

IPCRG presentations on respiratory diseases

COPD: Early detection and management of stable disease and exacerbations.



**What's new on COPD –
Definition, burden, diagnosis and
assessment**

Ioanna Tsiligianni



Global Strategy for Diagnosis, Management and Prevention of COPD. Updated 2014

Definition of COPD

- n COPD, a common preventable and treatable disease, is characterized 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.
- n Exacerbations and comorbidities contribute to the overall severity in individual patients.



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Risk Factors for COPD

Genes

Exposure to particles

- Tobacco smoke
- Occupational dusts
- Indoor air pollution from heating and cooking with biomass in poorly ventilated dwellings
- Outdoor air pollution

Lung growth and development

Gender

Age

Respiratory infections

Socioeconomic status

Asthma/Bronchial hyperreactivity

Chronic Bronchitis

Not only smoking but smoke

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Prim Care Respir J 2011; 20(3): 240-248

Primary Care
RESPIRATORY JOURNAL
www.thepcrj.org

CLINICAL REVIEW

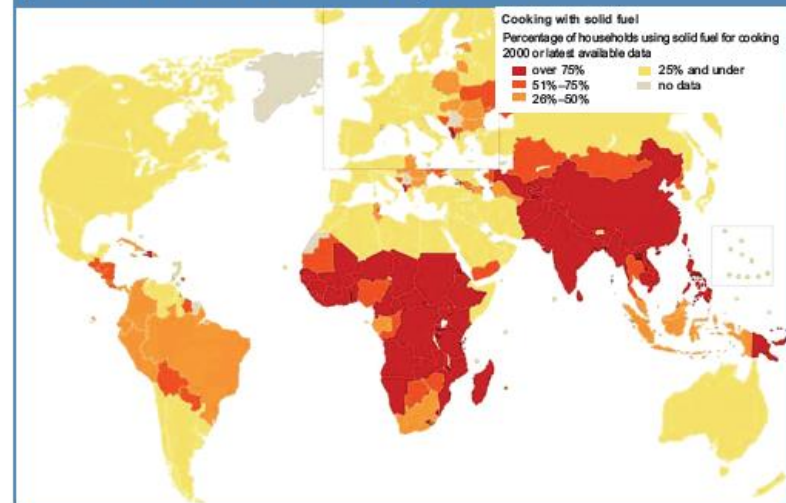
The impact of asthma and COPD in sub-Saharan Africa

*Frederik van Gemert^a, Thys van der Molen^a, Rupert Jones^b, Niels Chavannes^c

Air pollution resulting from the burning of wood and other biomass fuels is estimated to kill **two million** women and children each year.



Figure 2. Worldwide biomass fuel use for cooking, reproduced with kind permission from the World Health Organization²



COPD – Other causes

- **Burning of biomass fuels**
- **Industrial pollution**
- **Mining – coal, silica etc**
- **Car exhaust pollution**

How do you diagnose COPD?



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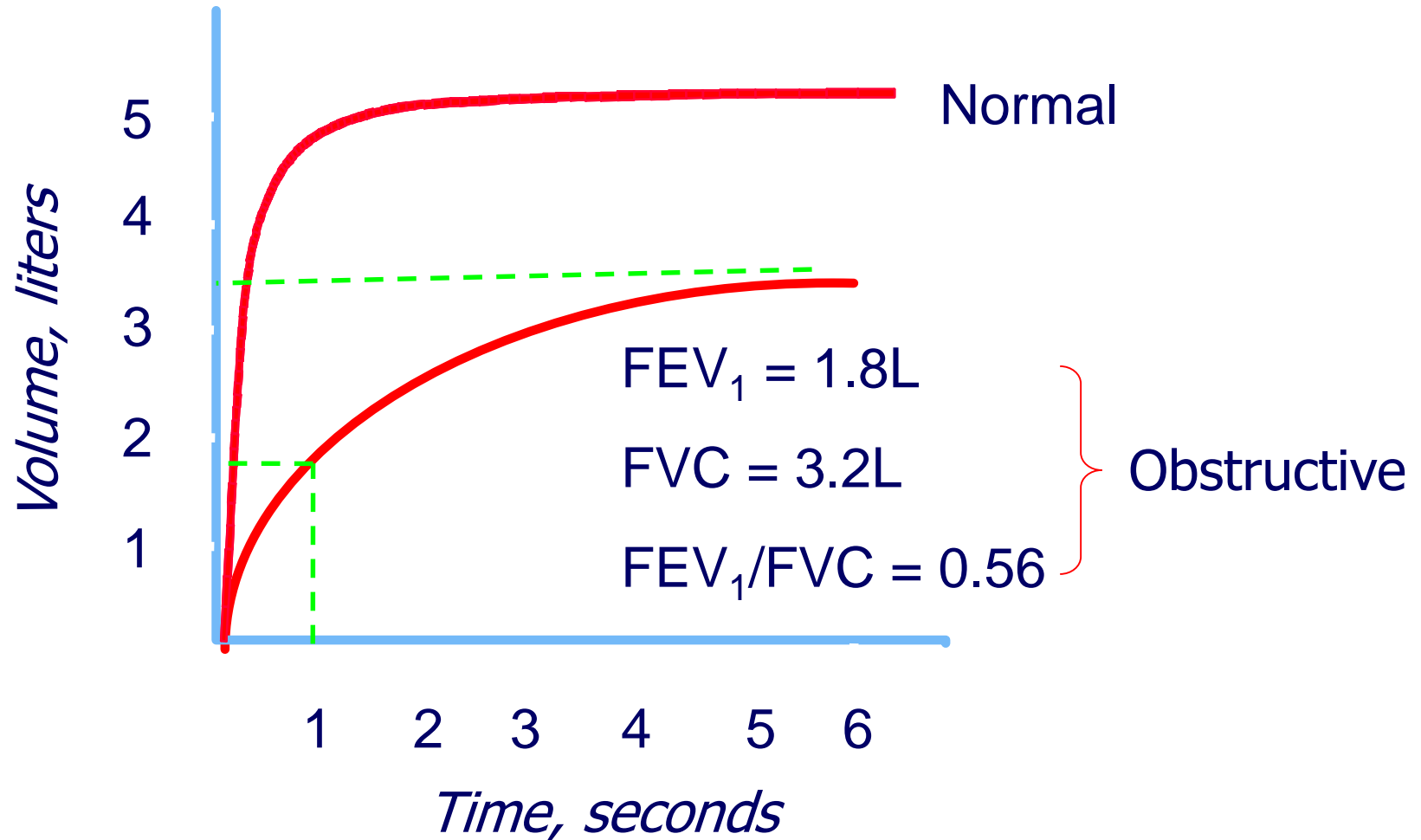
Diagnosis of COPD

- A clinical diagnosis of COPD should be considered in any patient who has dyspnea, chronic cough or sputum production, and/or a history of exposure to risk factors for the disease.
- Spirometry is *required* to make the diagnosis; the presence of a post-bronchodilator $FEV_1/FVC < 0.70$ confirms the presence of persistent airflow limitation and thus of COPD.



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Diagnosis: Spirometry





Classification of Severity of Airflow Limitation in COPD*

In patients with **$FEV_1/FVC < 0.70$** :

GOLD 1: Mild	$FEV_1 \geq 80\%$ predicted
GOLD 2: Moderate	$50\% \leq FEV_1 < 80\%$ predicted
GOLD 3: Severe	$30\% \leq FEV_1 < 50\%$ predicted
GOLD 4: Very Severe	$FEV_1 < 30\%$ predicted

**Based on Post-Bronchodilator FEV_1*



COPD Assessment

- **Assess symptoms-health status**
- **Assess airflow limitation-
spirometry**
- **Assess risk of exacerbations**
- **Assess comorbidities**



**COPD – The benefits of early diagnosis,
Strategies to encourage earlier diagnosis
in primary care**

Svein Høegh Henrichsen

- **Why does early diagnosis matter?**
- **What are the barriers to making a diagnosis earlier?**
- **How do we promote early diagnosis?**
- **Can early intervention and screening help?**

OPINION

IPCRG OPINION 5

Early Diagnosis of COPD does help!

Why does early diagnosis matter?

- Preserve lung function
- Preserve quality of life for the patient
- Encourage smoking cessation
- Enable earlier interventions to prevent exacerbations
- Reduce costs
- Decrease mortality

What are the barriers to earlier diagnosis?

- It is difficult to chart the progression of COPD currently.
- There are no accepted biochemical or clinical markers to allow measurement of COPD activity.
- There are however clinical predictors (of disease progression) through increased frequency of exacerbations in those with the clinical phenotype of cough and sputum.

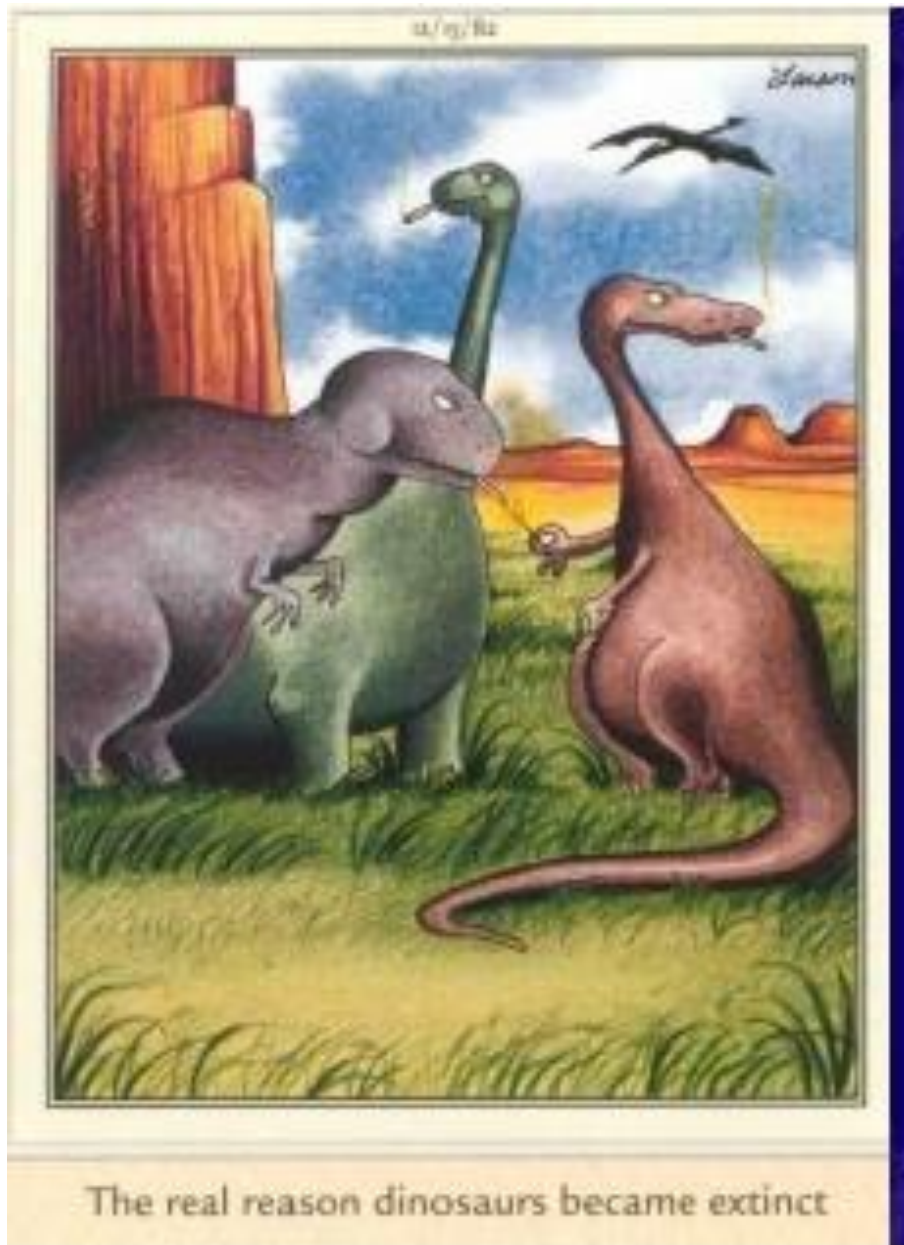
Barriers for early diagnosis - Doctor Centered

- Lack of interest – a heart sink disease
- Lack of facilities for diagnosis – spirometry
- Smoking or lifestyle related

Barriers for early diagnosis - Patient Related

- Low knowledge (ignorance) of the disease
- Afraid of danger diagnosis (lung cancer)
- Adaptation – getting old
- Excuse of the symptoms – smoker's cough

Should we
screen ALL
smokers for
COPD?

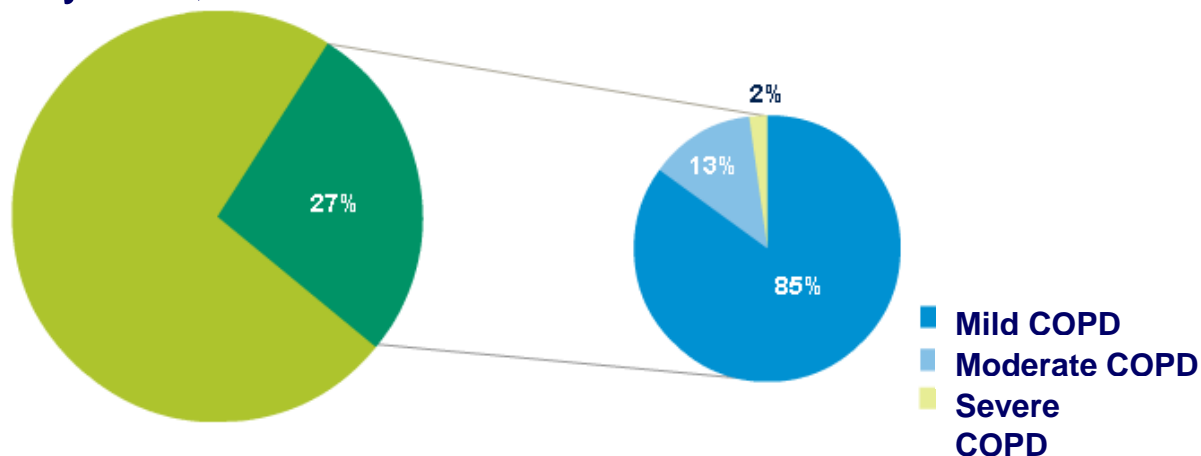


And who to screen?

With active screening you find lot of smokers with COPD, earlier unrecognised COPD

27% of the smokers,
40-55 years, had COPD

85% of those had mild
COPD



Could It Be COPD?

“Don’t Ignore COPD”



**World
COPD
Day
2004**

N o v e m b e r 1 7 , 2 0 0 4

Question 1

Do you smoke? Or have you been a smoker?

Question 2

Are you older than 35 years?

Question 3

Do you cough several times most days?

Question 4

Do you bring up phlegm or mucus most days?

Question 5

Do you get out of breath more easily than others your age?

Case finding: Who should be tested with spirometry?

Case finding: Who should be tested with spirometry?

- Smokers >10 paq-year
- Age >40
- Symptoms:
 - Cough
 - Sputum
 - Shortness of breath

SPIROMETRY

**If you test one smoker
with cough every day
You will diagnose
one patient
With COPD
a week**



Assessment and classification of the COPD patient

Ioanna Tsiligianni / Svein Høegh Henrichsen



Global Strategy for Diagnosis, Management and Prevention of COPD. Updated 2014

COPD Assessment

Determine the severity of the disease, its impact on the patient's health status and the risk of future events (for example exacerbations) to guide therapy. Consider the following aspects of the disease separately:

- severity of the spirometric abnormality
- current level of patient's symptoms
- frequency of exacerbations
- presence of comorbidities.

Patients underestimate their condition

Data from the Impact of COPD in Europe and North America

in 2000 Study¹ (n=3265) showed:

- Of those too breathless to leave the house, **36%** described their condition as mild or moderate
- **60%** of those who were short of breath after walking for a few minutes on the flat described their condition as mild or moderate

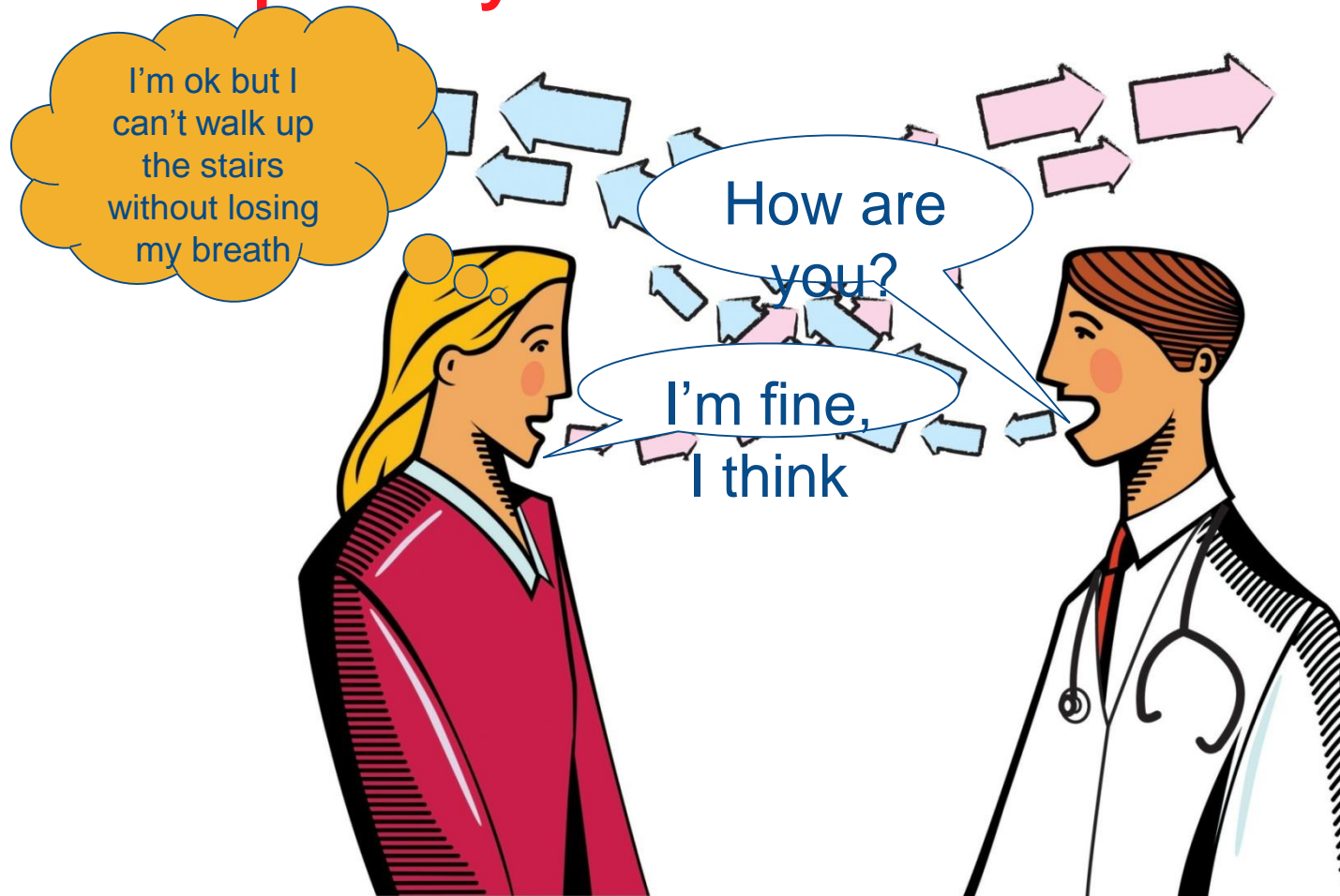
1. Rennard S et al. *Eur Respir J* 2002;20:799–805.

Need for simple tools- patients and physicians a common understanding

- Significant numbers of patients have COPD that is under-recognised, untreated and sub-optimally managed, despite widening use of spirometry
 - Exacerbations occur that go unreported
 - Physicians in general may under-treat patients with COPD, which can lead to a poor QoL
 - Patients need help and support in realising and understanding the full impact of their disease
 - Physicians may not fully realise the extent to which COPD is limiting a patient's life

Simple tool are needed to achieve a mutual understanding of disease status and impact, and help to optimise disease management

Doctors and patients need to speak the same language to have a common understanding, and thus manage COPD optimally



Global Strategy for Diagnosis, Management and Prevention of COPD

Assessment of COPD

■ Assess symptoms

COPD Assessment Test (CAT)

or

Clinical COPD Questionnaire (CCQ)

or

mMRC Breathlessness scale

COPD Assessment Test (CAT): **<http://catestonline.org>**

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

Clinical COPD Questionnaire (CCQ)

- Total score (10 items)
 - symptom domain (4 items)
 - functional status domain (4 items)
 - mental state domain (2 items)
-
- 7 point scale: 0= asymptomatic/no limitation,
6= extremely symptomatic/totally limited

CCQ: COPD Clinical questionnaire

On average, during the past week , how often did you feel:	never	hardly ever	a few times	several times	Many Times	a great many times	almost all the time
1. Short of breath at rest ?	0	1	2	3	4	5	6
2. Short of breath doing physical Activities ?	0	1	2	3	4	5	6
3. Concerned about getting a cold or your breathing getting worse?	0	1	2	3	4	5	6
4. Depressed (down) because of your breathing problems?	0	1	2	3	4	5	6
In general, during the past week , how much of the time:							
5. Did you cough ?	0	1	2	3	4	5	6
6. Did you produce phlegm ?	0	1	2	3	4	5	6
On average, during the past week , how limited were you in these activities because of your breathing problems :	not limited at all	very slightly limited	slightly limited	moderately limited	very limited	extremely limited	totally limited /or unable to do
7. Strenuous physical activities (such as climbing stairs, hurrying, doing sports)?	0	1	2	3	4	5	6
8. Moderate physical activities (such as walking, housework, carrying things)?	0	1	2	3	4	5	6
9. Daily activities at home (such as dressing, washing yourself)?	0	1	2	3	4	5	6
10. Social activities (such as talking, being with children, visiting friends/ relatives)?	0	1	2	3	4	5	6



COPD Assessment: current level of patient's symptoms

PLEASE TICK IN THE BOX THAT APPLIES TO YOU
(ONE BOX ONLY)

mMRC Grade 0. I only get breathless with strenuous exercise.

mMRC Grade 1. I get short of breath when hurrying on the level or walking up a slight hill.

mMRC Grade 2. I walk slower than people of the same age on the level because of breathlessness, or I have to stop for breath when walking on my own pace on the level.

mMRC Grade 3. I stop for breath after walking about 100 meters or after a few minutes on the level.

mMRC Grade 4. I am too breathless to leave the house or I am breathless when dressing or undressing.

Differences between COPD questionnaires

SGRQ	MRC Dyspnoea Questionnaire	CCQ	CAT
<ul style="list-style-type: none"> Measures impaired health and wellbeing 	<ul style="list-style-type: none"> Measures dyspnoea only 	<ul style="list-style-type: none"> Measures clinical disease control 	<ul style="list-style-type: none"> Measures holistic impact of COPD on patients
<ul style="list-style-type: none"> Used largely in clinical trials 	<p>–</p>	<ul style="list-style-type: none"> Used in clinical practice 	<ul style="list-style-type: none"> Used in clinical practice
<ul style="list-style-type: none"> Long (76-items) 	<ul style="list-style-type: none"> Short (5-items) 	<ul style="list-style-type: none"> Short (10-items) 	<ul style="list-style-type: none"> Short (8 items)
<ul style="list-style-type: none"> Patient completed 	<ul style="list-style-type: none"> Patient completed 	<ul style="list-style-type: none"> Patient completed 	<ul style="list-style-type: none"> Patient completed
<ul style="list-style-type: none"> Computer required 	<ul style="list-style-type: none"> Paper based 	<ul style="list-style-type: none"> Paper based 	<ul style="list-style-type: none"> Paper based
<ul style="list-style-type: none"> Complex to administer 	<ul style="list-style-type: none"> Simple to administer 	<ul style="list-style-type: none"> Simple to administer 	<ul style="list-style-type: none"> Simple to administer

Global Strategy for Diagnosis, Management and Prevention of COPD

Assessment of COPD

- Assess symptoms
- Assess degree of airflow limitation

Use spirometry for grading severity according to spirometry, using four grades split at 80%, 50% and 30% of predicted value

Global Strategy for Diagnosis, Management and Prevention of COPD

Assessment of COPD

- Assess symptoms
- Assess degree of airflow limitation using spirometry
- Assess risk of exacerbations

Use history of exacerbations and spirometry. Two exacerbations or more within the last year or an $FEV_1 < 50\%$ of predicted value are indicators of high risk. Hospitalization for a COPD exacerbation associated with increased risk of death.

Assess Risk of Exacerbations

To assess risk of exacerbations use history of exacerbations and spirometry:

- Two or more exacerbations within the last year *or* an $FEV_1 < 50\%$ of predicted value are indicators of high risk.
- One or more hospitalizations for COPD exacerbation should be considered high

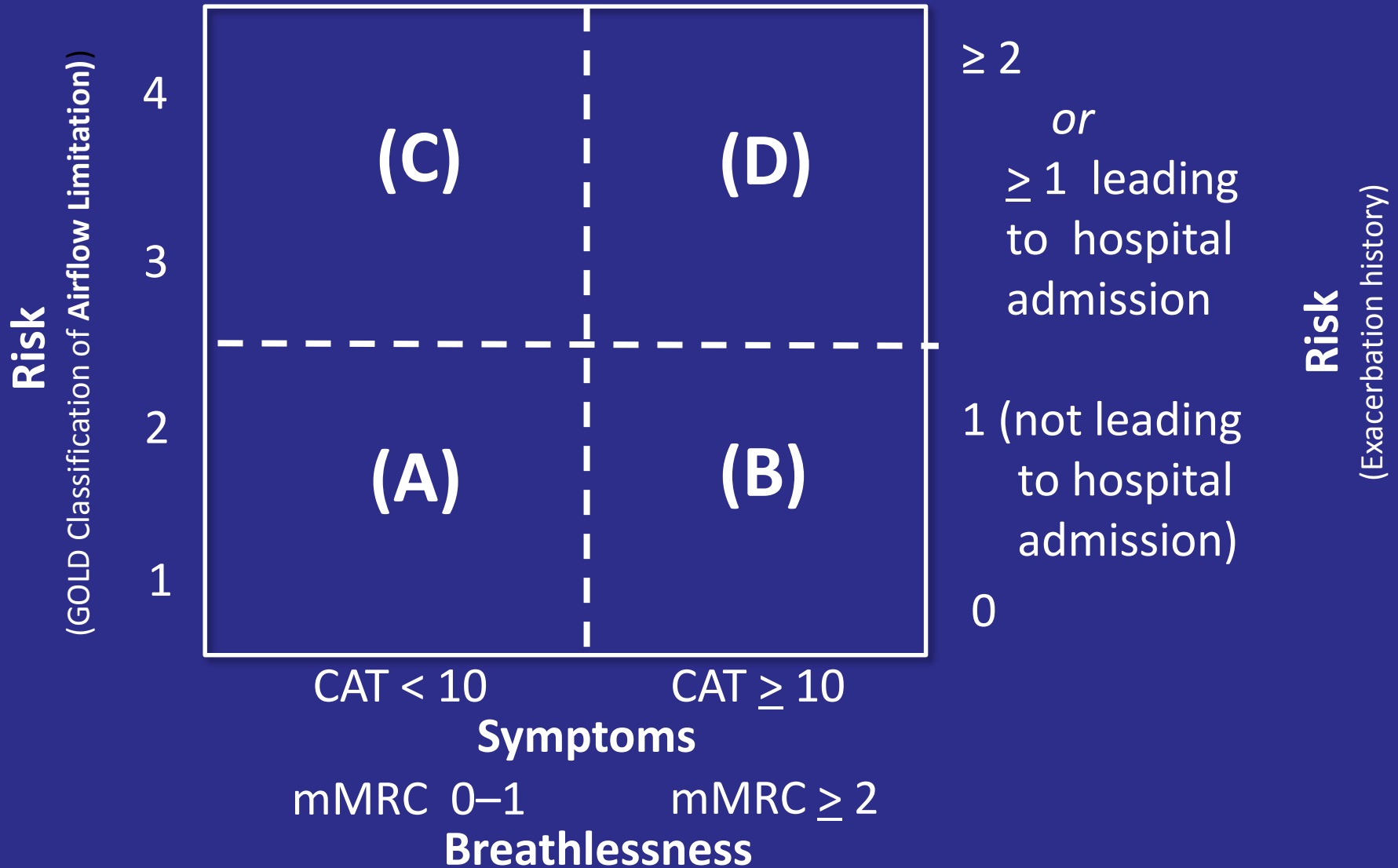
Combined Assessment of COPD

- Assess symptoms
- Assess degree of airflow limitation using spirometry
- Assess risk of exacerbations

Combine these assessments for the purpose of improving management of COPD

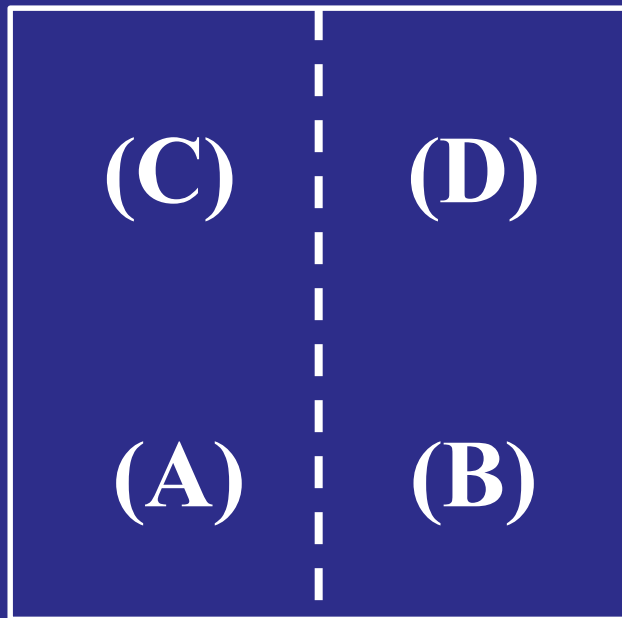
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Combined Assessment of COPD



Combined Assessment of COPD

Assess symptoms first



CAT < 10

CAT ≥ 10

Symptoms

mMRC 0-1

mMRC ≥ 2

Breathlessness

If CAT < 10 *or* mMRC 0-1:

Less

Symptoms/breathlessness (A or C)

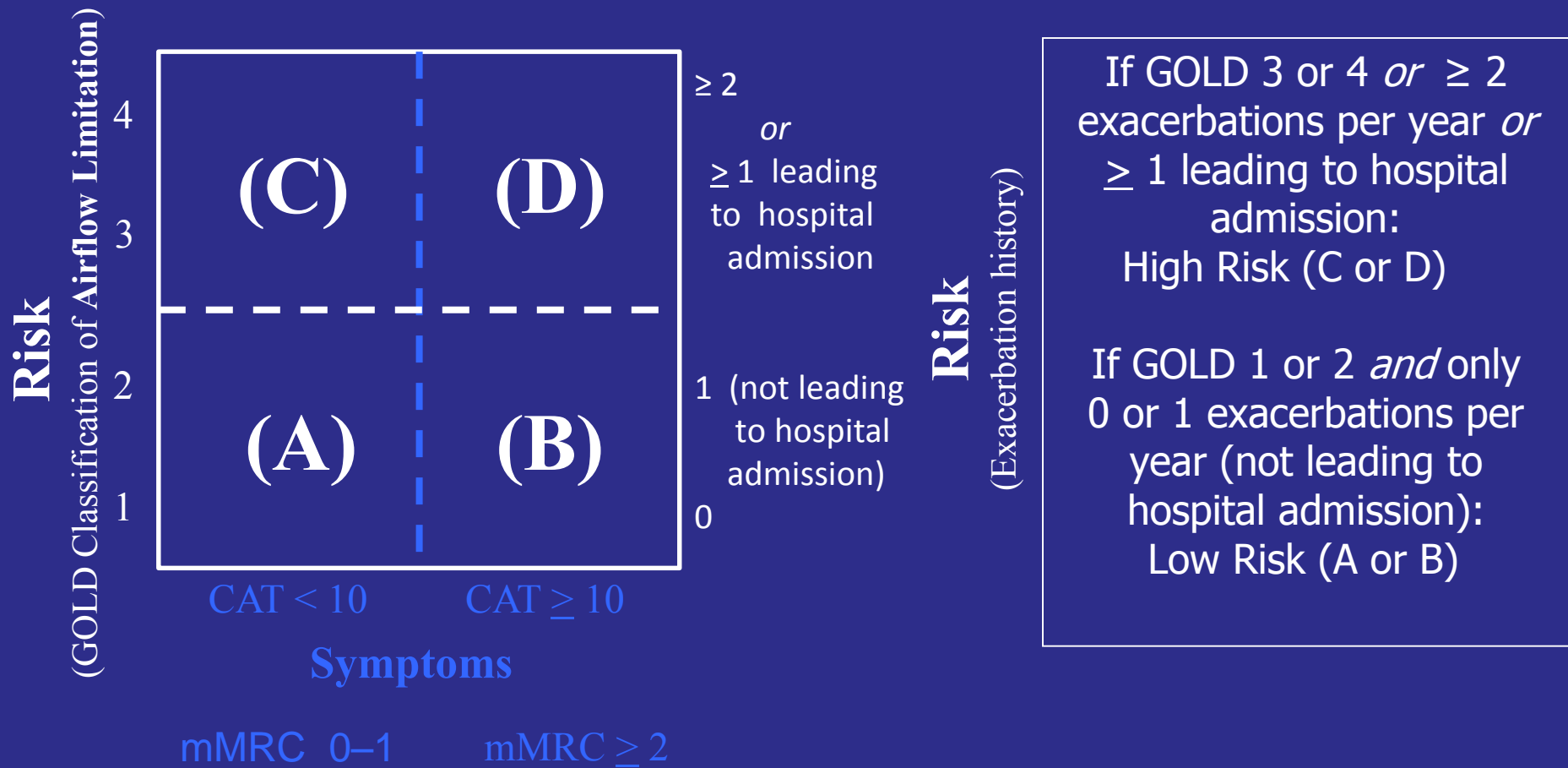
If CAT ≥ 10 *or* mMRC ≥ 2:

More

Symptoms/breathlessness (B or D)

Combined Assessment of COPD

Assess risk of exacerbations next





COPD Assessment: Co-morbidities

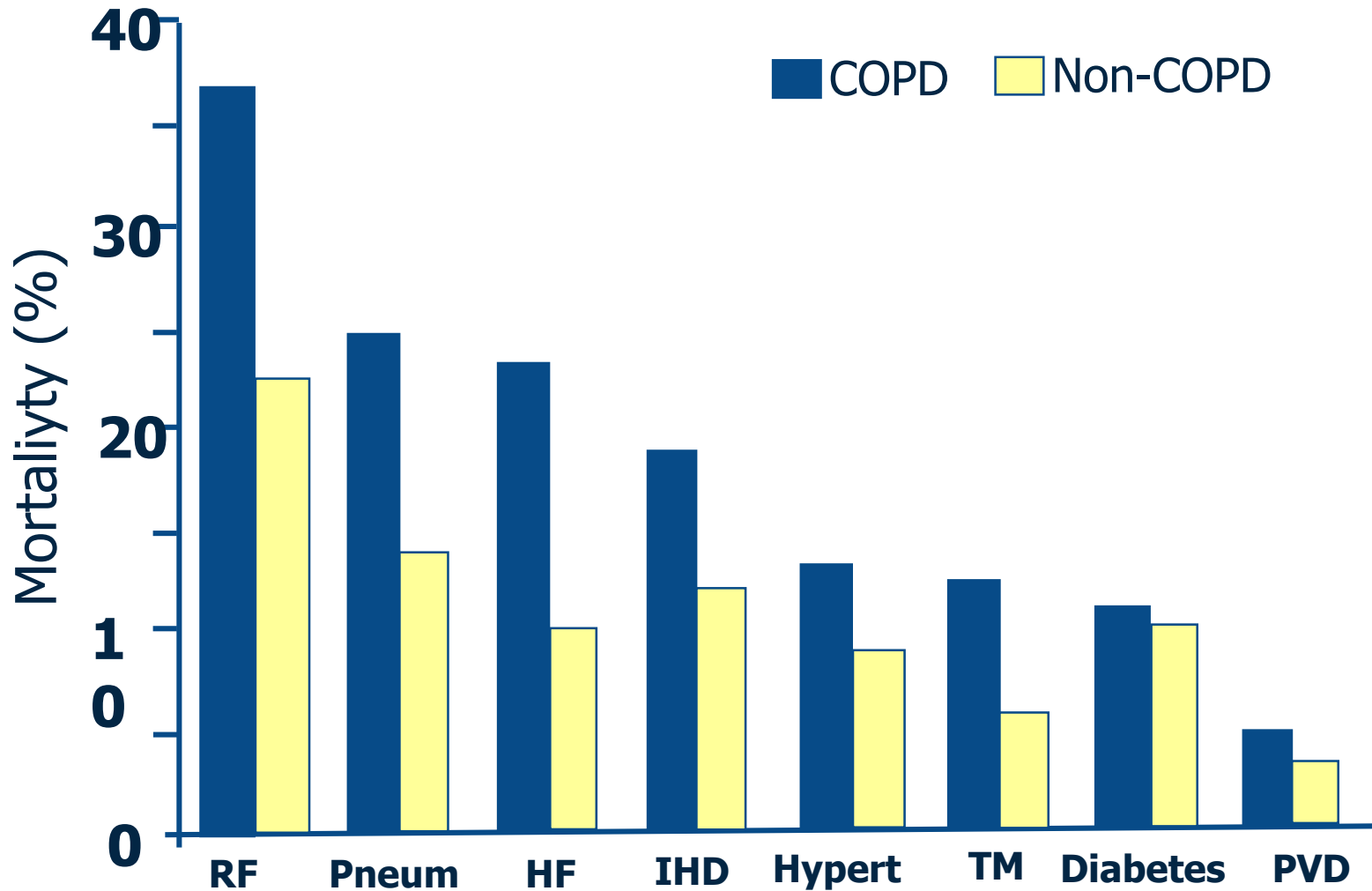
COPD patients are at increased risk for:

- Cardiovascular diseases
- Osteoporosis
- Respiratory infections
- Anxiety and Depression
- Diabetes
- Lung cancer

These comorbid conditions may influence mortality and hospitalizations and should be looked for routinely, and treated appropriately.

Comorbidity and Mortality in COPD

Related Hospitalizations



Holguin et al. *CHEST* 2005; 128:2005

Cardiovascular disease

- One of the most common COPD-associated comorbidities
 - prevalence increases with increasing COPD severity
 - increase in mortality and morbidity
- Cardiovascular comorbidities occurred in 22.6% of patients with COPD (risk ratio, 4.01)¹

Prevalence (%) of cardiovascular diseases in COPD patients vs control subjects

	COPD patients	Control subjects	Odds ratio
Congestive heart failure	7.2	0.9	8.48
Ventricular tachycardia/fibrillation	0.8	0.1	7.94
Pulmonary embolism	0.3	0.1	4.69
Myocardial infarction	1.8	0.4	4.42
Atrial fibrillation	4.7	1.1	4.41

Diabetes mellitus

- The prevalence of type 2 diabetes mellitus is increased in COPD compared with control subjects (17.2% vs 13.0%)¹
- Risk of developing diabetes mellitus increased even with mild disease²

Risk of diabetes mellitus in COPD patients by disease severity (GOLD category)

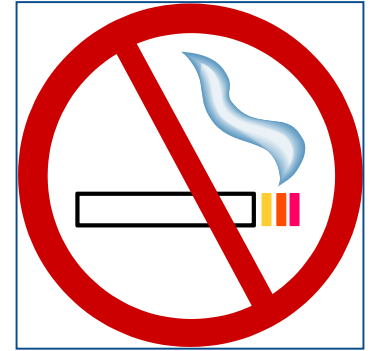
GOLD stage	Odds ratio	95% confidence interval
3 or 4	1.5	1.1–1.9
2	1.4	1.2–1.6
1	0.9	0.8–1.1



Management of stable disease

Ioanna Tsiligianni

Smoking Cessation



SC is the only effective intervention to prevent, to slow progress and to improve outcome in COPD!

- Effects of smoking cessation intervention on COPD patients
- Reasons why GPs keep their distance from the SC intervention
- How could we overcome these barriers?

Smoking is the most important single cause of morbidity and mortality.



Therapeutic Options: Key Points

- Appropriate pharmacologic therapy can reduce COPD symptoms, reduce the frequency and severity of exacerbations, and improve health status and exercise tolerance.
- None of the existing medications for COPD has been shown conclusively to modify the long-term decline in lung function.
- Influenza and pneumococcal vaccination should be offered depending on local guidelines.



Therapeutic Options: Bronchodilators

- Long-acting inhaled bronchodilators are convenient and more effective for symptom relief than short-acting bronchodilators.
- Long-acting inhaled bronchodilators reduce exacerbations and related hospitalizations and improve symptoms and health status.
- Combining bronchodilators of different pharmacological classes may improve efficacy and decrease the risk of side effects compared to increasing the dose of a single bronchodilator.

Global Strategy for Diagnosis, Management and Prevention of COPD

Therapeutic Options: Bronchodilators

- Bronchodilator medications are central to the symptomatic management of COPD.
- Bronchodilators are prescribed on an as-needed or on a regular basis to prevent or reduce symptoms.
- The principal bronchodilator treatments are beta₂-agonists, anticholinergics, theophylline or combination therapy.
- The choice of treatment depends on the availability of medications and each patient's individual response in terms of symptom relief and side effects..

Therapeutic Options: Inhaled Corticosteroids

- Regular treatment with inhaled corticosteroids improves symptoms, lung function and quality of life and reduces frequency of exacerbations for COPD patients with an $FEV_1 < 60\%$ predicted.
- Inhaled corticosteroid therapy is associated with an increased risk of pneumonia.
- Withdrawal from treatment with inhaled corticosteroids may lead to exacerbations in some patients.

Therapeutic Options: Combination Therapy

- An inhaled corticosteroid combined with a long-acting beta₂-agonist is more effective than the individual components in improving lung function and health status and reducing exacerbations in moderate to very severe COPD.
- Combination therapy is associated with an increased risk of pneumonia.
- Addition of a long-acting beta₂-agonist/inhaled glucocorticosteroid combination to an anticholinergic (tiotropium) appears to provide additional benefits.

Therapeutic Options: Phosphodiesterase-4 Inhibitors

- In patients with severe and very severe COPD (GOLD 3 and 4) and a history of exacerbations and chronic bronchitis, the phosphodiesterase-4 inhibitor, roflumilast, reduces exacerbations treated with oral glucocorticosteroids.

Therapeutic Options: Other Pharmacologic Treatments

Influenza vaccines can reduce serious illness.

Pneumococcal polysaccharide vaccine is recommended for COPD patients 65 years and older and for COPD patients younger than age 65 with an $FEV_1 < 40\%$ predicted.

The use of *antibiotics*, other than for treating infectious exacerbations of COPD and other bacterial infections, is currently not indicated.

What GOLD says

Patient Group	Recommended First Choice	Alternative Choice	Other Possible Treatments
A Less symptoms, low risk	SAMA <i>or</i> SABA	LAMA <i>or</i> LABA <i>or</i> SAMA + SABA	Theophylline
B More symptoms, low risk	LAMA <i>or</i> LABA	LAMA + LABA	SAMA + SABA <i>or</i> Theophylline
C Less symptoms, high risk	LABA + ICS <i>or</i> LAMA	LAMA + LABA <i>or</i> LAMA + PD4I <i>or</i> LABA + PD4I	SABA <i>and/or</i> SAMA <i>and/or</i> Theophylline
D More symptoms, high risk	LABA + ICS <i>and/or</i> LAMA	LABA + ICS + LAMA <i>Or</i> LABA + ICS + PD4I <i>or</i> LABA + LABA <i>or</i> LABA + PD4I	Carbocysteine SABA <i>and/or</i> SAMA Theophylline

Low risk - No ICS

Global Strategy for Diagnosis, Management and Prevention of COPD

Manage Stable COPD: Pharmacologic Therapy

(Medications in each box are mentioned in alphabetical order, and therefore not necessarily in order of preference.)

Patient	Recommended First choice	Alternative choice	Other Possible Treatments
A	SAMA prn or SABA prn	LAMA or LABA or SABA and SAMA	Theophylline
B	LAMA or LABA	LAMA and LABA	SABA and/or SAMA Theophylline
C	ICS + LABA or LAMA	LAMA and LABA or LAMA and PDE4-inh. or LABA and PDE4-inh.	SABA and/or SAMA Theophylline
D	ICS + LABA and/or LAMA	ICS + LABA and LAMA or ICS+LABA and PDE4-inh. or LAMA and LABA or LAMA and PDE4-inh.	Carbocysteine SABA and/or SAMA Theophylline



Management of COPD exacerbations

Svein Høegh Henriksen

Exacerbation

- To many patients are still not diagnosed until they are admitted with severe respiratory problems
- Many of them already have severe disease with a bad prognosis:
 - 9% acute mortality is 9%
 - 3 months mortality is 19%
 - 1 year mortality after discharge is 36%
 - 25% of all deaths in this group are in the ages under 65 years and are considered preventable

How do we diagnose exacerbations?

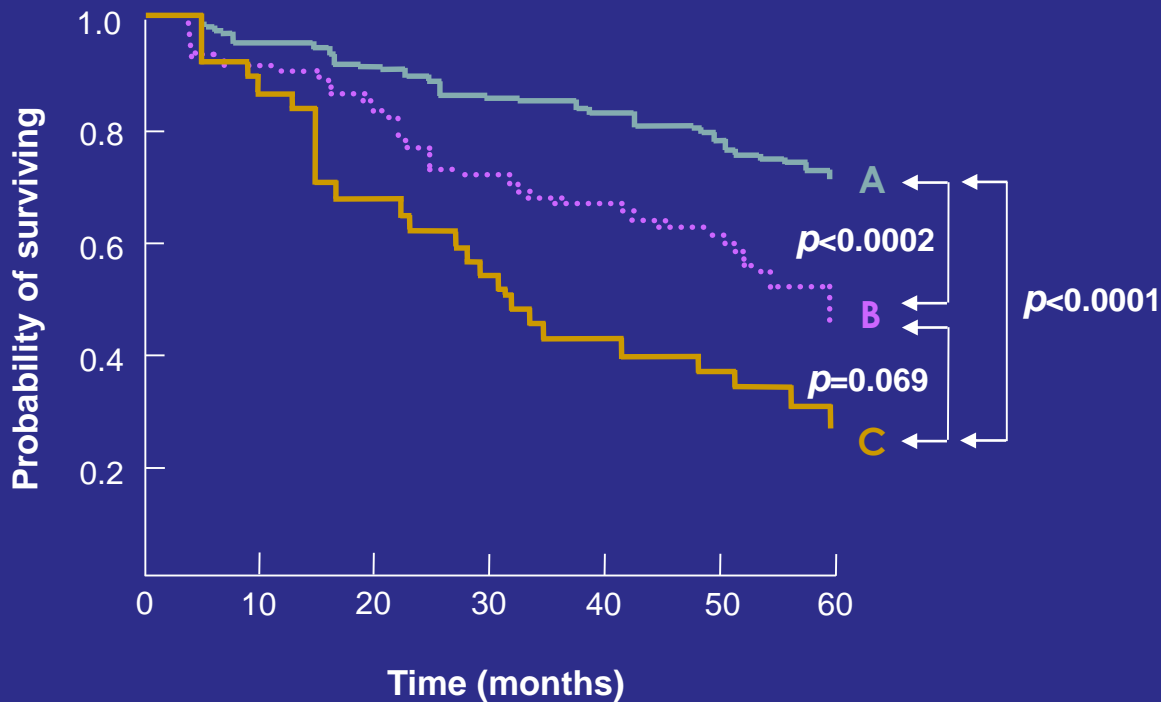


What is an acute COPD exacerbation?

- “A sustained worsening of the patient's condition, from the stable state and beyond normal day-to-day variations, that is acute in onset and necessitates a change in regular medication in a patient with underlying COPD”

Worse Prognosis in Frequent Exacerbators

≥ 3 acute exacerbations requiring hospitalisation is associated with a risk of death 4.30 times greater than for those patients not requiring hospitalization



Group A

Patients with no acute exacerbations

Group B

Patients with 1–2 acute exacerbations of COPD requiring hospital management

Group C

Patients with ≥ 3 acute exacerbations of COPD requiring hospital management

How are COPD Exacerbations Best Managed?

- Prevention
- Treatment
- Use of a Patient Action Plan

Manage Exacerbations: Treatment Options

Oxygen: titrate to improve the patient's hypoxemia with a target saturation of 88-92%.

Bronchodilators: Short-acting inhaled beta₂-agonists with or without short-acting anticholinergics are preferred.

Systemic Corticosteroids: Shorten recovery time, improve lung function (FEV₁) and arterial hypoxemia (PaO₂), and reduce the risk of early relapse, treatment failure, and length of hospital stay. A dose of 40 mg prednisone per day for 5 days is recommended .

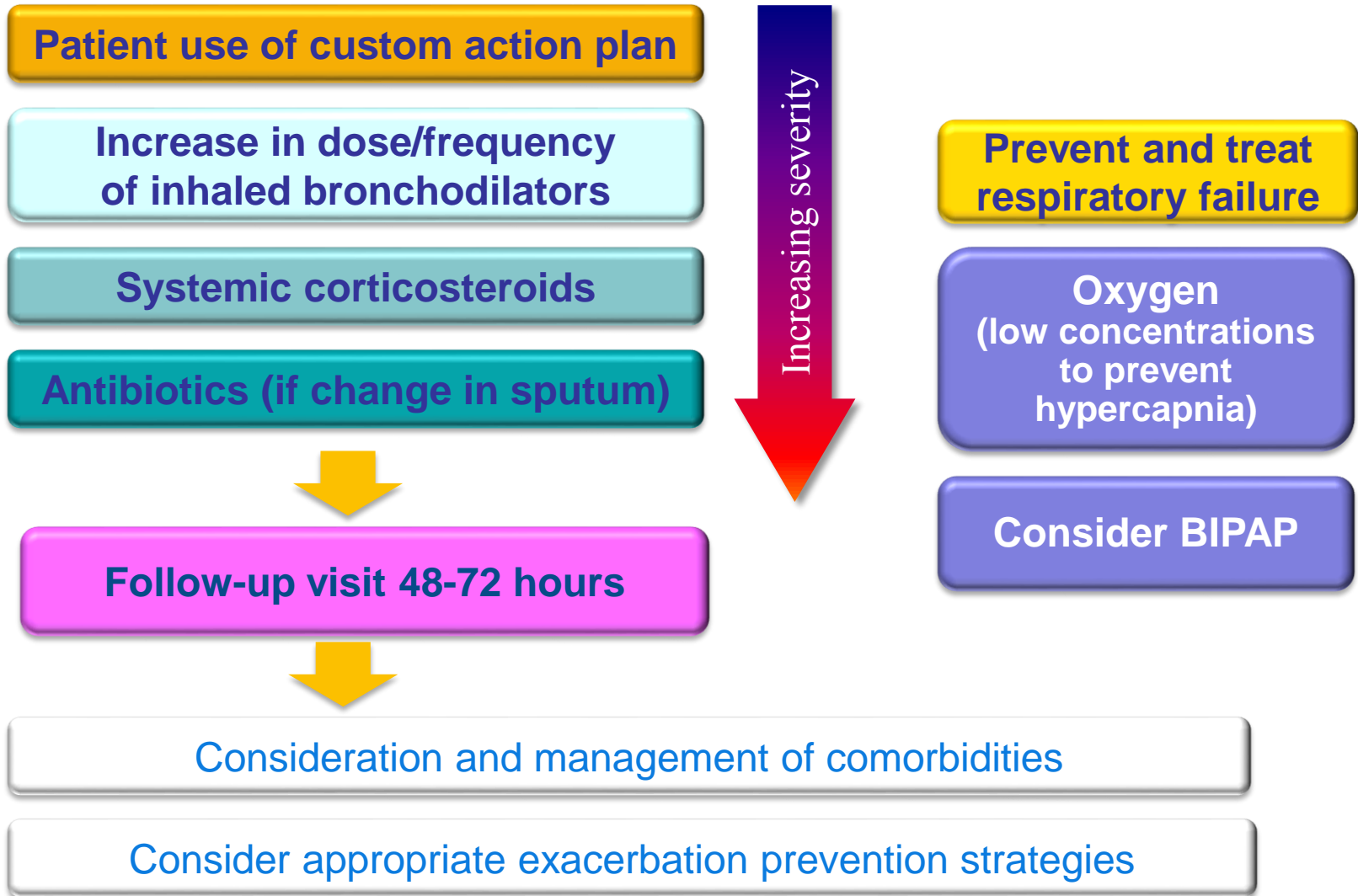
Should we use antibiotics?

Manage Exacerbations: Treatment Options

Antibiotics should be given to patients with:

- Three cardinal symptoms: increased dyspnea, increased sputum volume, and increased sputum purulence.
- With increased crp-values/signs of bacterial infection
- Who require mechanical ventilation.

Management of COPD Exacerbations



Patient Action Plans

- Action plans are designed to^{2,3}
 - Help patients recognise a deterioration in their symptoms
 - Initiate changes to treatment early
 - Reduce the impact of the exacerbation

Regular respiratory medication and actions to remain stable

Symptom recognition and actions to manage exacerbations

A list of contacts

Actions for symptom worsening or dangerous situations

Canadian Respiratory Guidelines **PLAN OF ACTION FOR** _____ (patient's name)
Patient's copy

I FEEL WELL

MY SYMPTOMS

- I feel short of breath: _____
- I cough/sputum daily: No Yes, colour: _____
- I cough regularly: No Yes

I FEEL WORSE

MY SYMPTOMS

- I have changes in my sputum (colour, volume, consistency), not only in the morning
- I have more shortness of breath than usual

Note that these changes may happen after a cold or flu-like illness and/or sore throat. Some people feel a change in mood, fatigue or low energy prior to a flare-up.

MY ACTIONS

- I use my prescription for COPD flare up
- I avoid things that make my symptoms worse
- I use my breathing, relaxation, body position and energy conservation techniques
- If I am already on Oxygen, I use it consistently and increase from ____ L/min to ____ L/min
- I notify my contact person _____ (Tel: _____) and/or see my doctor (Tel: _____)

PRESCRIPTION FOR COPD FLARE-UP

1) If your SPUTUM becomes yellowish/greenish

start Antibiotic _____ Dose: _____ #pills: _____ Frequency: _____ #days: _____

If repeating antibiotics within 3 months, use the following antibiotic instead

start Antibiotic _____ Dose: _____ #pills: _____ Frequency: _____ #days: _____

2) If you are more SHORT OF BREATH than usual, take _____ puffs of _____ up to a maximum of _____ times per day, as necessary

If your SHORTNESS OF BREATH DOES NOT IMPROVE, start PREDNISON _____ Dose: _____ # pills: _____ Frequency: _____ # days: _____

Physician Name _____ Signature _____ License _____ Date _____

I FEEL MUCH WORSE OR IN DANGER

MY SYMPTOMS

- My symptoms have worsened
- After 48 hours of treatment my symptoms are not better.

MY ACTIONS

- I notify my contact person and/or see my doctor
- After 5 pm or on the weekend, I go to the hospital emergency department. (Tel: _____)
- I am extremely short of breath, agitated, confused and/or drowsy, and/or I have chest pain
- I dial 911 for an ambulance to take me to the hospital emergency department.

Important Information: Make a follow-up appointment with your doctor to periodically review your plan of action or if you need to use your additional treatment twice within a short period of time (e.g. 3 months).

Living Well with COPD COPD COLD CANADIAN THORACIC SOCIETY SOCIÉTÉ CANADIENNE DE THORACOLOGIE

4th IPCRG
Scientific Meeting
SINGAPORE
29th and 30th May 2015

**REGISTRATION
AND ABSTRACT
SUBMISSION OPEN**
1st December 2014

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8th March 2015



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Thank you for your attention!