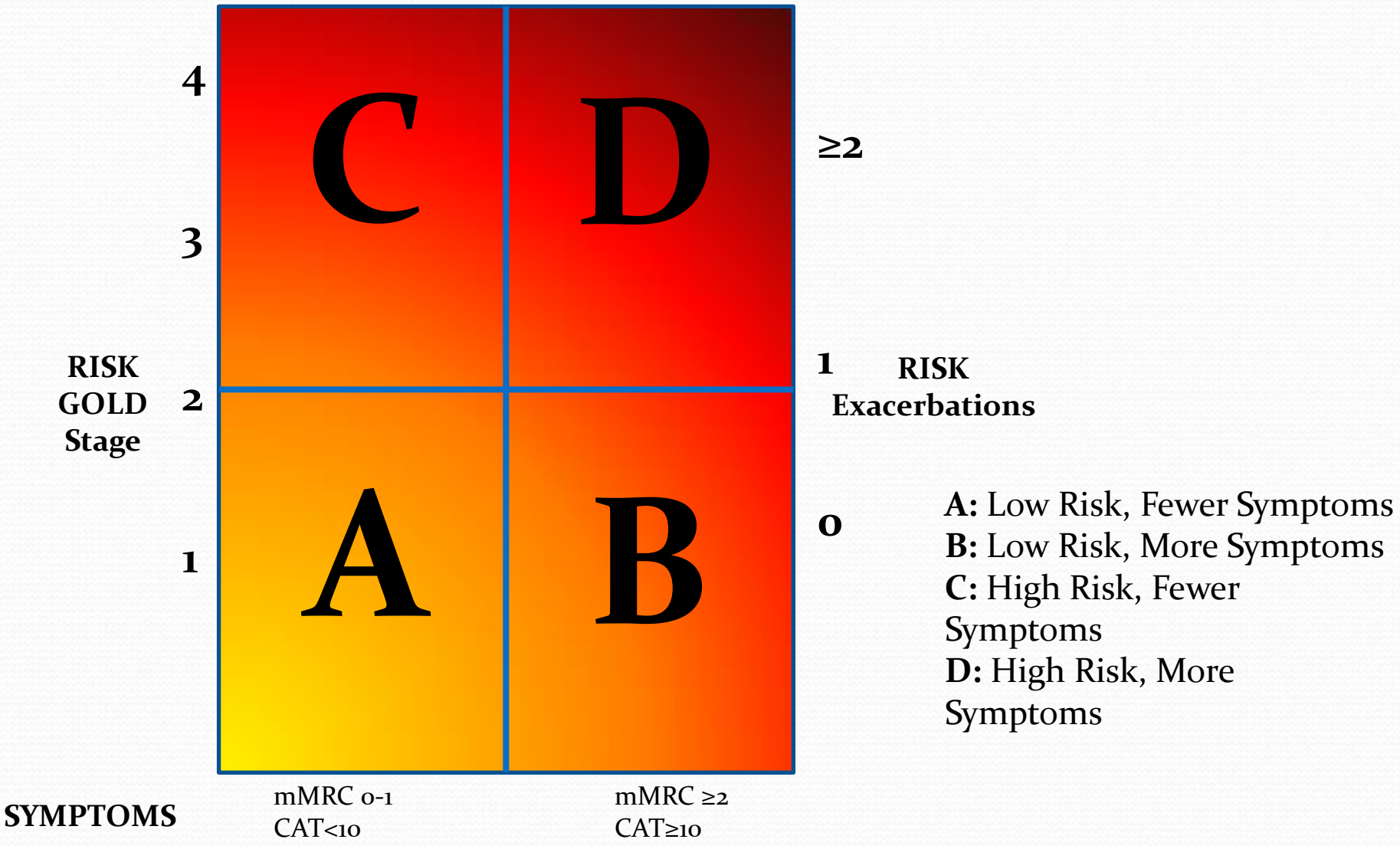
Spirometry

FEV_1 = 80%
FVC = 119%
Ratio FEV_1/FVC = 67%

FEV1 % Predicted	FEV1/ FVC	Post-Bronchodilator
>80%	<0.7	Stage 1 MILD
50-79%	<0.7	Stage 2 MODERATE
30-49%	<0.7	Stage 3 SEVERE
≤30%	<0.7	Stage 4 VERY SEVERE

http://guidance.nice.org.uk/CG101

GOLD: Thinking about Pharmacotherapy



A: Low Risk, Fewer Symptoms
B: Low Risk, More Symptoms
C: High Risk, Fewer Symptoms
D: High Risk, More Symptoms

SHORT TERM GOALS

1. Treat acute infection
2. Hand held screening?
3.

MEDIUM TERM GOALS

1. DIAGNOSIS

2.

LONG TERM GOALS

1.Pharmacological measures

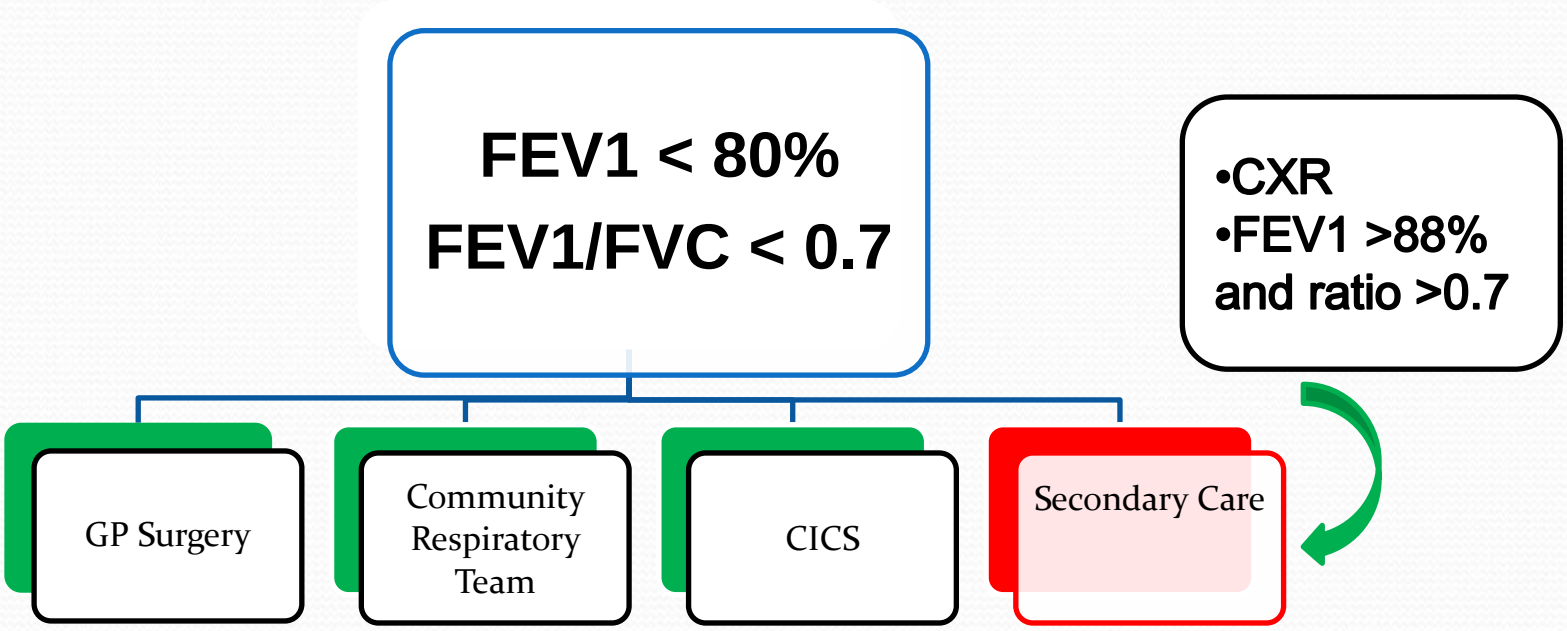
2.Pulmonary Rehabilitation

3.Vaccines, SpO2, anxiety & depression

4. CXR

5.

Where to manage?



GROUP SESSIONS

Spirometry (Group 1)

Inhaler Techniques (Group 2)

Pulmonary Rehabilitation (Group 3)

15 MINS – Group Work

5-10 MINS - Feedback

What is Quality Assured Spirometry?

Interpretation of Spirometry

	Normal	Obstruction	Restriction
FEV_1 %			
FVC%			
FEV_1/FVC ratio			

Interpretation of Spirometry

	Normal	Obstruction	Restriction
FEV1 %	>80%		
FVC%	>80%		
FEV1/FVC ratio	>0.7		

Interpretation of Spirometry

	Normal	Obstruction	Restriction
FEV1 %	>80%	any	
FVC%	>80%	any	
FEV1/FVC ratio	>0.7	<0.7	

Interpretation of Spirometry

	Normal	Obstruction	Restriction
FEV1 %	>80%	any	<80%
FVC%	>80%	any	<80%
FEV1/FVC ratio	>0.7	<0.7	>0.7

Post-Bronchodilator

- If normal when performed without bronchodilator, no need to proceed to post bronchodilator spirometry
- Essential to diagnose COPD (post-bronchodilator)
- Large changes on reversibility (>400ml) suggest asthma

COPD: A Life Story "Moderate Disease"

Dr John Hurst PhD FRCP

j.hurst@ucl.ac.uk

Reader in Respiratory Medicine, UCL

Consultant Respiratory Physician, Royal Free London NHS Foundation Trust and Camden and Barnet Community COPD Services

Mrs AB

- Now aged 64 there are three major problems at the Surgery
  - Recurrent attendances with exacerbations
  - Deteriorating symptoms
  - Diagnosis of co-existent cardiac disease

The Principles of COPD Care

- Minimise symptoms
- Minimise exacerbations
- Preserve Lung Function
- Maximise functional capacity
- Maximise life expectancy

The Principles of COPD Care

- Minimise symptoms
- Minimise exacerbations
- Preserve Lung Function
- Maximise functional capacity
- Maximise life expectancy
- Management of Multi-Morbidity

1.

Exacerbations

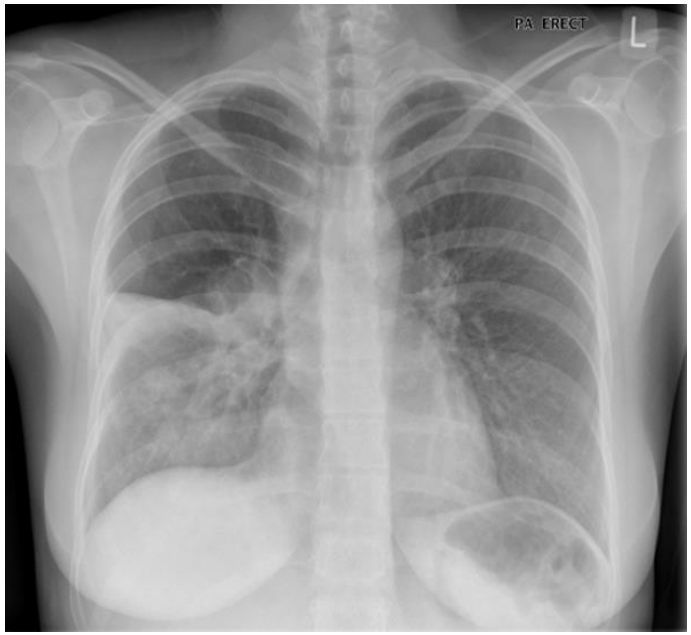
What is a COPD Exacerbation?

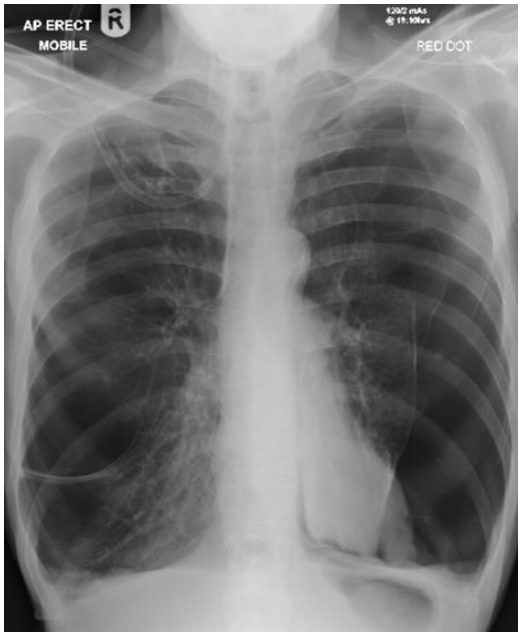
"an event in the natural course of the disease characterised by a change in the patient's baseline dyspnoea, cough, and/or sputum that is beyond normal day-to-day variations, is acute in onset, and may warrant a change in regular medication in a patient with underlying COPD"

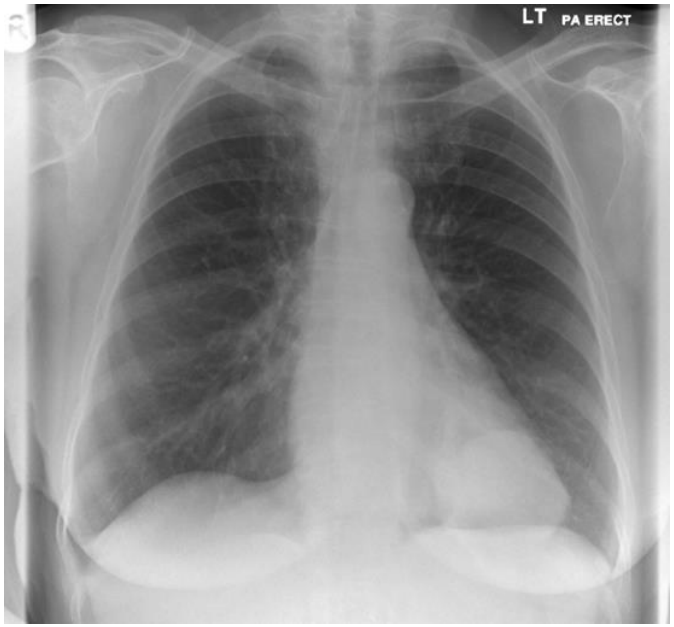
www.goldcopd.com

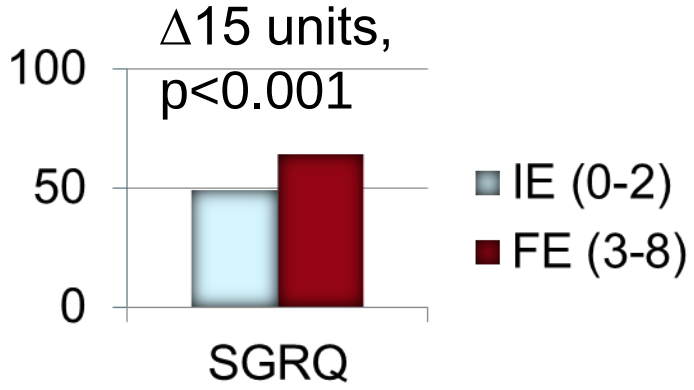
CLINICAL PRACTICE

Clinical diagnosis of exclusion (no diagnostic test)

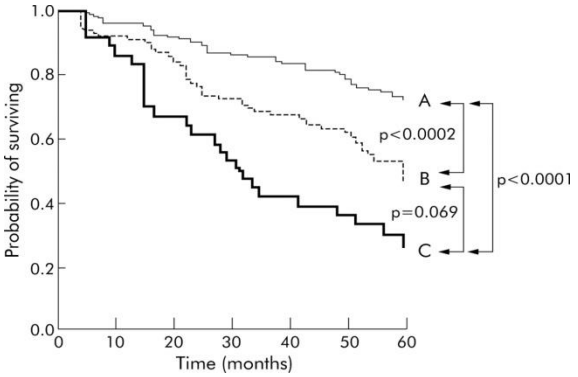








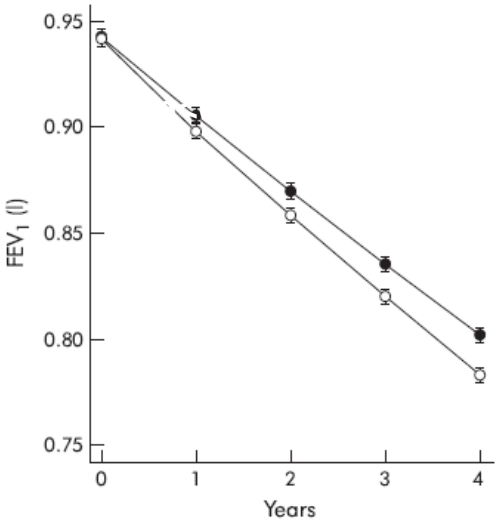
Seemungal TAR *et al. AJRCCM* 1998



Soler-Cataluna JJ *et al. Thorax* 2005

Frequent Exacerbation

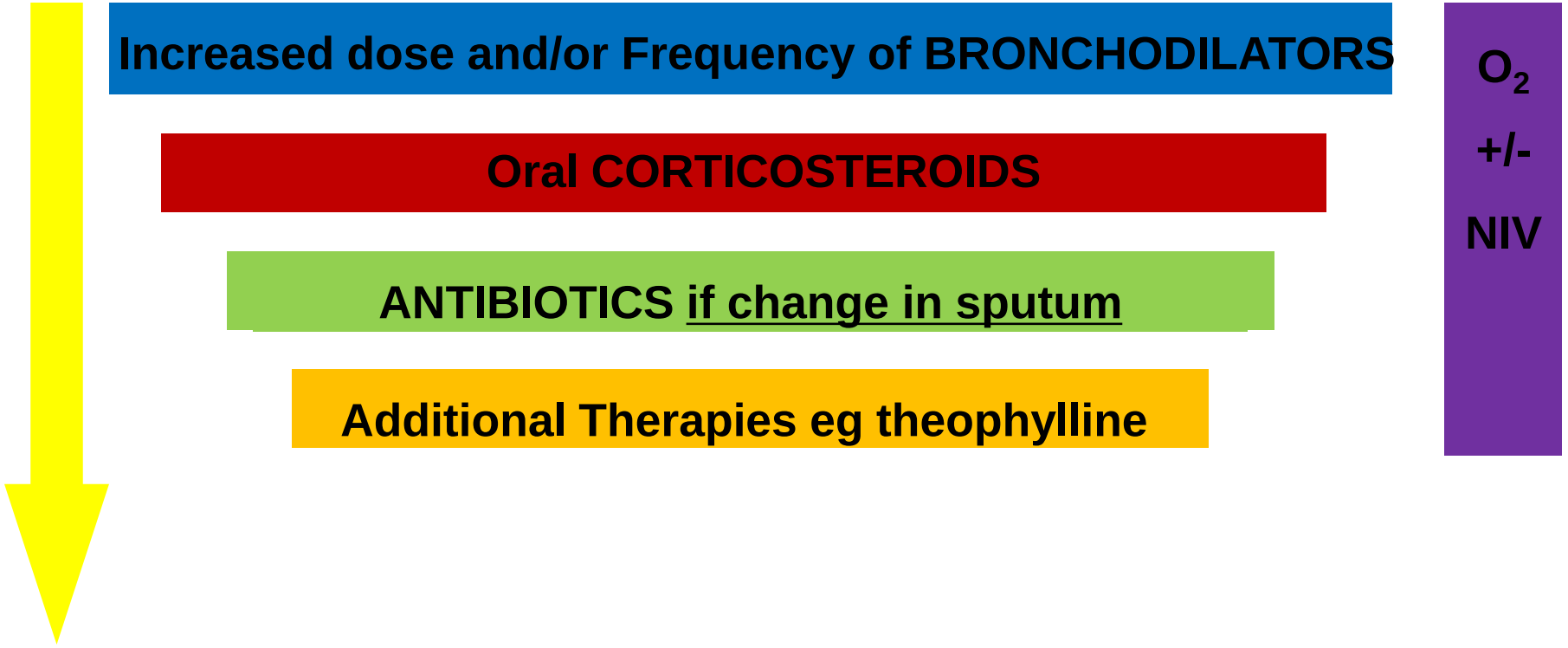
↑Costs



Donaldson GC *et al. Thorax* 2002

32 vs. 40 ml/year, p<0.05

Exacerbation Therapy



Exacerbation Reduction Strategies

Pharmacological

- ICS-LABA
- LAMA
- Macrolide
- Mucolytic

Non-Pharmacological

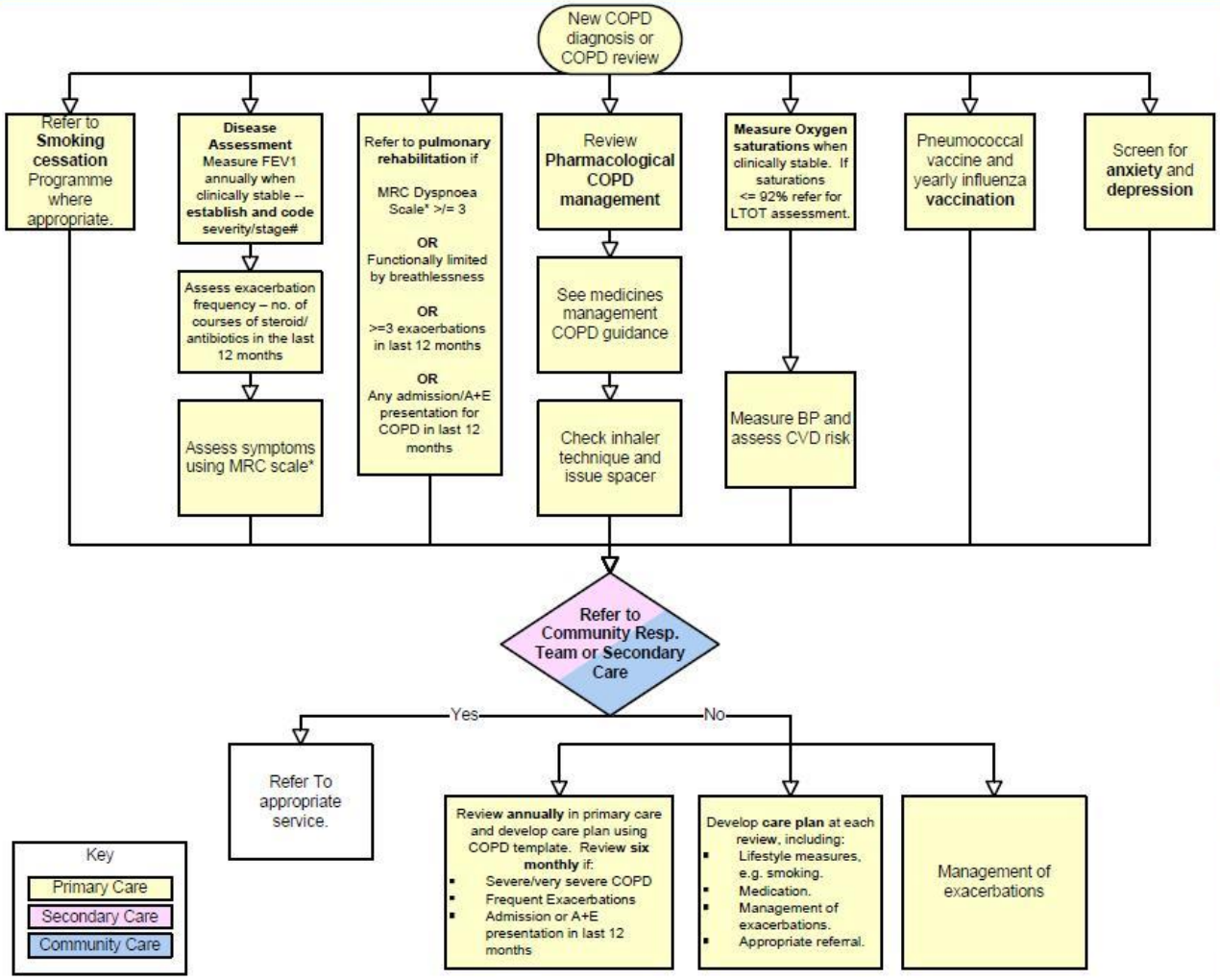
- LVRS
- **PR**
- Vaccination

Camden COPD Pathway

DRAFT V3.1

COPD Management Pathway

NHS Camden Clinical Commissioning Group



#COPD Severity/Stage (NICE 2010):

Stage 1	Mild	FEV1 >/= 80 % of predicted
Stage 2	Moderate	FEV1 50- 79 % of predicted
Stage 3	Severe	FEV1 30-49 % of predicted
Stage 4	V. Severe	FEV1 <30 % of predicted

***MRC Dyspnoea Scale:**

1. Not troubled by breathlessness except on strenuous exercise
2. Short of breath when hurrying or walking up a slight hill
3. Walks slower than contemporaries on level ground because of breathlessness, or has to stop for breath when walking at own pace
4. Stops for breath after walking about 100m or after a few minutes on level ground
5. Too breathless to leave the house, or breathless when dressing or undressing

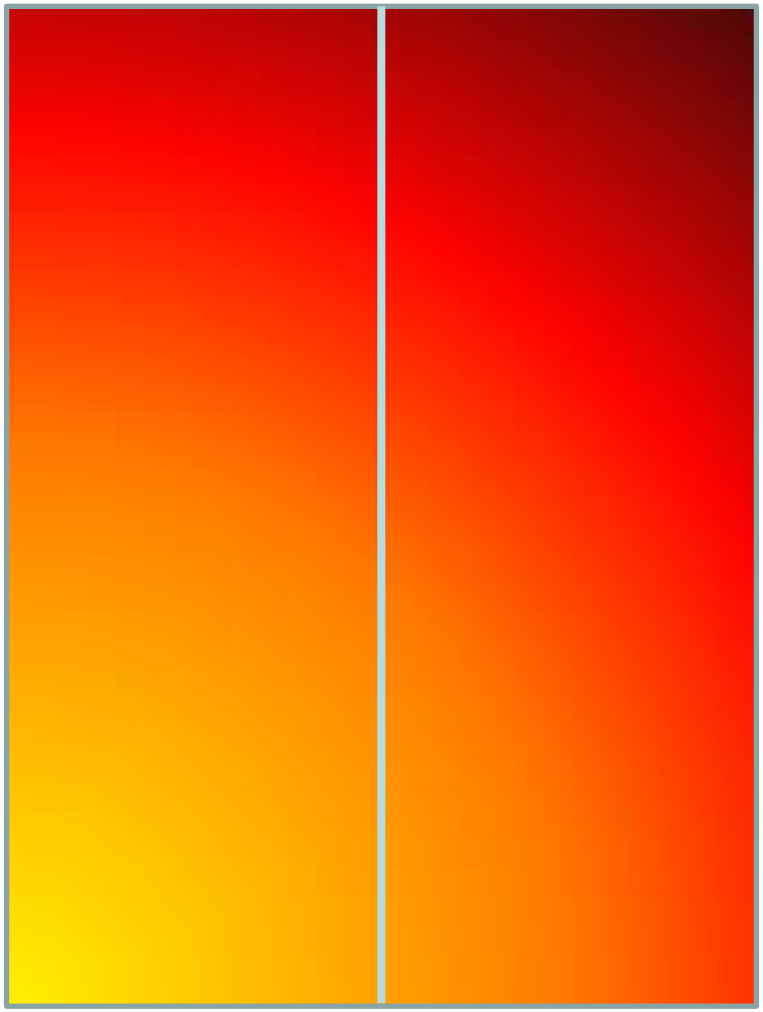
****Referral Criteria for Secondary Care:**

- Diagnostic doubt (may need more advanced lung function and CT etc)
- New respiratory failure (O2 Sats <=92%) and all those with type 2 respiratory failure (need blood gases/long term oxygen therapy (LTOT) assessment)
- Severe disease, defined as Stage 3 or 4 at age <60 years (possible transplant)

****Referral Criteria for CICS/Community Resp. Team:**

- New diagnosis at Stage 3 or 4 not covered by above
- Symptomatic despite appropriate therapy
- Recurrent exacerbations (>=3 year) despite therapy
- Anyone who has been hospitalised because of their COPD
- Rapid decline in annual spirometry
- Difficulty with compliance/concordance
- Need for Pulmonary Rehabilitation
- Prominent anxiety / depression (for psychologist)
- Management of acute exacerbations
- Supported Discharged

GOLD: Thinking about Pharmacotherapy

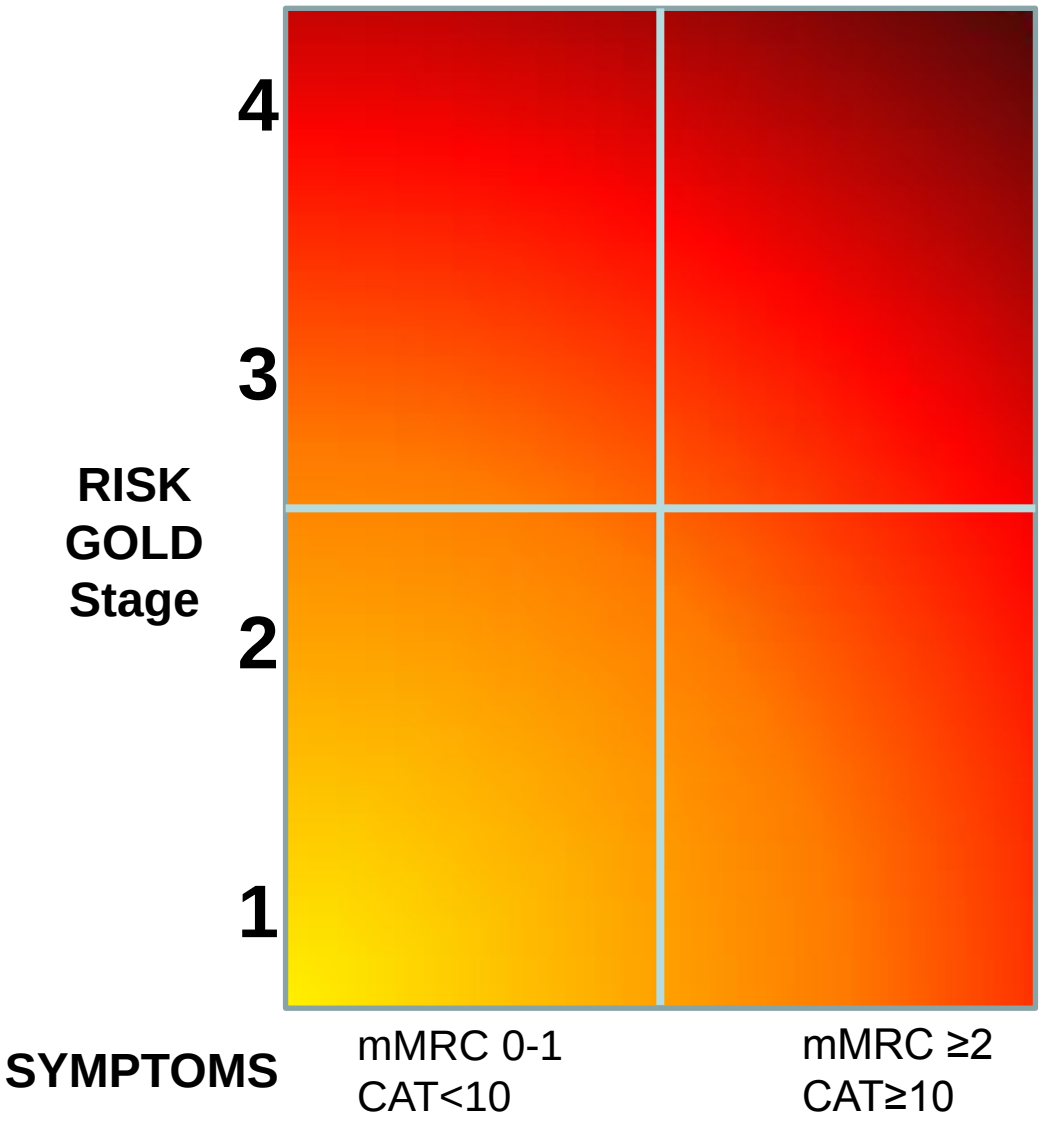


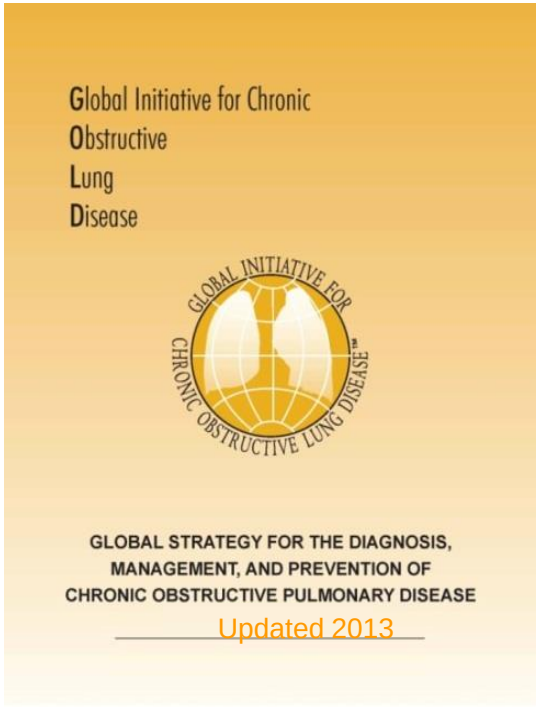
SYMPTOMS

mMRC 0-1
CAT<10

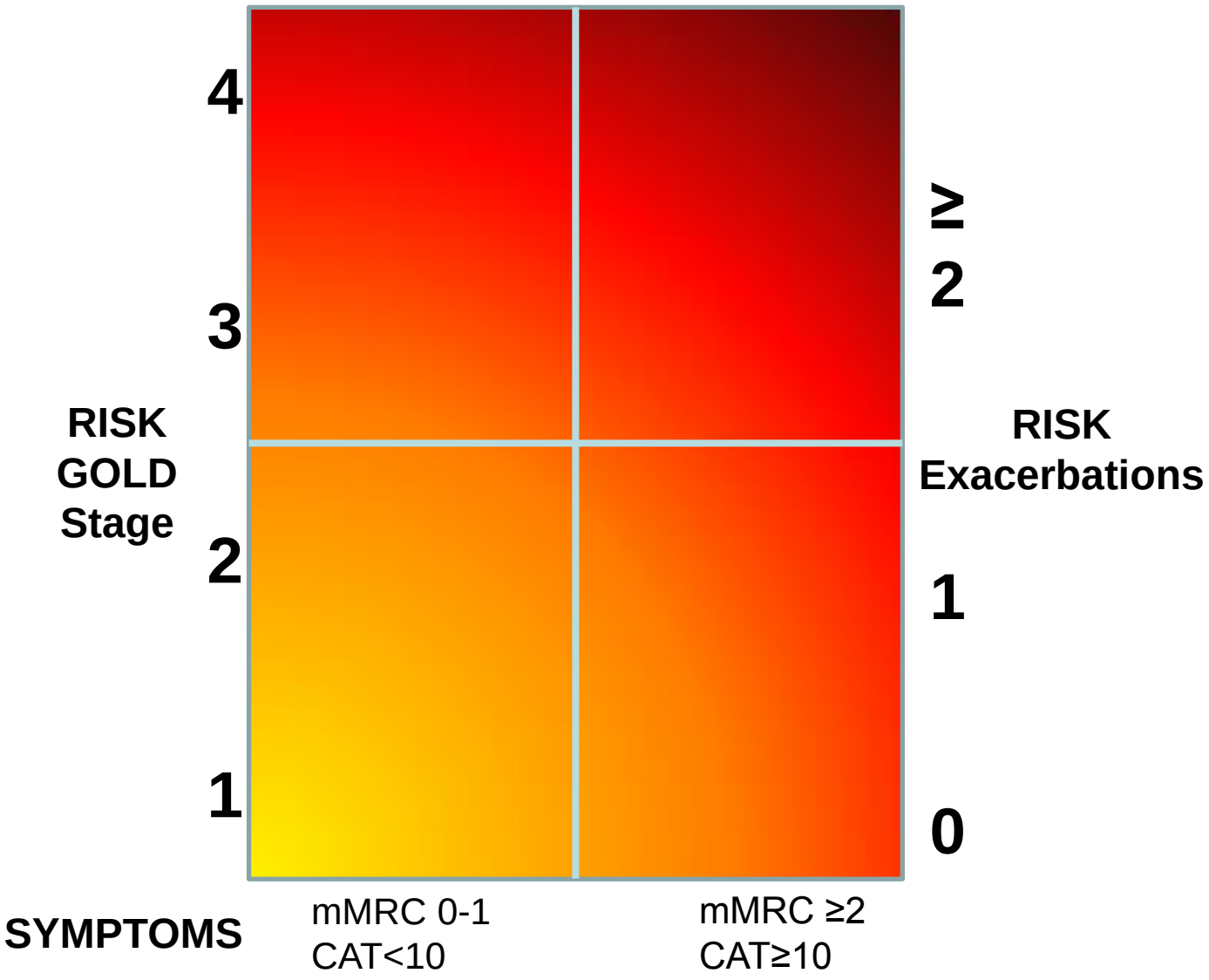
mMRC ≥2
CAT≥10

GOLD: Thinking about Pharmacotherapy

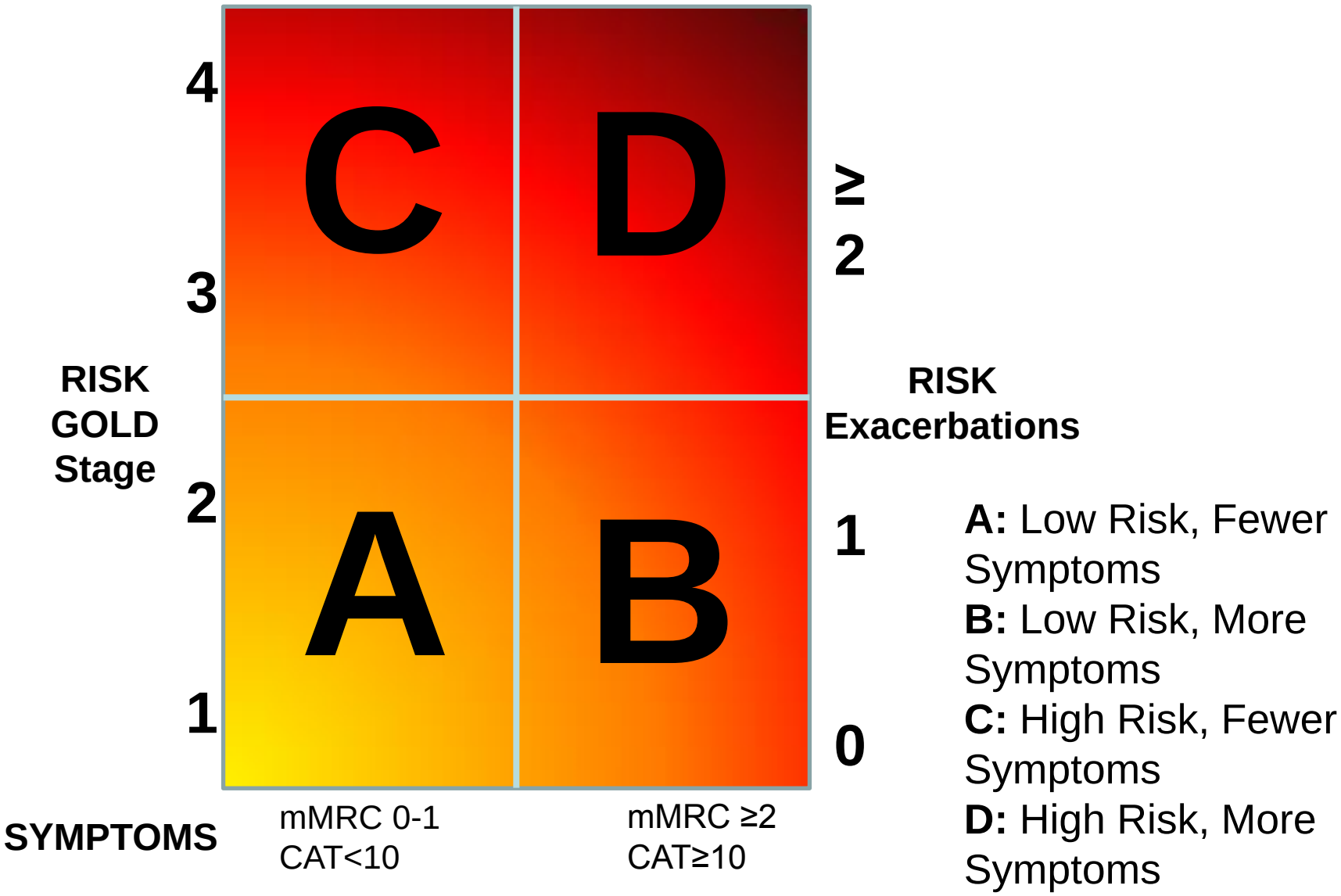




GOLD: Thinking about Pharmacotherapy



GOLD: Thinking about Pharmacotherapy



A: Low Risk, Fewer Symptoms
B: Low Risk, More Symptoms
C: High Risk, Fewer Symptoms
D: High Risk, More Symptoms

GOLD Guideline

- Suggested first line therapy

A: Low Risk, Fewer Symptoms

SABA or SAMA PRN

B: Low Risk, More Symptoms

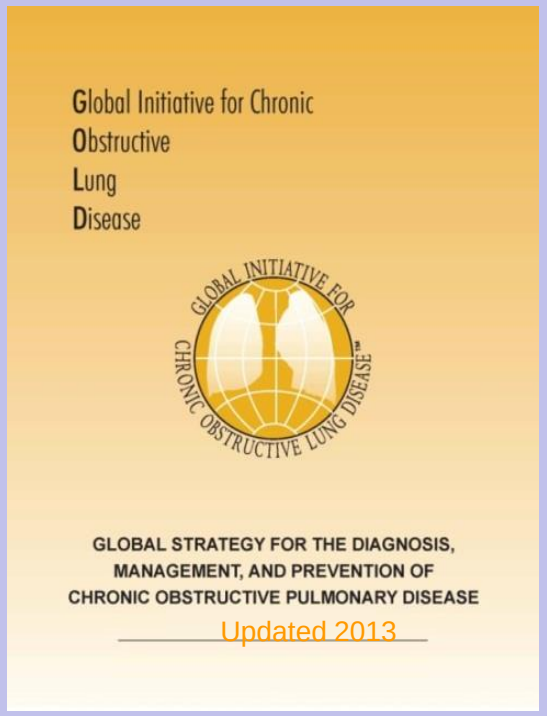
LABA or LAMA

C: High Risk, Fewer Symptoms

ICS/LABA or LAMA

D: High Risk, More Symptoms

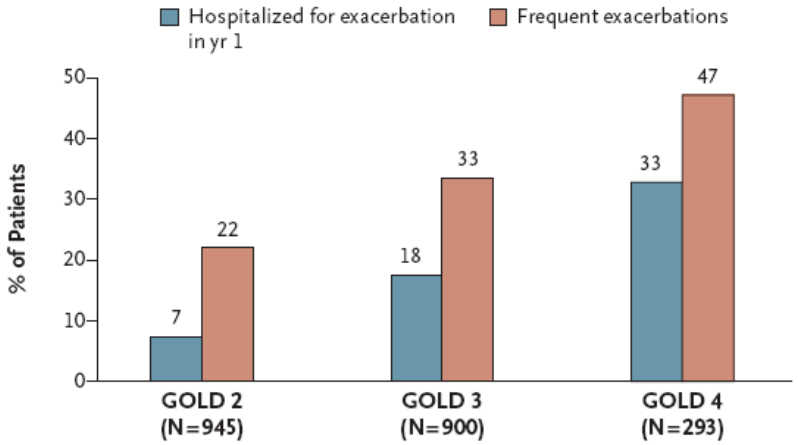
ICS/LABA and/or LAMA

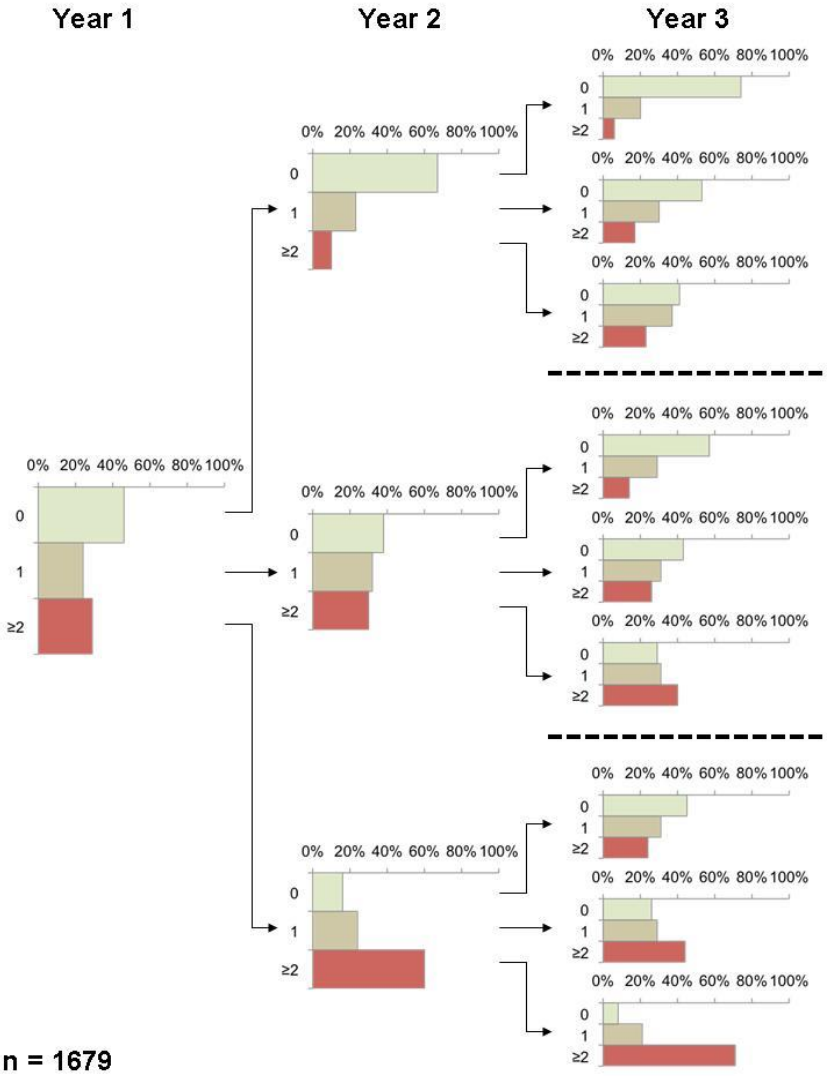


Therapeutic Expectations

- How to assess response?
- Stopping drugs that aren’t effective.

Exacerbation Susceptibility

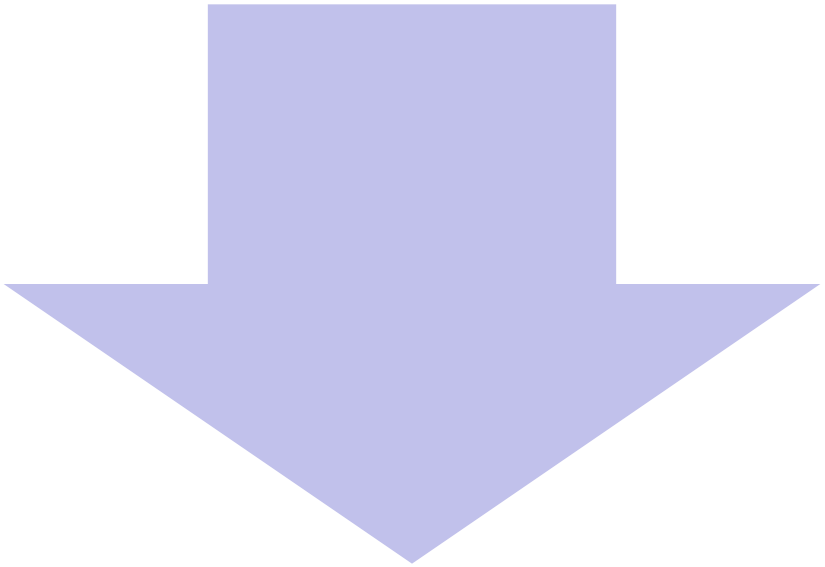




Hurst JR *et al.* *N Engl J Med* 2010;363:1128-1138

Identifying the Frequent Exacerbator

“How many courses of antibiotics and/or steroids did you need for you chest over the last year?”



Better targeting (personalised / stratified medicine).

2.

Multi-Morbidity

COPD and Cardiovascular Death

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Ascertainment of cause-specific mortality in COPD: operations of the TORCH Clinical Endpoint Committee

Lorcan P McGarvey, Matthias John, Julie A Anderson, Michael Zvarich, Robert A Wise

Thorax 2007;**62**:411–415. doi: 10.1136/thx.2006.072348

Table 1 Classification of cause-specific mortality (n = 911)

System	%	Subcategory	%
Cardiovascular	26	Congestive heart failure	3
		Myocardial infarction	3
		Stroke	4
		Sudden death	16
Respiratory	35	COPD	27
		Pneumonia	8
		Other	<1
Cancer	21	Lung	14
		Other	7
Other cause	10		
Unknown cause	8		

Co-Morbidity

Comorbidity

From Wikipedia, the free encyclopedia

(Redirected from Co-morbidity)

In medicine, **comorbidity** (literally "additional morbidity") is either the presence of one or more disorders (or diseases) in addition to a primary disease or disorder, or the effect of such additional disorders or diseases.

Co-Morbidity

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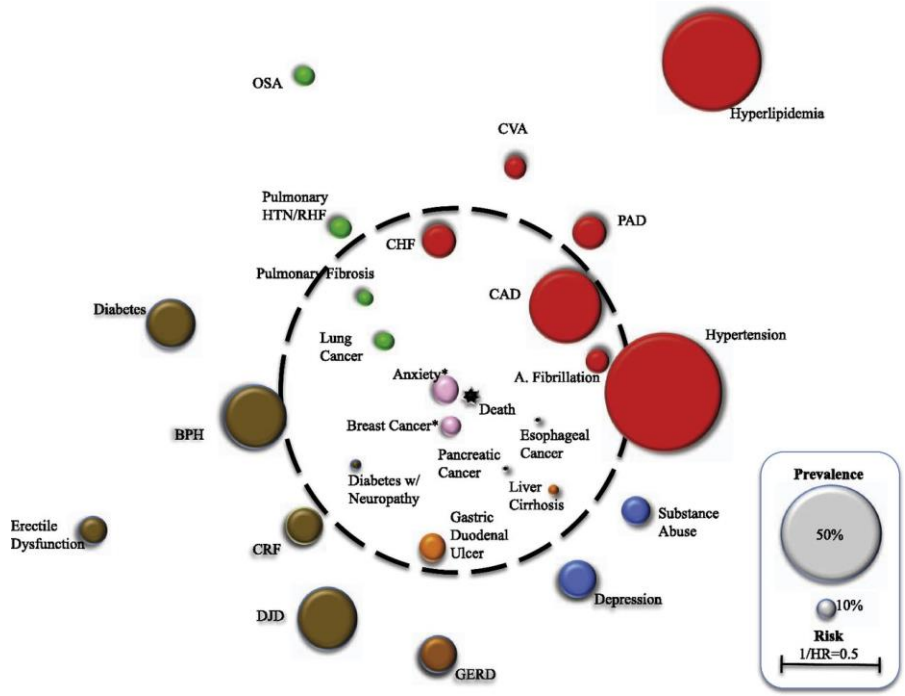
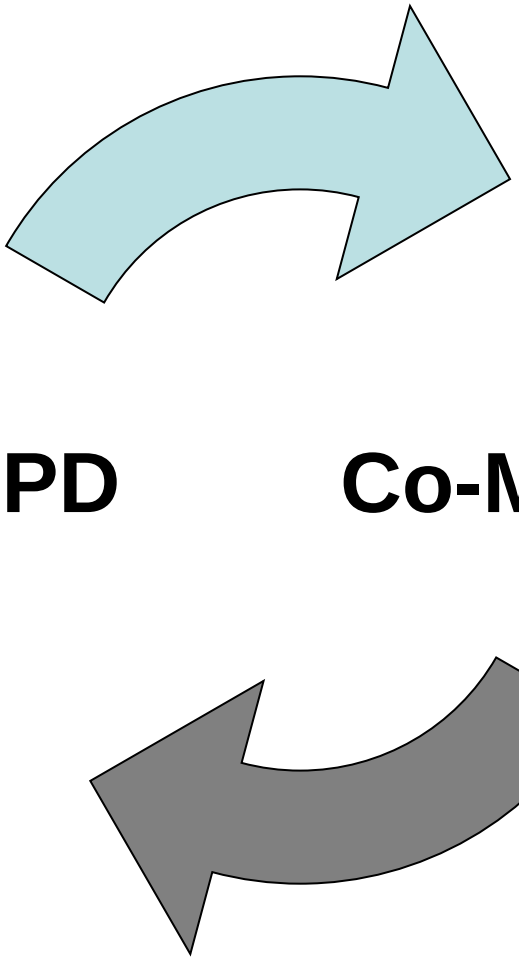


Divo M *et al.* *AJRCCM* 2012;186:pp 155–161


COPD
Co-Morbidity

COPD affects Co-Morbidity

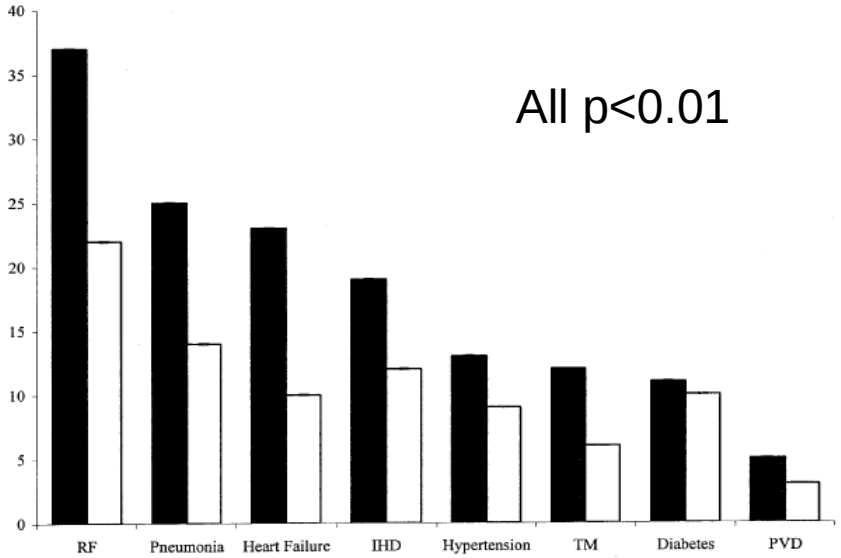
Comorbidity and Mortality in COPD-Related Hospitalizations in the United States, 1979 to 2001*

Fernando Holguin, MD; Erik Folch, MD; Stephen C. Redd, MD; and David M. Mannino, MD, FCCP

Study objectives: **COPD is one of the leading causes of mortality and morbidity in the United States, yet little is known about the prevalence of comorbid conditions and mortality in hospitalized patients with COPD.**
Design: **From the National Hospital Discharge Survey, 1979 to 2001, we evaluated whether or not COPD in adults ≥ 25 years old is associated with increased prevalence and in-hospital mortality of several comorbidities.**
Results: **During 1979 to 2001, there were an estimated total of 47,404,700 hospital discharges (8.5% of all hospitalizations in adults > 25 years old) of patients with COPD; 37,540,374 discharges (79.2%) were made with COPD as a secondary diagnosis, and 9,864,278 discharges (20.8%) were made with COPD as the primary diagnosis. The prevalence and in-hospital mortality for pneumonia, congestive heart failure, ischemic heart disease, thoracic malignancies, and respiratory failure were larger in hospital discharges with any mention of COPD.**
Conclusions: **In a nationally representative sample of hospitalizations, any mention of COPD in the discharge diagnosis is associated with higher hospitalization prevalence and in-hospital mortality from other comorbidities. These results highlight the fact that the burden of disease associated with COPD is likely underestimated.** ***(CHEST 2005; 128:2005–2011)***

Key words: COPD; comorbidity; in-hospital mortality

Abbreviations: ICD-9 = *International Classification of Diseases, Ninth Revision*; NHDS = National Hospital Discharge Survey



All p<0.01

FIGURE 3. Estimated in-hospital mortality of hospital discharges associated with selected comorbidities in patients with and without COPD, NHDS 1979 to 2001. Bars represent the age-adjusted percentage with SE bars. Black bars show patients with COPD (either as primary or secondary discharge diagnosis). White bars show patients without any mention of a COPD discharge diagnosis. The in-hospital mortality for all listed comorbidities is different across COPD categories ($p < 0.01$). See Figure 2 legend for expansion of abbreviations.

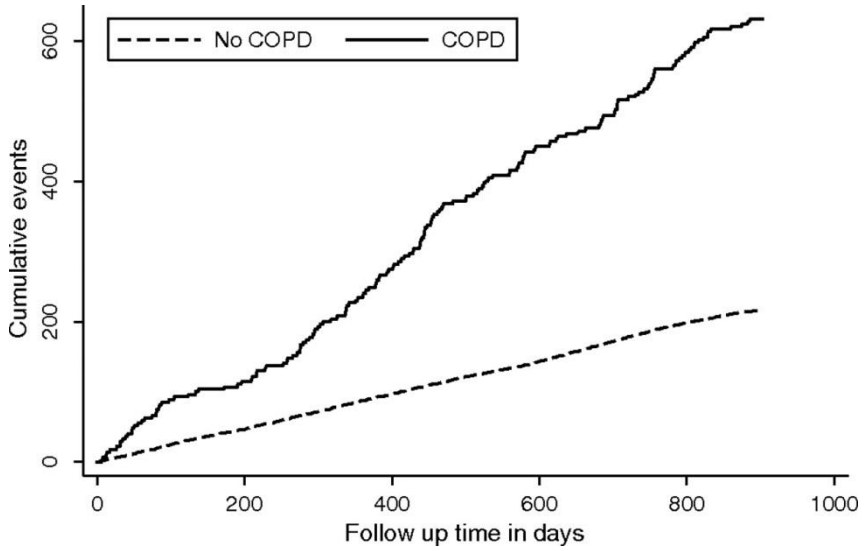
>$47x10^6$ hospital discharges in patients with COPD

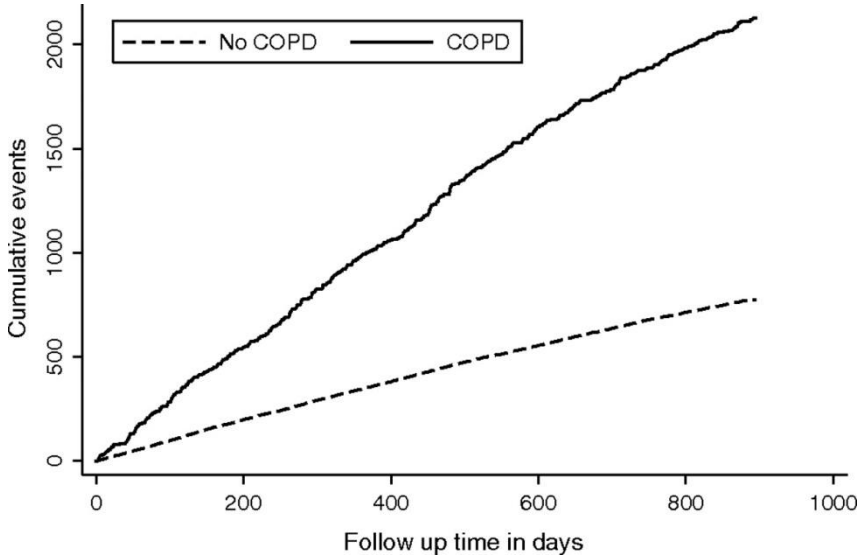
COPD and incident vascular events

Prevalence of major comorbidities in subjects with COPD and incidence of myocardial infarction and stroke: a comprehensive analysis using data from primary care

Thorax 2010;**65**:956–962. doi:10.1136/thx.2009.128082

Johanna R Feary,[1,2] Laura C Rodrigues,[2] Christopher J Smith,[1] Richard B Hubbard,[1] Jack E Gibson[1]





COPD and β-blockers

- Safe and underused
- Avoid if clinical suspicion of asthma

Summary

- Exacerbations are important events
- Not every deterioration in symptoms is an exacerbation
- High-risk patients can be identified for reduction strategies using a simple question
- COPD is rarely seen in isolation
- Managing co-morbidity, especially cardiovascular disease is key to improving outcomes

COPD: A Life Story "Severe Disease"

Dr Jennifer Quint

Objectives

- Who needs secondary care
- Hospitalisation
- Surgical options
- Oxygen
- NIV
- Nebulisers
- Palliative care

Our Patient

- Mrs AB who first presents age 50 with exertional breathlessness and colds that go down to her chest needing antibiotics

NICE guidance for referral

- Diagnostic uncertainty
- Severe COPD
- The patient requests a second opinion
- Onset of cor pulmonale
- Assessment for oxygen therapy
- Assessment for long-term nebuliser therapy
- Optimise therapy and exclude inappropriate prescriptions
- Assessment for oral corticosteroid therapy
- Justify need for long-term treatment or supervise withdrawal
- Bullous lung disease
- A rapid decline in FEV1
- Assessment for pulmonary rehabilitation
- Assessment for lung volume reduction surgery
- Assessment for lung transplantation
- Dysfunctional breathing
- Onset of symptoms under 40 years or a family history of alpha-1 antitrypsin deficiency
- Uncertain diagnosis
- Symptoms disproportionate to lung function deficit
- Frequent infections
- Haemoptysis

Local guidelines

****Referral Criteria for Secondary Care:**

- Diagnostic doubt (may need more advanced lung function and CT etc)
- New respiratory failure (O2 Sats <=92%) and all those with type 2 respiratory failure (need blood gases/long term oxygen therapy (LTOT) assessment)
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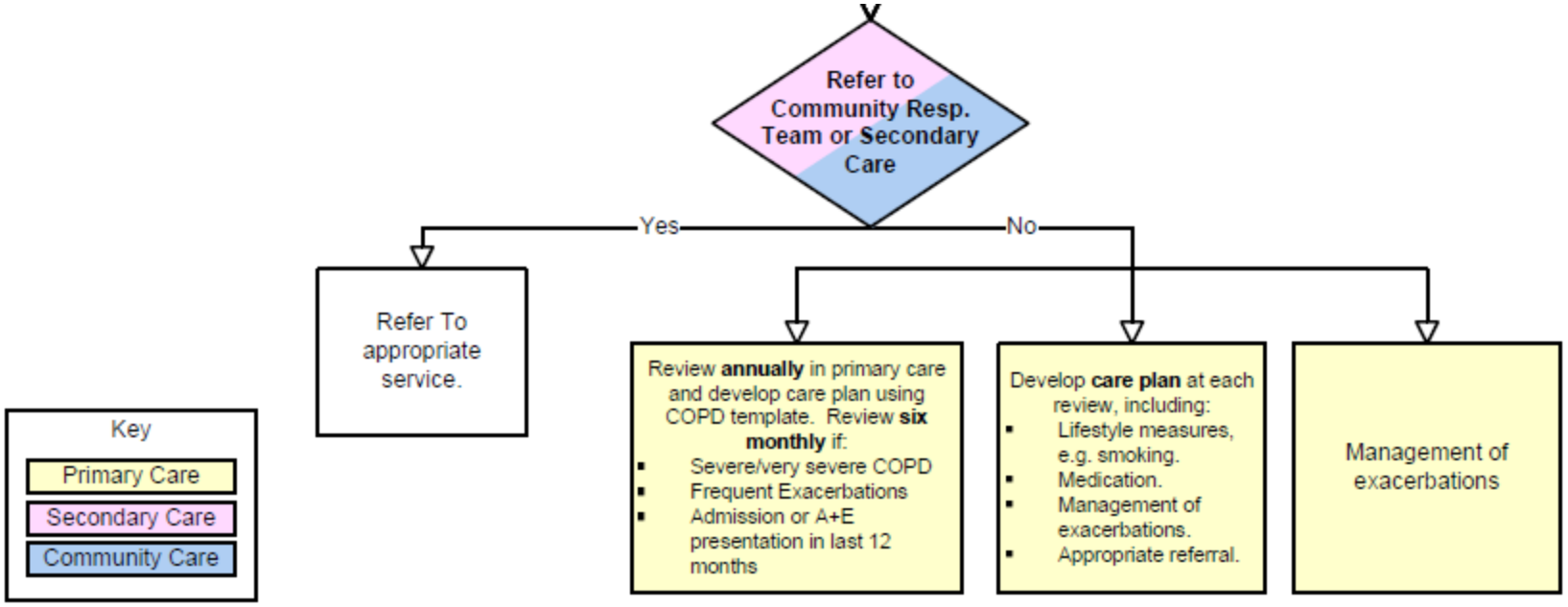
- Rapid decline in annual spirometry
- Difficulty with compliance/concordance
- Need for Pulmonary Rehabilitation
- Prominent anxiety / depression (for psychologist)
- Management of acute exacerbations
- Supported Discharged

DRAFT V3.1

COPD Management Pathway



European hospital admission rates AECOPD

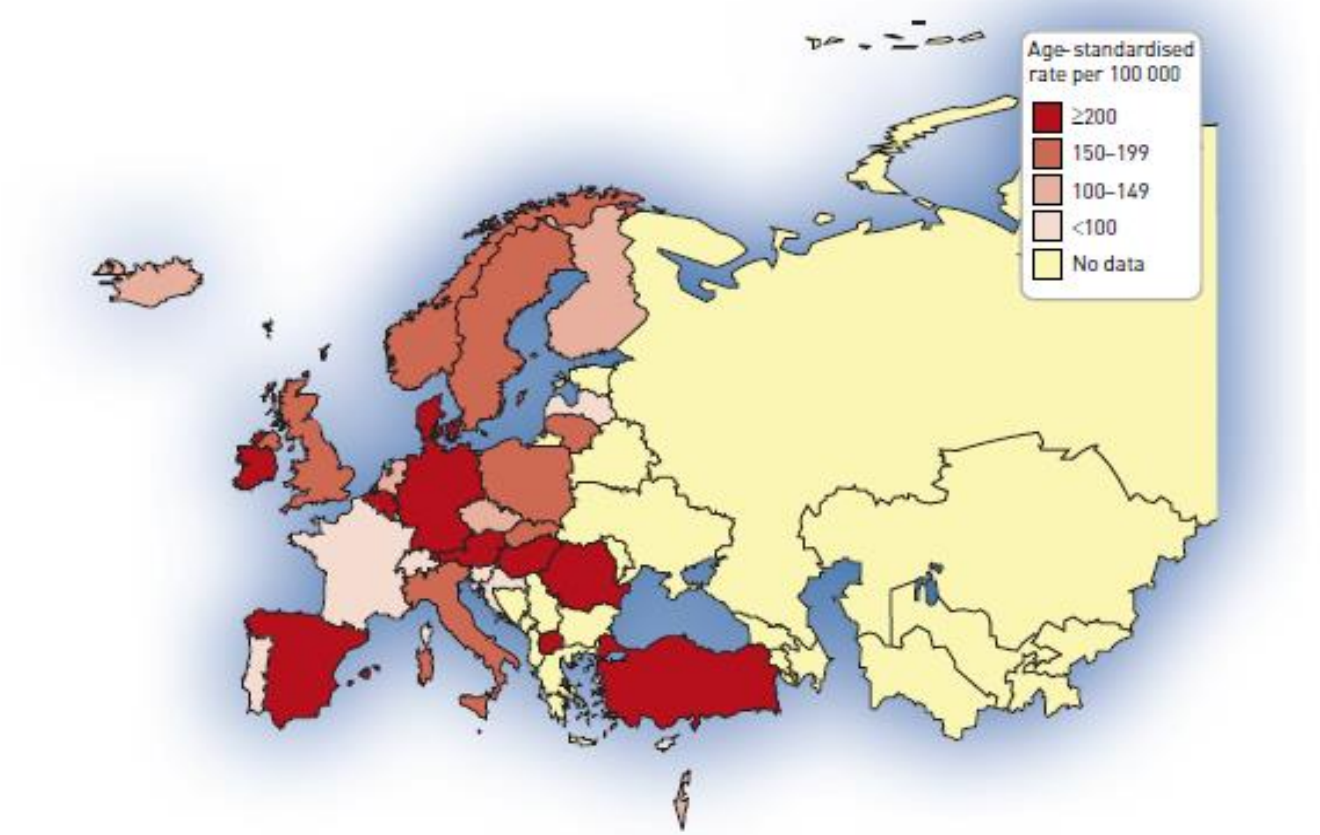
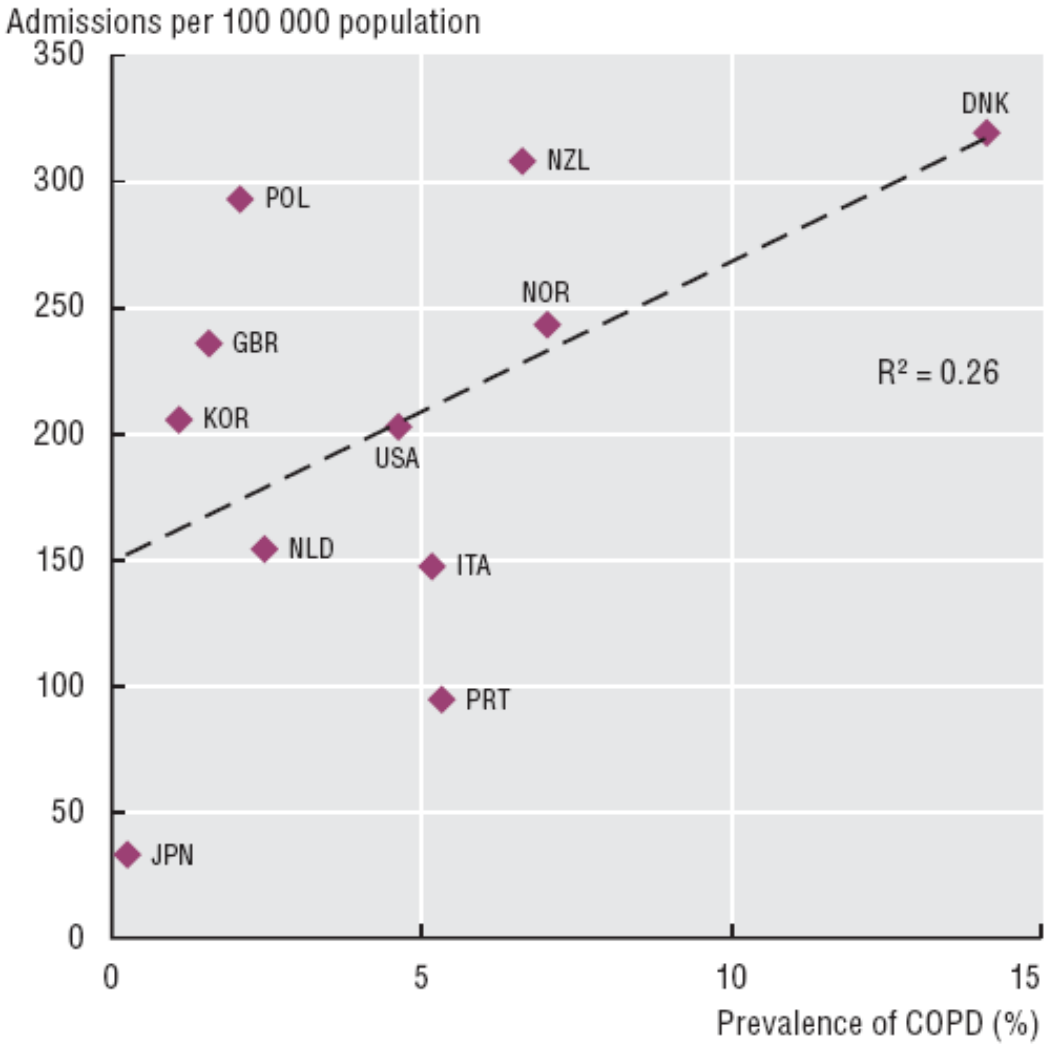


Figure 2 – Hospital admission rate for chronic obstructive pulmonary disease (COPD). Data from World Health Organization Hospital Morbidity Database, October 2011 update, and Eurostat, March 2012 update. The following countries supplied data to Eurostat that cover both COPD and bronchiectasis: Germany, France, Hungary, Ireland, Macedonia, the Netherlands, Romania, Sweden and Turkey.

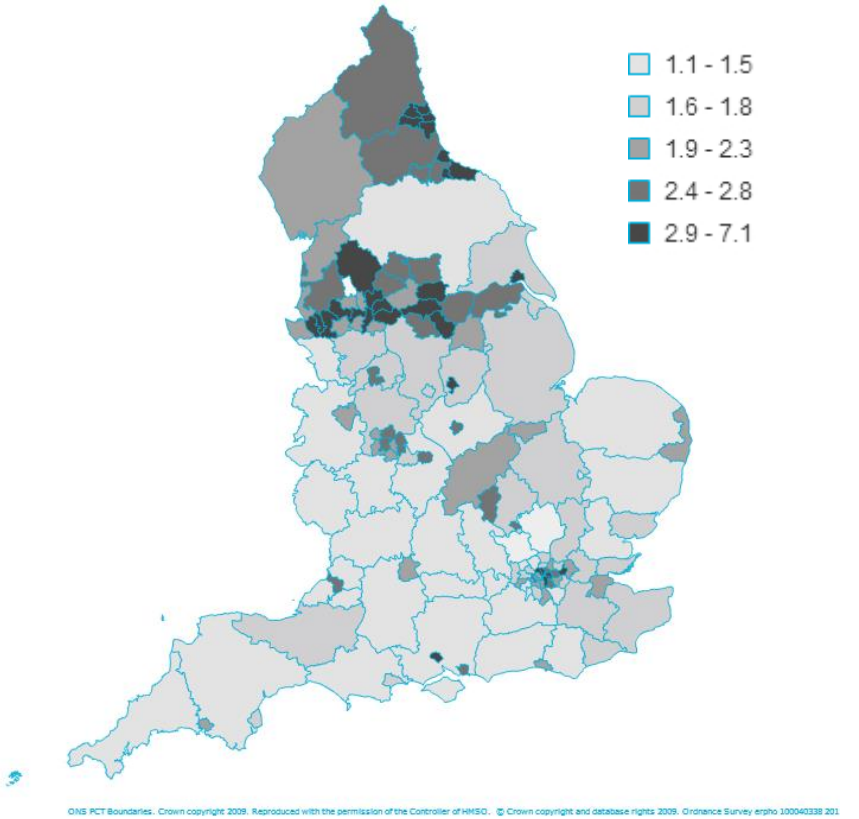
5.1.3 COPD admission rates and prevalence rates, 2007 (or latest year available)



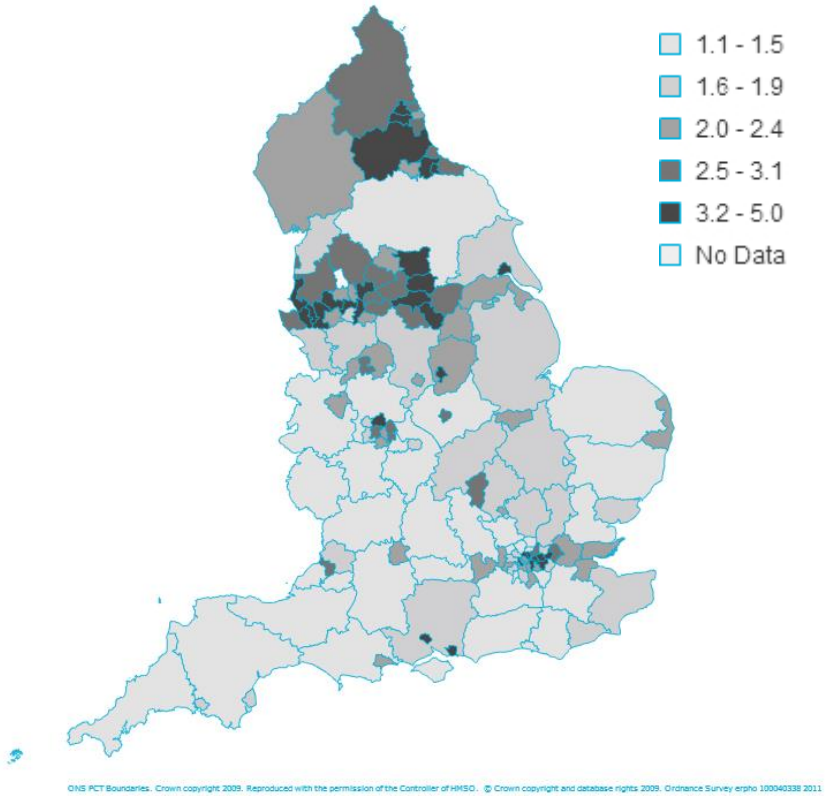
www.oecd.org

COPD admissions per 1000 population

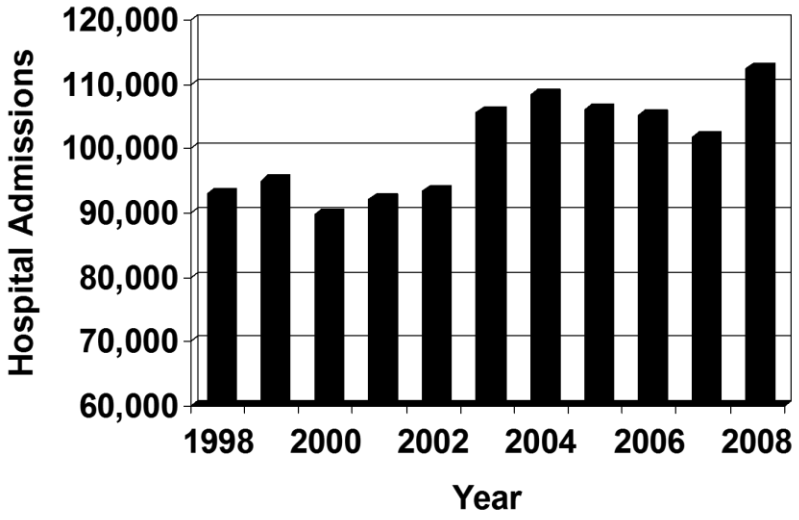
2005/6

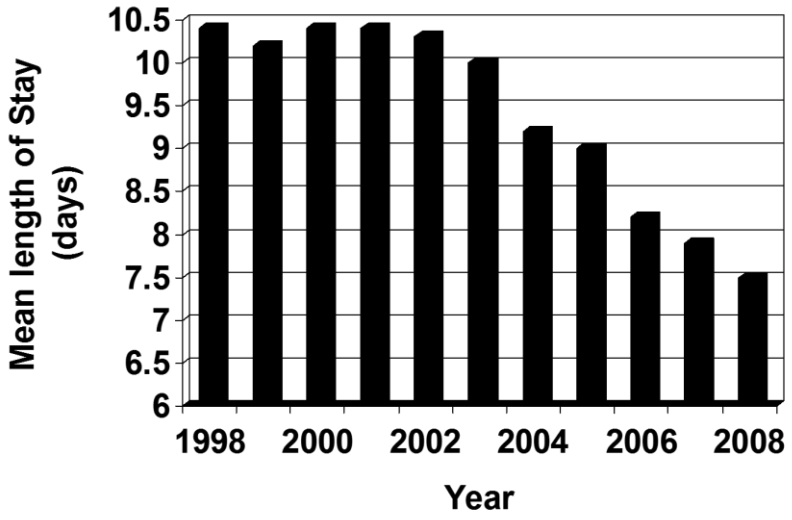


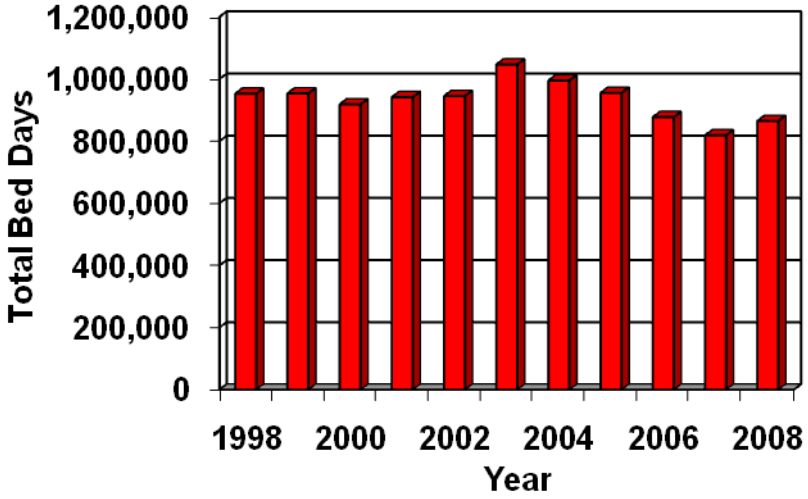
2010/11



http://www.inhale.nhs.uk/atlas/single/



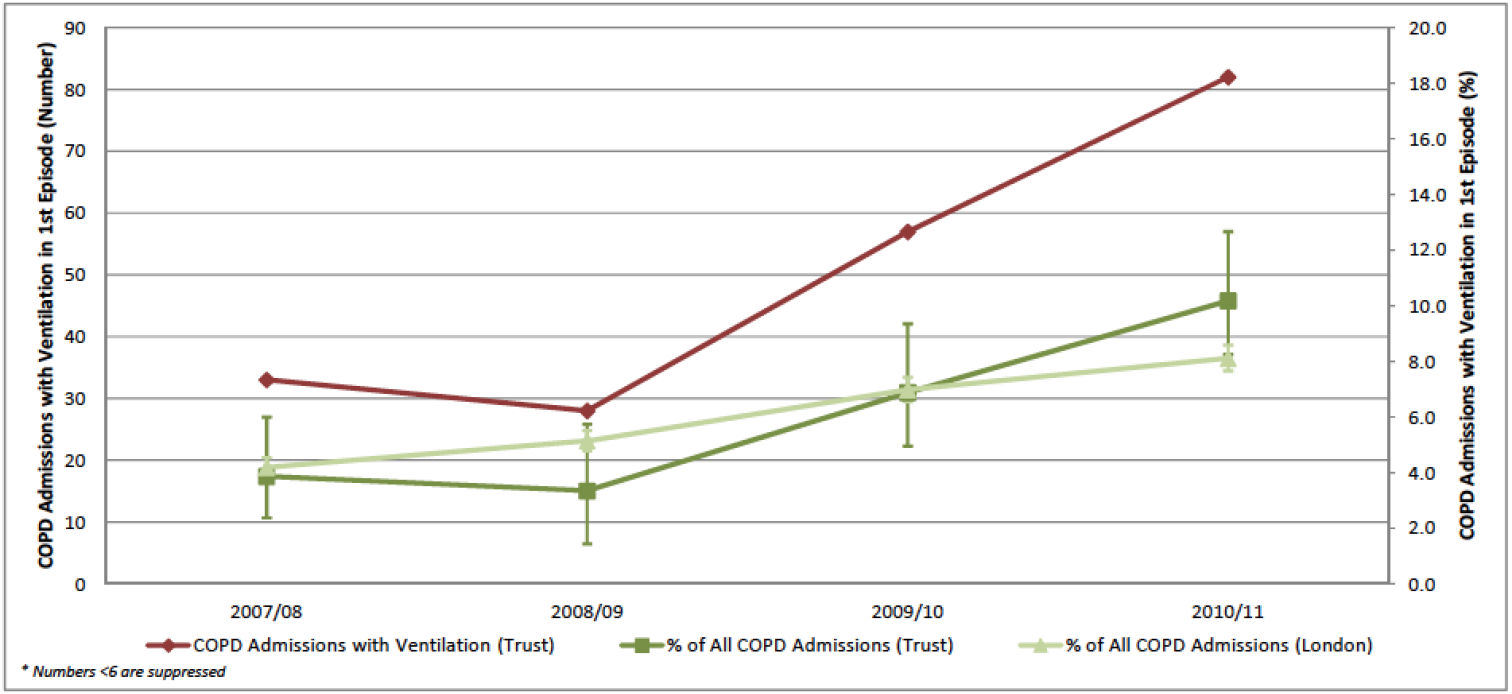




Trends in Hospital Episode Statistics 1998/99 to 2008/09 for ICD 10: J44 Chronic Obstructive Pulmonary Disease with acute lower respiratory tract infection /exacerbation /unspecified, by NHS hospitals in England

Increasing appropriate admissions

CHART 3 - No. and % of COPD Inpatient Admissions with Ventilation (Invasive and non-Invasive) (1st Episode)*, 2007/08 to 2010/11 (Trust and London)



Source: Hospital Episode Statistics (HES), The NHS Information Centre
Analysis undertaken by the Clinical and Health Intelligence team, London Health Programmes

Cost of hospitalisation

- Approximately 54% of the direct cost associated with COPD management in the UK results from hospitalisations
- One of the most costly inpatient conditions treated by the NHS
- 50 fold difference is costs between mild and very severe COPD

Economic burden of COPD

Table 8 Estimated incremental annual costs associated with managing stable COPD – inhaled combination therapy

	Current cost (£000s)	Estimated future cost (£000s)	Change (£000s)
Cost of prescribing	268,543	320,030	51,487
Cost of hospital admissions	310,413	294,892	−15,521
Total	**578,956**	**614,922**	**35,966**

- An inpatient admission for COPD is estimated to cost £1960.

- Improvement in the management and effectiveness of treatments for patients with COPD is likely to result in an estimated 5% fewer admissions to hospital, resulting in around £15.5 million savings each year.

- Increased compliance with treatment and a reduction in the number of visits made to GPs is also likely.

- More effective management of COPD is also likely to reduce the number of working hours lost as a result of the disease and reduce the costs incurred as a result of this lost productivity.

NICE costing report 2011

TABLE 4

Criteria for Admission to Hospital for Chronic Obstructive Pulmonary Disease (COPD) Exacerbations

Poor response to outpatient treatment
Severe COPD with home oxygen therapy
Severe dyspnea that hinders eating, speaking, or mobility at home.
Social difficulties that prevent home treatment
Altered mental state
Cyanosis
Sudden onset of symptoms
Prolonged and deteriorating symptoms
Serious concurrent disease or poor general state of health
Appearance or worsening of cor pulmonale
Acute x-ray abnormalities
pH<7.5
Body temperature >38.5ºC
Respiratory rate >25 breaths/min
Heart rate >110 beats/min
Acute respiratory insufficiency
Uncertain diagnosis
Need for diagnostic or surgical procedures requiring analgesics or sedatives that may cause deterioration in lung function

Management at Home

Factor	Treat at Home	Treat In Hospital
Breathlessness *	Mild	Severe
General Condition *	Good	Poor/deteriorating
Level of activity *	Good	Poor/Confined to Bed
Cyanosis	No	Yes
Worsening of peripheral oedema	No	Yes
Level of consciousness	Normal	Impaired
Social Circumstances	Good	Living alone/not coping
Acute Confusion	No	Yes
Rapid Rate of Onset	No	Yes
Significant comorbidity (particularly cardiac and insulin-treated diabetes)	No	Yes
SaO_2 < 90%*	No	Yes
Arterial pH level	≥ 7.35	< 7.35
Arterial PaO_2	≥ 7 kPa	< 7 kPa

* Relative to normal state

Adapted from NICE Guideline CG012

Safe discharge

- Patients should be reviewed by a respiratory nurse specialist with the aim of safe, early discharge with community support as appropriate
- Stop smoking Advice should be given. If appropriate the patient should be referred to the patients local Stop Smoking Service.
- Patients who develop Acute Type II Respiratory Failure secondary to oxygen administration should have a COPD Alert Status. They should also have baseline ABG's recorded. This should be documented in the discharge summary with admission and discharge blood gases also recorded.
- If a patient required NIV this should be recorded on the discharge letter.
- All patients who have been admitted with an exacerbation of COPD should have a follow up within **2 weeks. This can be arranged through the Respiratory Service (COPD@uclh.nhs.uk).**

Community Advice

- Home visits
- Keeping people out of hospital when appropriate

Surgical options

- LVRS / Bullectomy
- Transplant

NICE Guidance

- Patients who are breathless, and have a single large bulla on a CT scan and an FEV1 less than 50% predicted should be referred for consideration of bullectomy.
- Patients with severe COPD who remain breathless with marked restrictions of their activities of daily living, despite maximal medical therapy (including rehabilitation), should be referred for consideration of lung volume reduction surgery if they meet all of the following criteria:
  - FEV1 more than 20% predicted
  - PaCO2 less than 7.3 kPa
  - upper lobe predominant emphysema
  - TLCO more than 20% predicted.
- Patients with severe COPD who remain breathless with marked restrictions of their activities of daily living despite maximal medical therapy should be considered for referral for assessment for lung transplantation bearing in mind comorbidities and local surgical protocols. Considerations include:
  - age
  - FEV1
  - PaCO2
  - homogeneously distributed emphysema on CT scan
  - elevated pulmonary artery pressures with progressive deterioration. [2004]

LVRS

- Good candidate:
  - stopped smoking for at least 4 months
  - has disabling emphysema despite complete compliance with optimum medical therapy
  - able to participate in a pulmonary rehabilitation program prior to and after surgery
  - any other medical conditions must be well controlled and must not present unacceptable risks for complications from the procedure
  - pattern of emphysema that is amenable to surgical management; space occupying, poorly functioning areas of the lung which can be removed to improve lung function. Imaging studies including chest x-ray, CAT scan, and lung perfusion studies are done to determine this.

- The National Emphysema Treatment Trial (NETT) was a prospective, randomized, multicenter trial which compared the results of LVRS to medical therapy which showed that there were 3 groups of patients that tend to benefit from LVRS. The following groups of patients are candidates for LVRS:
  - **Group 1:** Patients with predominantly upper lobe emphysema and low exercise capacity. These patients have improved survival and functional outcomes after LVRS compared to medical therapy.
  - **Group 2:** Patients with predominantly upper lobe emphysema and high exercise capacity. These patients have improved functional outcomes after LVRS but no difference in survival compared to medical therapy.
  - **Group 3:** Patients with non-upper lobe emphysema and low exercise capacity. These patients have improved survival after LVRS but no difference in survival compared to medical therapy.

LVRS

Anticipated Benefits

- Relief of shortness of breath
- Improved lung function
- Increased energy level and physical mobility
- Improved ability to function at normal daily activities
- May decrease need for supplemental oxygen

Potential Complications

- Prolonged air leakage is the most common complication after LVRS. Approximately 40% of patients will have this problem. Some patients will actually go home with a chest drain in place for a few days to help manage this.
- Pneumonia (15%) can occur in emphysema patients, especially in patients who have a history of recurrent bouts
- Bleeding (2-5%)
- Stroke (<1%)
- Heart attack (1%)
- Death: The chance of dying after LVRS is approximately 3-8%

Lung transplantation

- severe worsening of the disease is present with clinical deterioration despite optimal medical therapy and rehabilitation.
- predicted survival of 2 years or less
- great motivation; adequate social, psychological, and family support;
- free of other important co-morbidities;
- able to be enrolled in a pre-transplantation program of pulmonary rehabilitation
- Smoking cessation for at least 6 months before surgery
- previous surgical procedures such as LVRS, pleurectomy, or talc instillation are relative contraindications, because of the risk of operative bleeding
- steroid therapy should be limited to a dose no greater than the equivalent of 20 mg of prednisone daily to limit anastamotic complications
- Age limitation of 65 years is advised for single LT and 60 years for bilateral LT
- FEV1 of less than 20% and either a DLCO of less than 20% or homogeneously distributed emphysema.
- BODE index as a predictor of disease severity
- appropriate timing for transplantation in emphysematous patients is complicated since the natural history of this disease is unpredictable and very symptomatic patients may have a relatively good prognosis.

Oxygen: LTOT

- PaO2 less than 7.3 kPa when stable or a PaO2 greater than 7.3 and less than 8 kPa when stable and one of: secondary polycythaemia, nocturnal hypoxaemia (oxygen saturation of
- arterial blood [SaO2] less than 90% for more than 30% of the time), peripheral oedema or pulmonary hypertension.
- LTOT patients should breathe supplemental oxygen for at least 15 hours per day
- The need for oxygen therapy should be assessed in:
  - all patients with very severe airflow obstruction (FEV1 < 30% predicted)
  - patients with cyanosis
  - patients with polycythaemia
  - patients with peripheral oedema
  - patients with a raised jugular venous pressure
  - patients with oxygen saturations ≤ 92% breathing air.

- Assessment should also be considered in patients with severe airflow obstruction (FEV1 30–49% predicted)
- The assessment of patients for LTOT should comprise the measurement of arterial blood gases on two occasions at least 3 weeks apart in patients who have a confident diagnosis of COPD, who are receiving optimum medical management and whose COPD is stable.
- Patients receiving LTOT should be reviewed at least once per year by practitioners familiar with LTOT and this review should include pulse oximetry.
- Patients should be warned about the risks of fire and explosion if they continue to smoke when prescribed oxygen.

- Inappropriate oxygen therapy in people with COPD may cause respiratory depression

Oxygen: Ambulatory

- People who are already on LTOT who wish to continue with oxygen therapy outside the home, and who are prepared to use it, should have ambulatory oxygen prescribed
- Ambulatory oxygen therapy should be considered in patients who have exercise desaturation, are shown to have an improvement in exercise capacity and/or dyspnoea with oxygen, and have the motivation to use oxygen
- Ambulatory oxygen therapy is not recommended in COPD if PaO2 is greater than 7.3 kPa and there is no exercise desaturation
- Ambulatory oxygen therapy should only be prescribed after an appropriate assessment has been performed by a specialist. The purpose of the assessment is to assess the extent of desaturation, and the improvement in exercise capacity with supplemental oxygen, and the oxygen flow rate required to correct desaturation.

NIV

- Adequately treated patients with chronic hypercapnic respiratory failure who have required assisted ventilation (whether invasive or non-invasive) during an exacerbation or who are hypercapnic or acidotic on LTOT should be referred to a specialist centre for consideration of long-term NIV

- NIV should be used as the treatment of choice for persistent hypercapnic ventilatory failure during exacerbations despite optimal medical therapy
- When patients are started on NIV there should be a clear plan covering what to do in the event of deterioration and ceilings of therapy should be agreed.

Nebulisers

- Patients with distressing or disabling breathlessness despite maximal therapy using inhalers should be considered for nebuliser therapy
- Nebulised therapy should not continue to be prescribed without assessing and confirming that one or more of the following occurs:
  - a reduction in symptoms
  - an increase in the ability to undertake activities of daily living
  - an increase in exercise capacity
  - an improvement in lung function
- Nebulised therapy should not be prescribed without an assessment of the patient's and/or carer's ability to use it

Palliative care

- The patient has uncontrolled physical or psychological symptoms despite optimal tolerated therapy.
- Dyspnoea which impacts on activities of daily living to a degree deemed unacceptable to the patient between exacerbations, despite maximal tolerated therapy.
- The patient makes increasing use of emergency treatment for infection and/or respiratory failure.
- The patient has an anticipated life expectancy of 12 months or less.

Breathlessness

- Inhaled or nebulised bronchodilators
- Sodium Chloride 0.9% nebules 2.5 mls 5 mls as required to ease expectoration, and aids with dry nasal passages, which anecdotally may help to relieve breathlessness.
- Benzodiazepines – especially if an element of anxiety is present.
- Oral morphine sulphate solution
- Oxygen
- Consider possible causes of breathlessness other than endstage respiratory disease such as coexistent heart failure, pleural effusion, pneumothorax, pulmonary embolus.
- Non-pharmacological
  - Fan
  - Breathing control management
  - Anxiety management
  - Occupational therapy – adaptations, lifestyle adjustments
  - Physiotherapy – breathing recovery strategies, maintaining mobility/walking aids, acupuncture
  - Complementary therapies, including relaxation, aromatherapy, acupuncture, visualisation
  - Psychological support

Cough

- If related to difficulty expectorating – Sodium Chloride 0.9% nebules
- Symptomatic relief - Simple linctus
- Cough suppressants - Codeine linctus, Low dose oral morphine solution, Methadone linctus
- Physiotherapy

Management of sputum

- If sputum increases in amount or changes colour, exclude infection and consider antibiotics.
- Ensure adequate oral fluid intake, where appropriate, to liquefy secretions.
- Mucolytics
- Sodium Chloride 0.9% nebules
- Physiotherapy

Other symptoms

- Pain
- Nausea and vomiting
- Anxiety
- Anorexia
- Constipation
- Insomina
- fatigue

Back to Mrs AB.....

COPD Education Event

Wrap Up and Questions

COPD Practice Visits

NHS Camden Clinical Commissioning Group

Now schedule your COPD Practice Visit!

What to expect

- Visit from COPD specialists & Community Respiratory Team
- Discuss difficult cases & challenging aspects of management
- Tailored to practice needs

Who should attend

- Essential - Practice COPD Lead
- All GPs and nurses involved in COPD care

To arrange a COPD visit for your practice:

- Book online: https://www.timecenter.com/gpeducation
- Dates available now

Upcoming Education Events

NHS Camden Clinical Commissioning Group

See you at the next Education Event!

Monday 19th May: Health Checks LCS (AM) & Cancer (PM)

Friday 20th June: Diabetes

Registration:
http://www.camdenccg.nhs.uk/gps/camden-gp-education-programme