Pulmonary Symposium
Novotel, Poznan 8 April 2017

BETWEEN GOLD GUIDELINES AND EVERYDAY REALITY IN COPD

Leonardo M. Fabbri, MD, FERS, AE

Professor of Respiratory and Internal Medicine (-2016)

University of Modena and Reggio Emilia

WHO IS MS/MR COPD?

MALE, SMOKERS OR EX-SMOKER

40 years old, mainly > 65

Dyspnea on exercise ± cough&sputum

Wheezing at night or after exercise

In-expiratory ronchi and/or wheezing

Acute exacerbations of symptoms (30%)

Invariably (> 80%) associated with other chronic diseases (chronic multimorbidity)

COPD AS PULMONARY COMPONENT OF MULTIMORBIDITY

Leonardo M. Fabbri, MD, FERS

Definition and assessment of severity of COPD

Management of of COPD

COPD as pulmonary component of multimorbidity

Treatment of concomitant chronic diseases in COPD

Conclusions

GLOBAL STRATEGY FOR DIAGNOSIS, MANAGEMENT AND PREVENTION OF COPD

DEFINITION OF COPD 2011

2011

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. Exacerbations and comorbidities contribute to the overall severity in individual patients

2017

Chronic Obstructive Pulmonary Disease (COPD) is a common, preventable and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases

Global Strategy for Diagnosis, Management and Prevention of COPD

Diagnosis of COPD

SYMPTOMS

shortness of breath

chronic cough

sputum

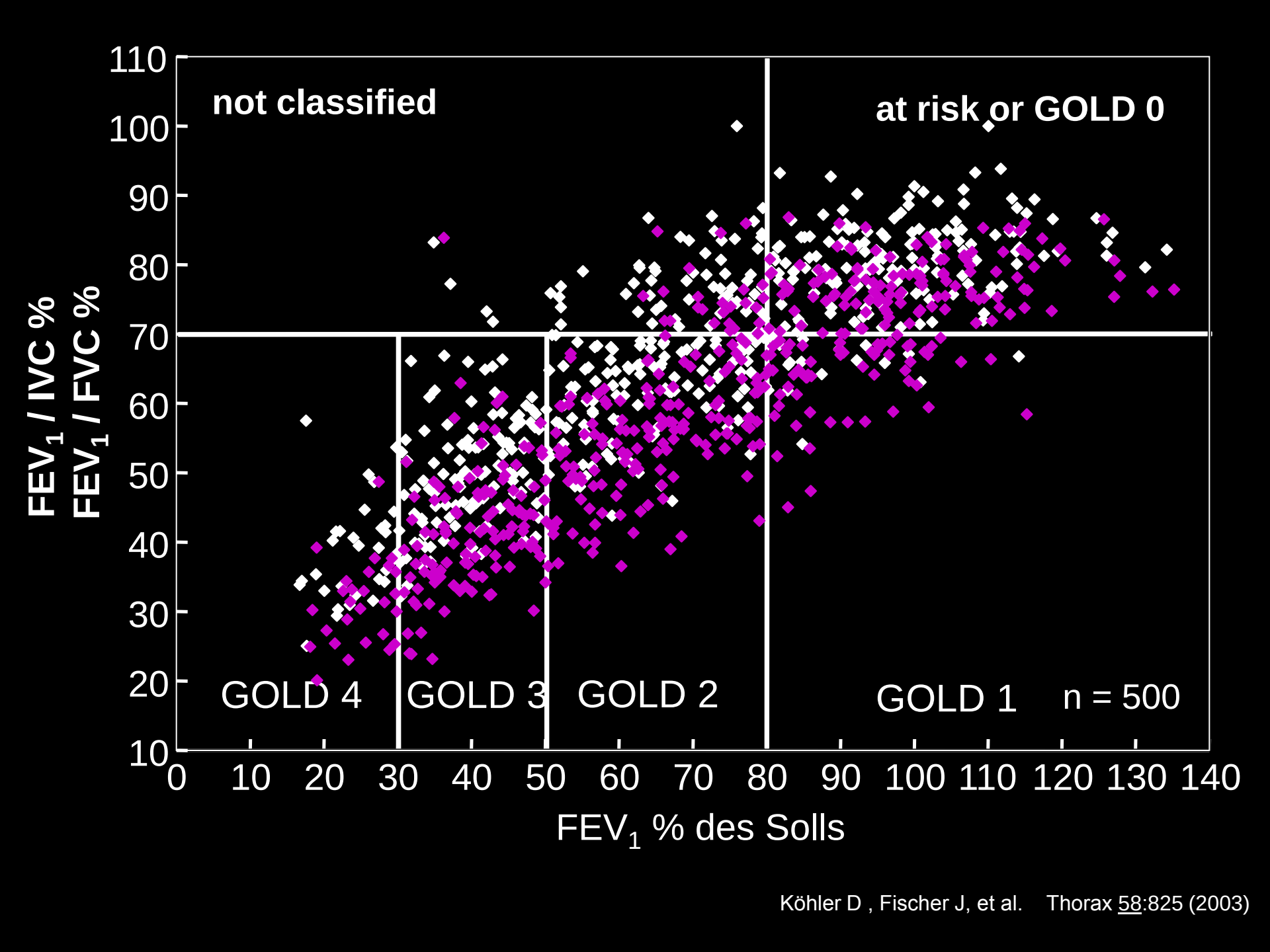
EXPOSURE TO RISK FACTORS

tobacco

occupation

indoor/outdoor pollution

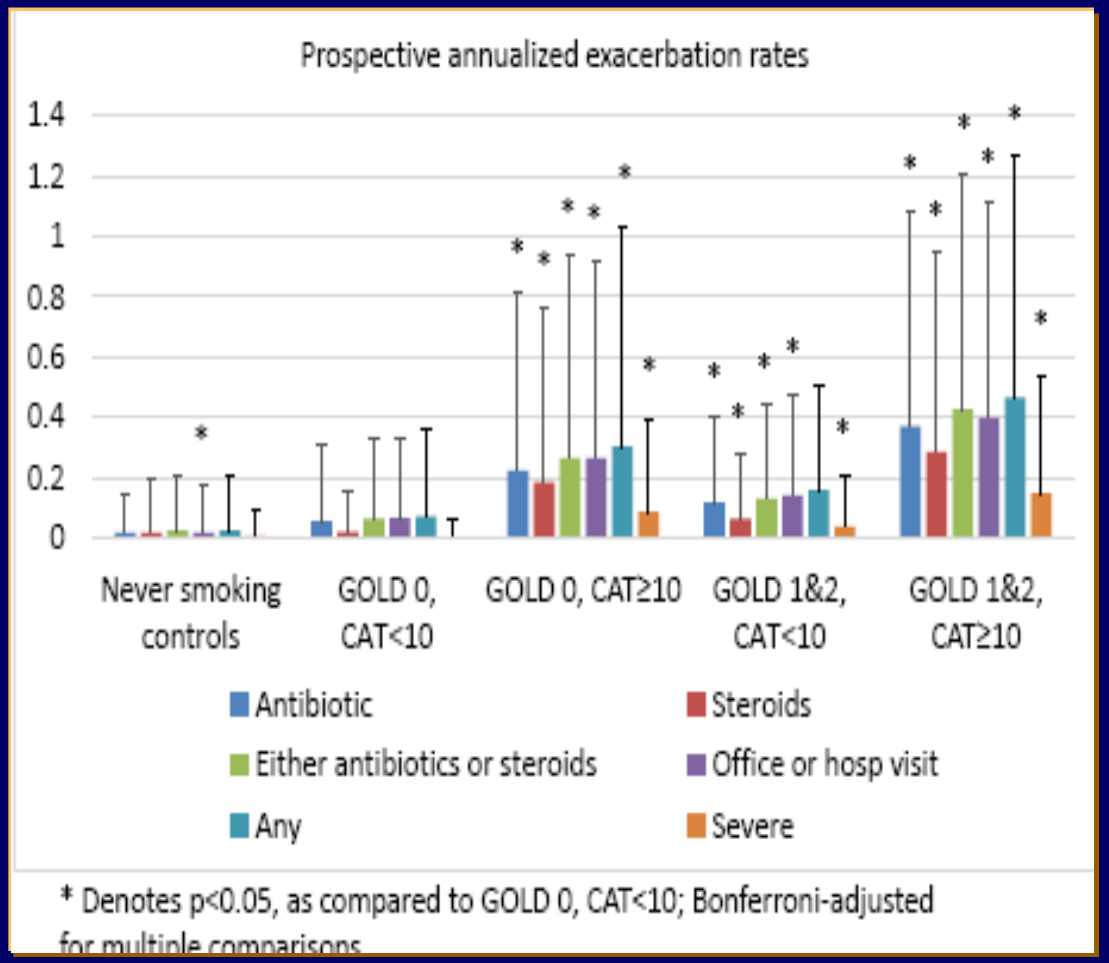
SPIROMETRY: Required to establish diagnosis



Köhler D , Fischer J, et al. Thorax 58:825 (2003)

CLINICAL SIGNIFICANCE OF SYMPTOMS IN SMOKERS WITH PRESERVED SPIROMETRY

Smokers with symptoms despite preserved FEV1/FVC have more frequent respiratory exacerbations, activity limitations and evidence of airway disease and are currently using a range of respiratory medications without any evidence base



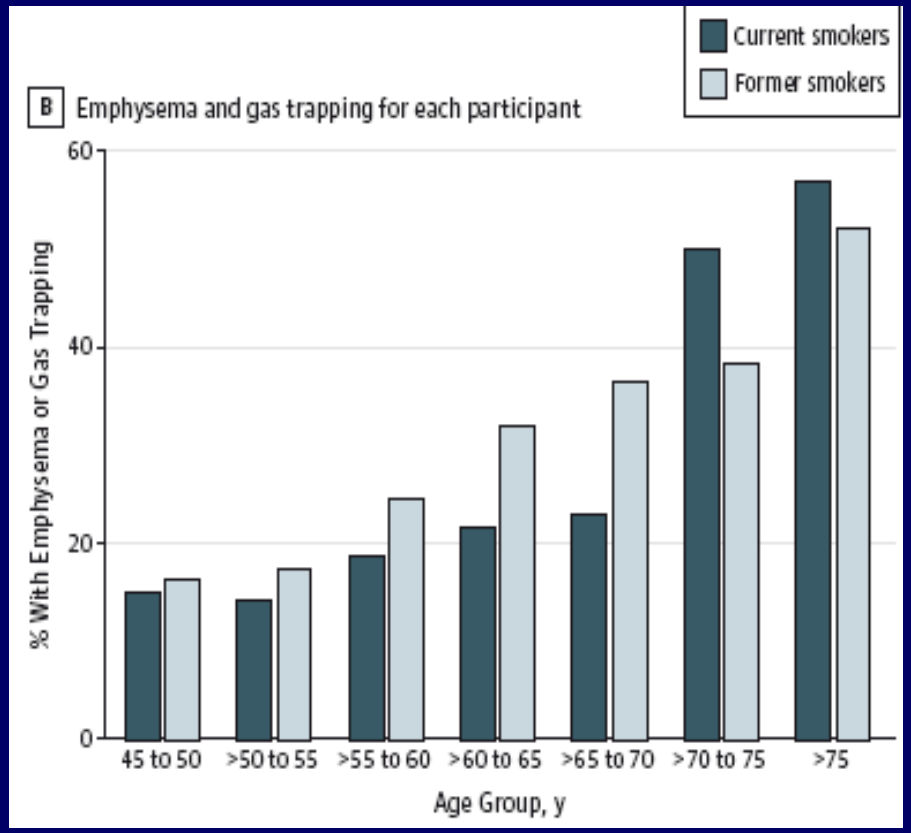
Woodruff et al. N Engl J Med , in press

CLINICAL AND RADIOLOGIC DISEASE IN SMOKERS WITH NORMAL SPIROMETRY

Lung disease and impairments were common in smokers without spirometric COPD

Based on these results, we project that there are 35 million smokers > 55 years in the USA who may have unrecognized disease

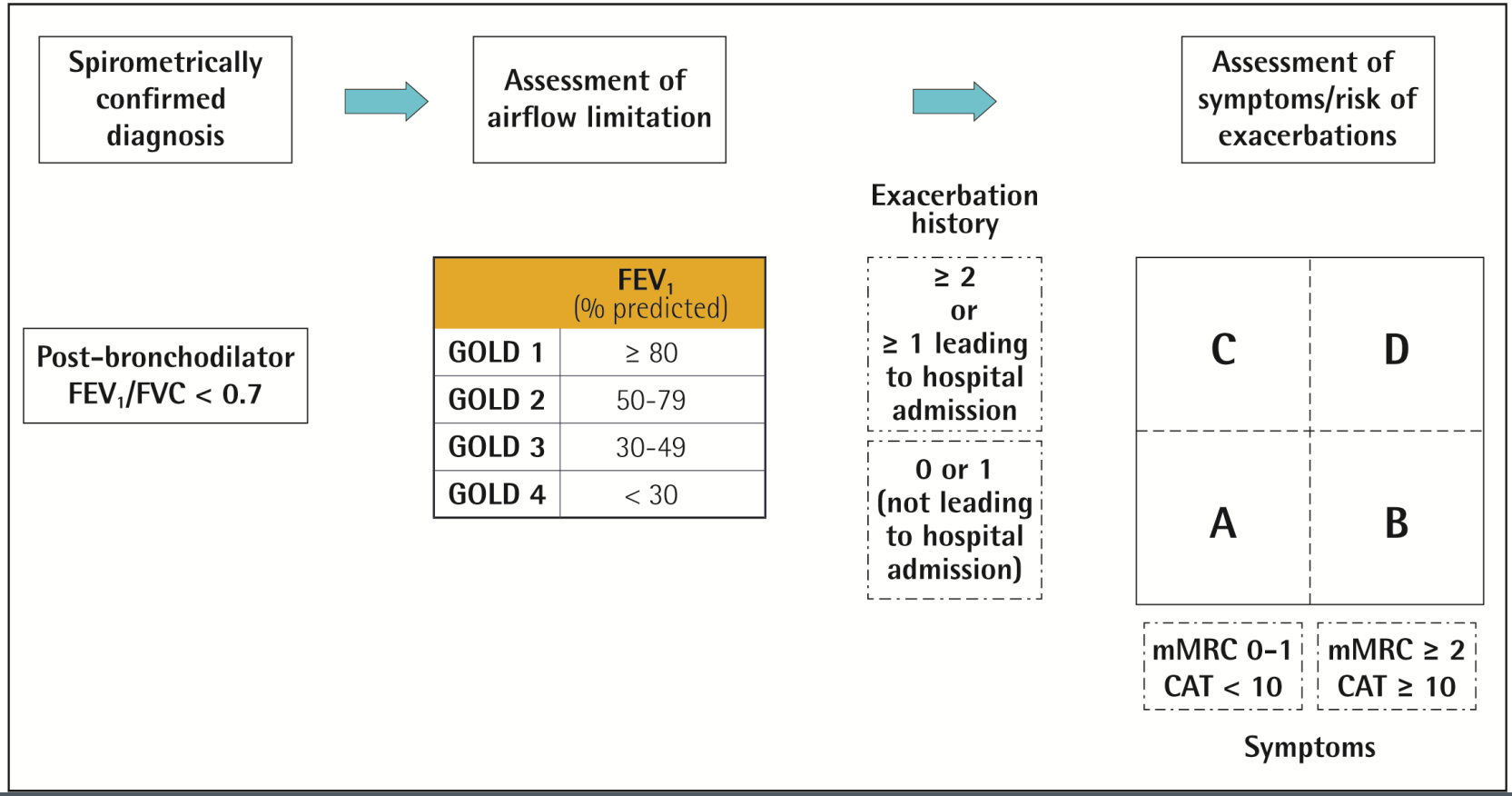
The effect of chronic smoking on the lungs and the individual is substantially underestimated when using spirometry alone.



Regan EA, et al. JAMA Intern Med. 2015 Sep 1;175(9):1539-49

ABCD Assessment Tool

Figure 2.4. The refined ABCD assessment tool



COPD AS PULMONARY COMPONENT OF MULTIMORBIDITY

Leonardo M. Fabbri, MD, FERS

Definition and assessment of severity of COPD

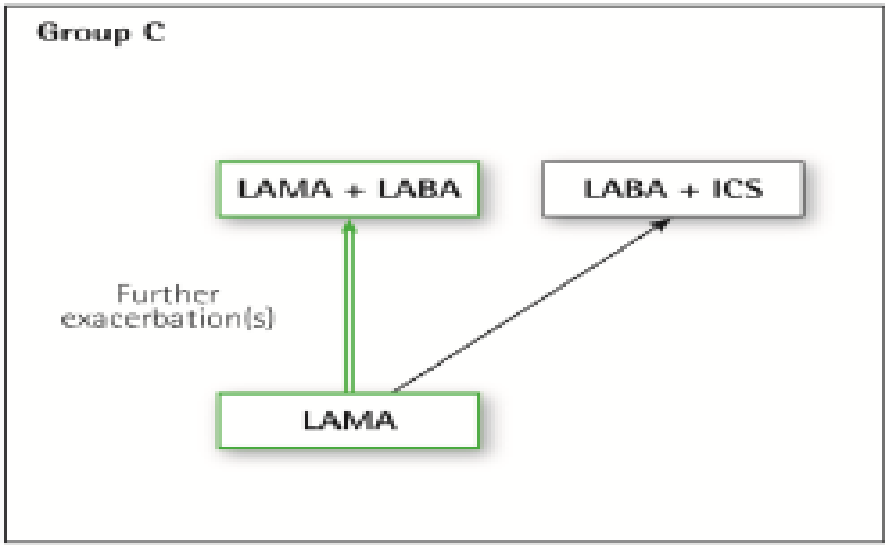
Management of of COPD

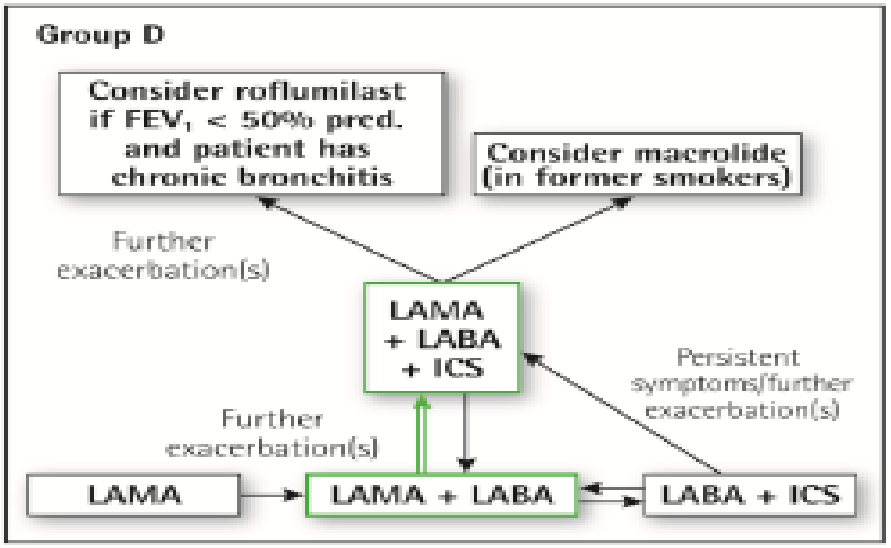
COPD as pulmonary component of multimorbidity

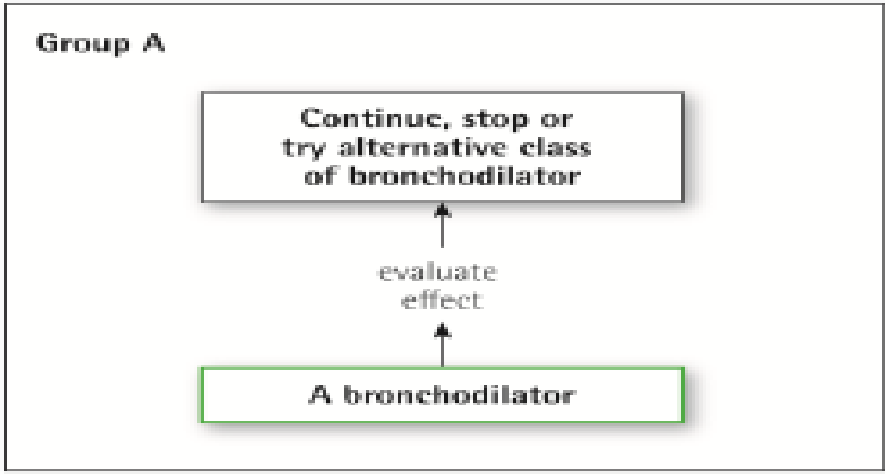
Treatment of concomitant chronic diseases in COPD

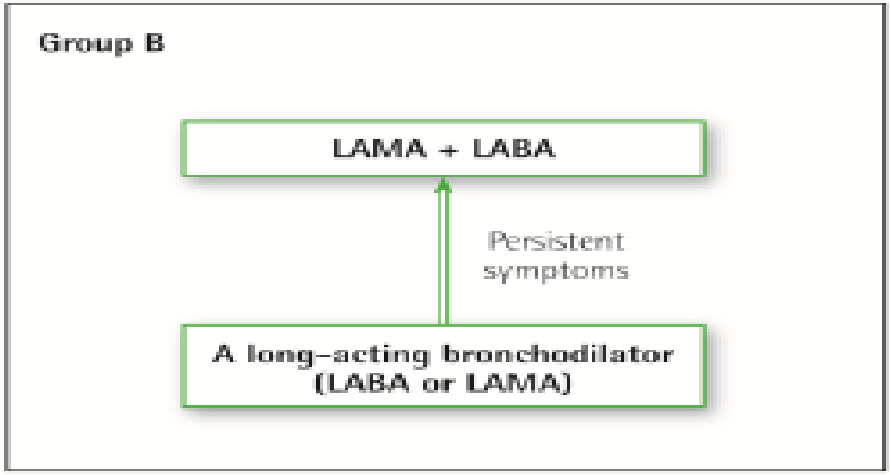
Conclusions

GOLD 2017 THERAPEUTIC RECOMMENDATIONS









*Roflumilast ot available in Australia

GOLD 2017, www.gold.copd.org

COPD AS PULMONARY COMPONENT OF MULTIMORBIDITY

Leonardo M. Fabbri, MD, FERS

Definition and assessment of severity of COPD

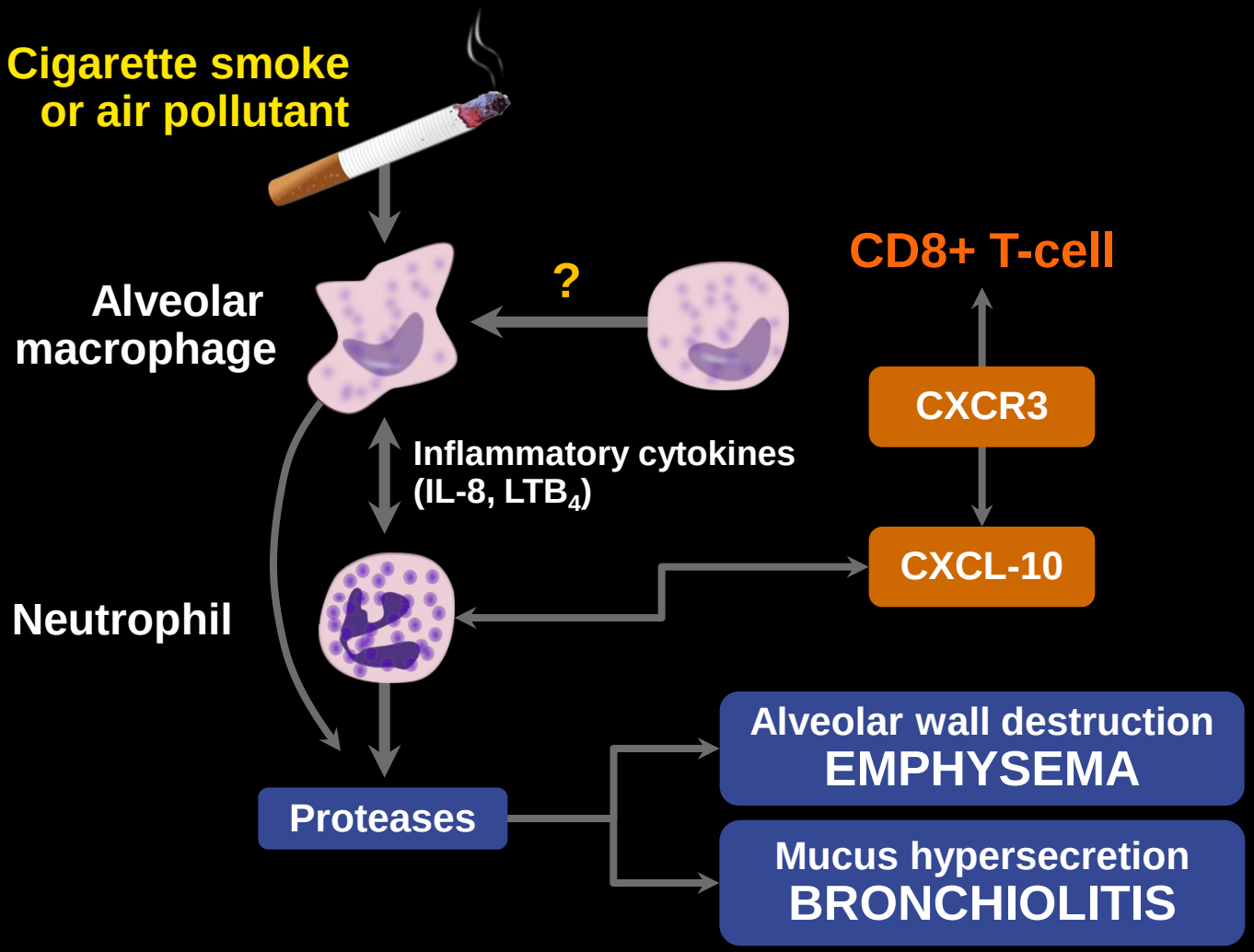
Management of of COPD

COPD as pulmonary component of multimorbidity

Treatment of concomitant chronic diseases in COPD

Conclusions

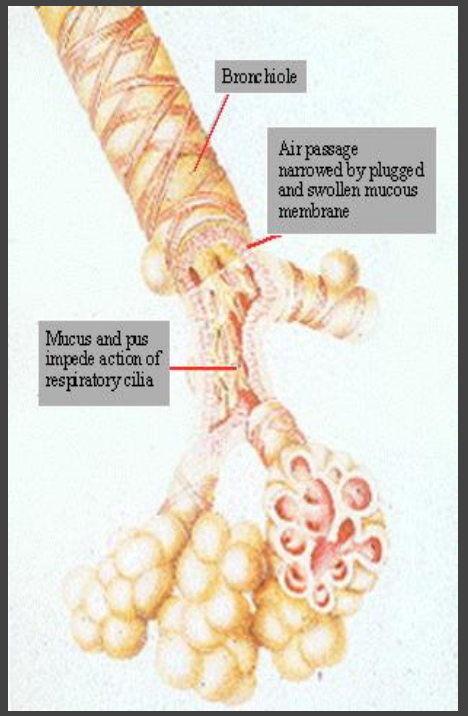
PATHOGENESIS OF COPD



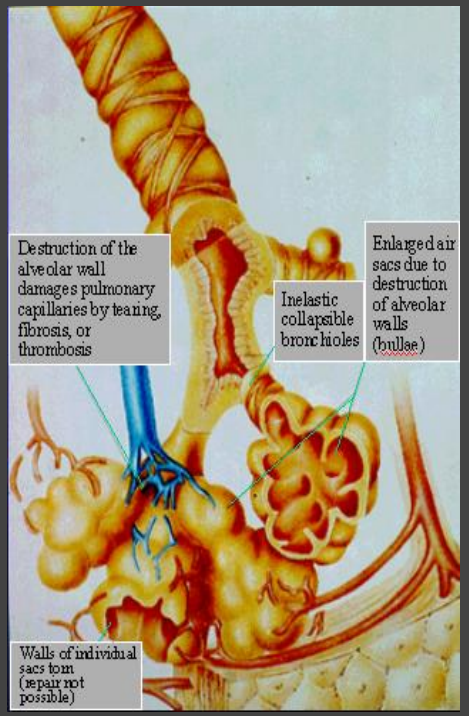
Adapted from PJ Barnes, 2000; Fabbri, Sinigaglia, Papi, Saetta 2002; Cosio, Saetta and Cosio 2012

COPD

- **GOLD Definition:** the presence of airflow limitation that is not fully reversible and a history of exposure to a noxious agent / risk factor (cigarette smoke)
- **Airflow limitation**
  - Small airways
    - Remodeling, fibrosis
  - Alveoli: Emphysema
    - Destruction and enlargement of mature Airspace distal to terminal bronchioles

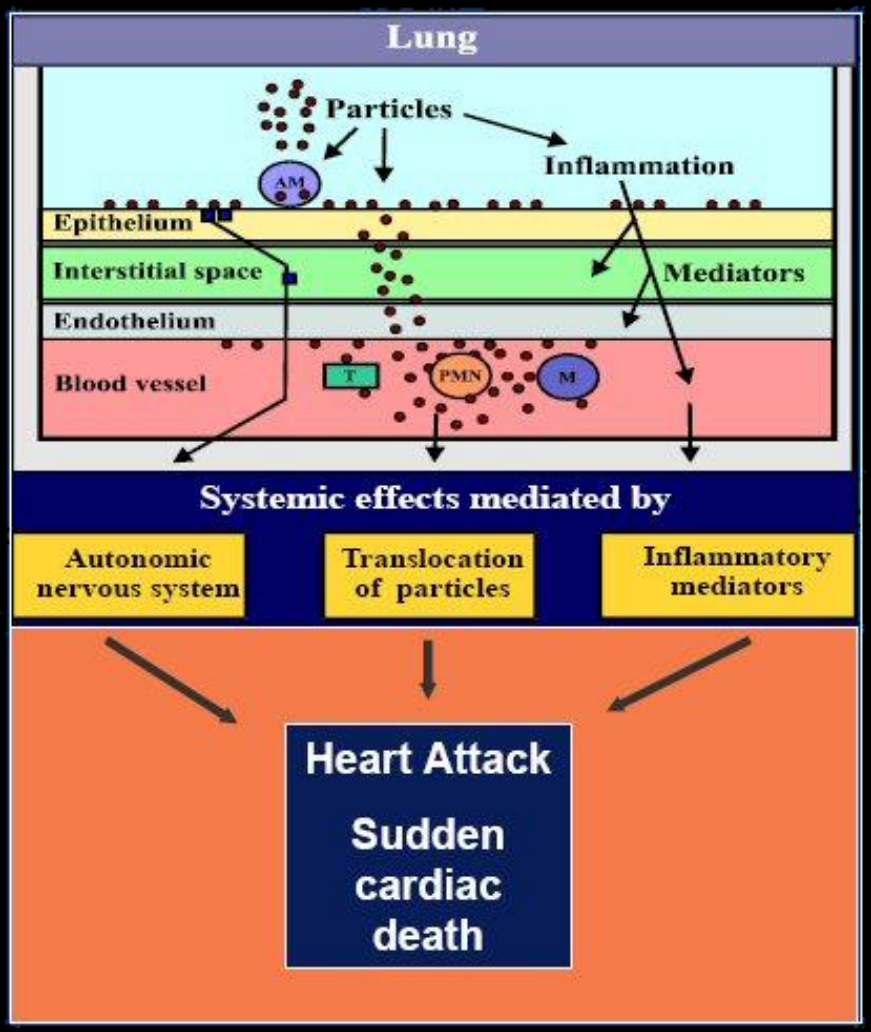


Small Airway Obstruction



Emphysema

Inhaled particles: pulmonary and heart co-morbidity



Lung

Inflammation

Allergy - Sensitization

Chronic lung diseases

Cardiovascular Effects of Fine and Ultrafine Particles

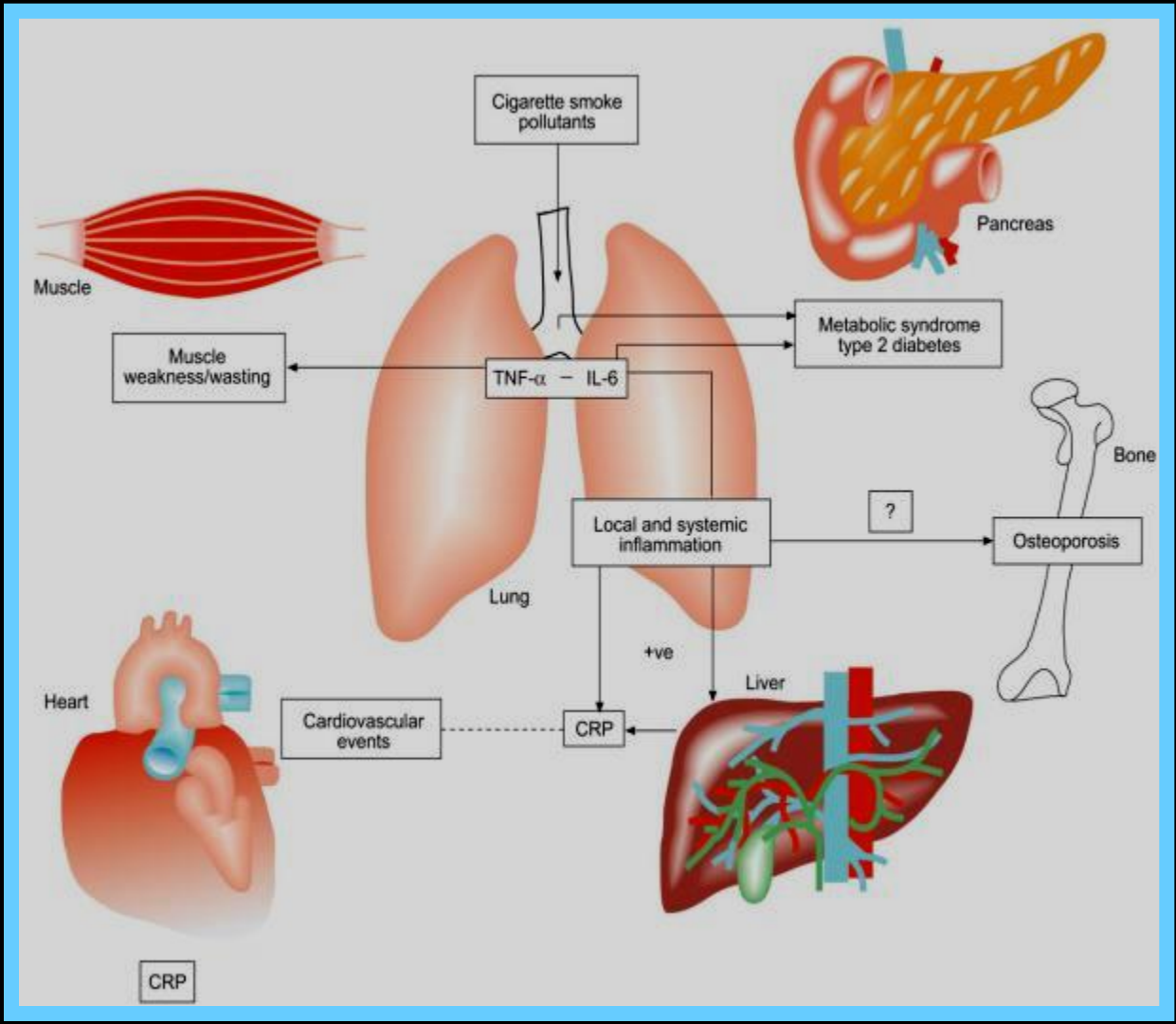
Courtesy of W MacNee

LEADING CAUSES OF DEATH IN U.S.

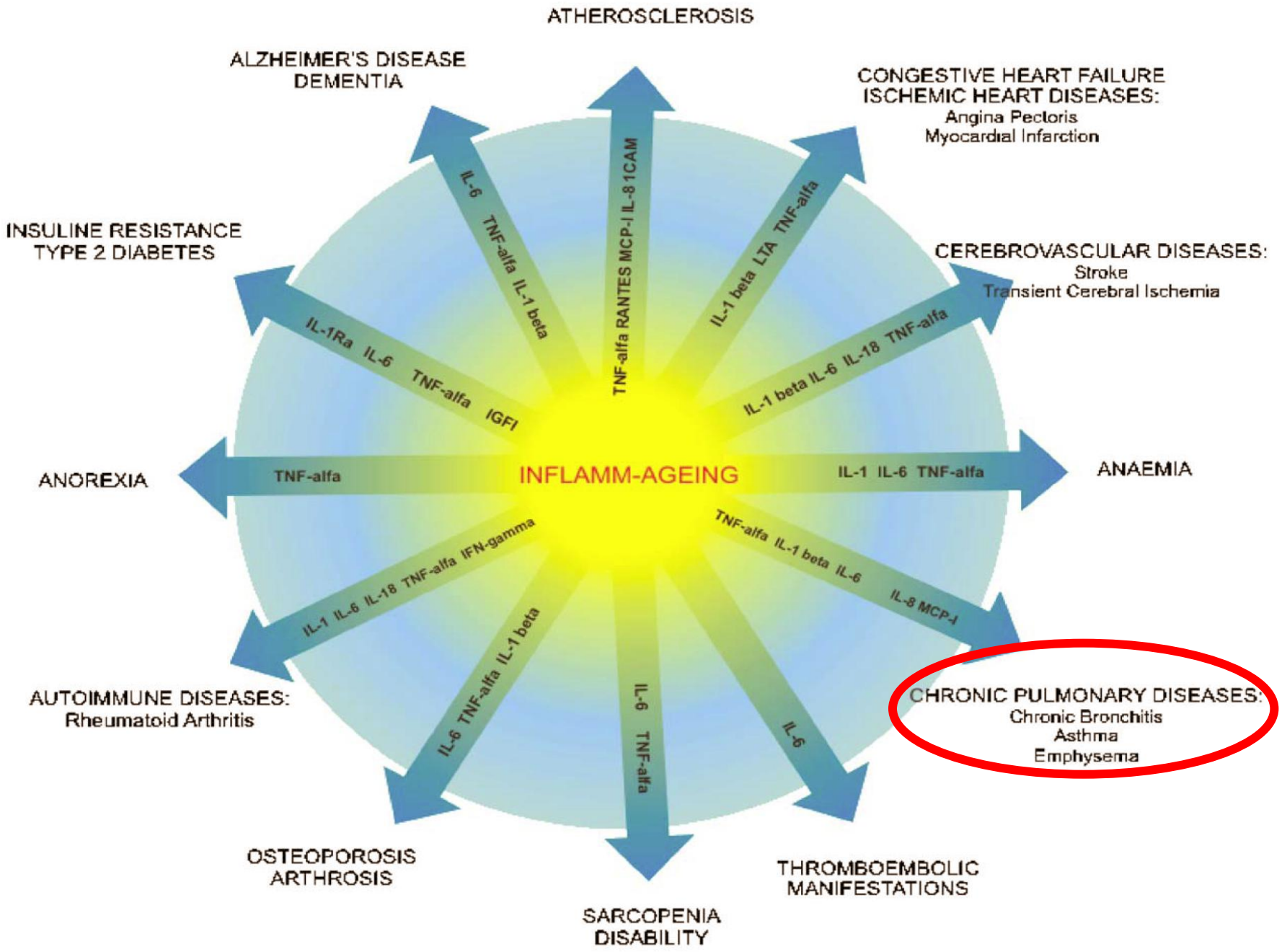
1. Myocardial Infarction
2. Cancer
3. Cerebrovascular Diseases
4. COPD

Cigarette Related Diseases
Leading Causes of Death Worldwide 2010

COMPLEX CHRONIC CO-MORBIDITIES OF COPD

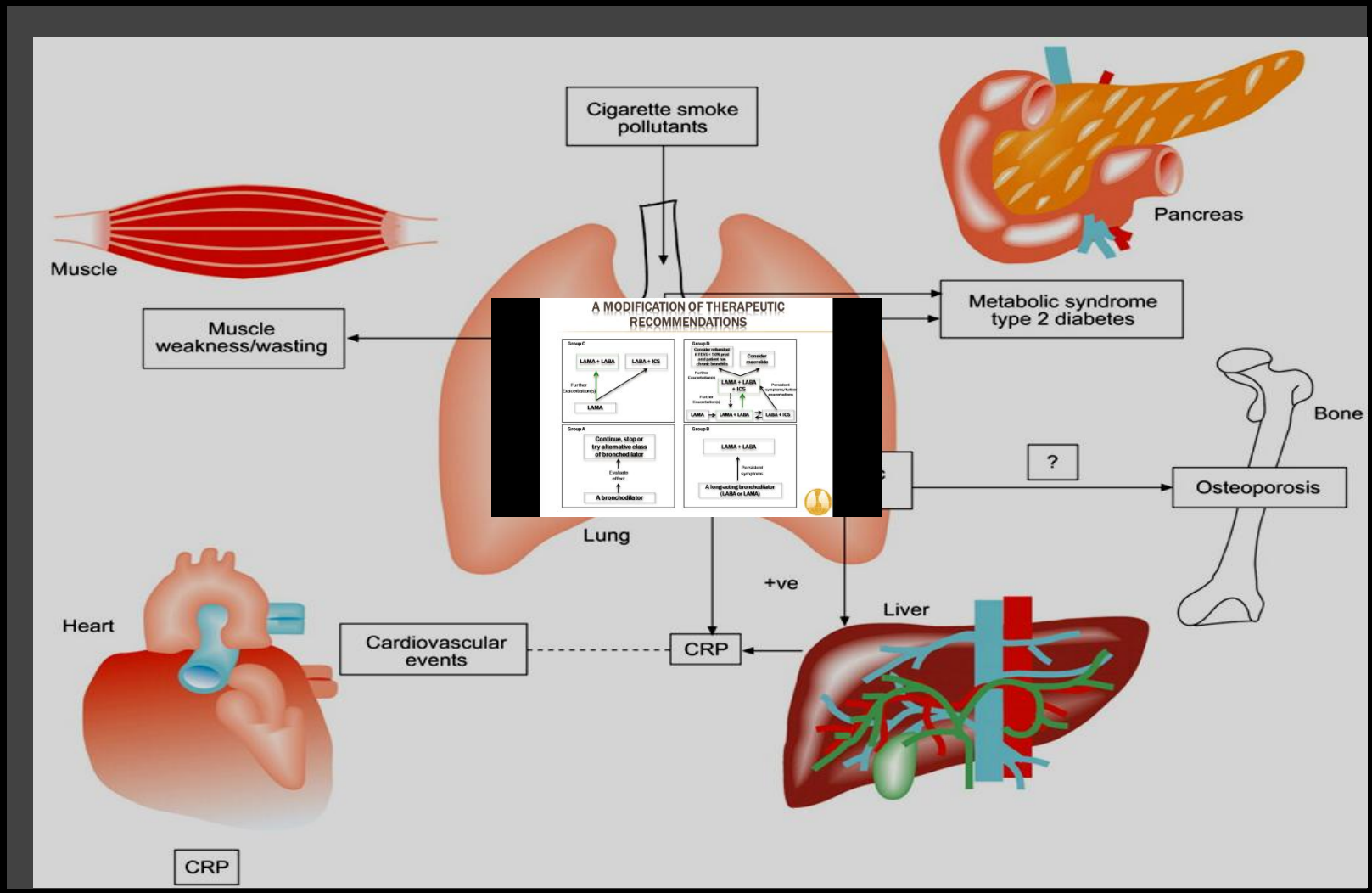


Fabbri, Beghe, Luppi and Rabe, Eur Respir J 2008;31:204-212



Martinis M et al. Exp. Mol. Pathol. 80 (3):219-227, 2006

COPD AS THE PULMONARY COMPONENT OF MULTIMORBIDITY



Fabbri LM, Luppi F, Beghe B, and Rabe KF - Eur Respir J 2008;31:204-212

COPD AS PULMONARY COMPONENT OF MULTIMORBIDITY

Leonardo M. Fabbri, MD, FERS

Definition and assessment of severity of COPD

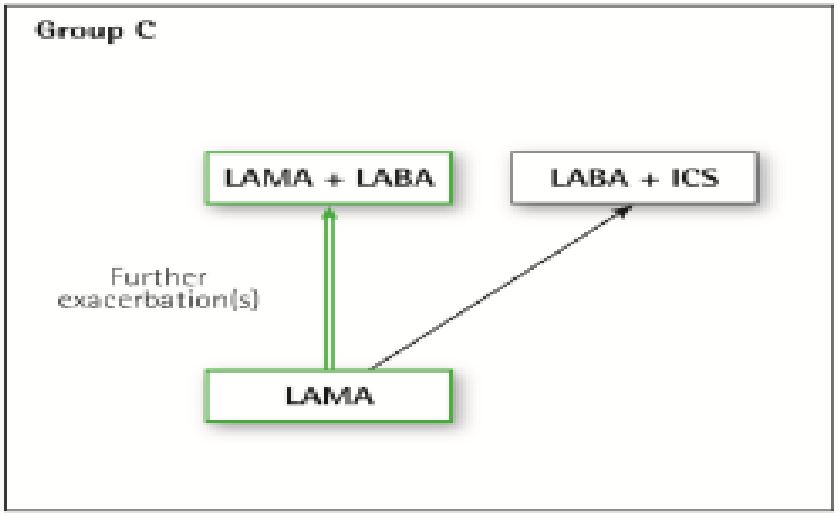
Management of of COPD

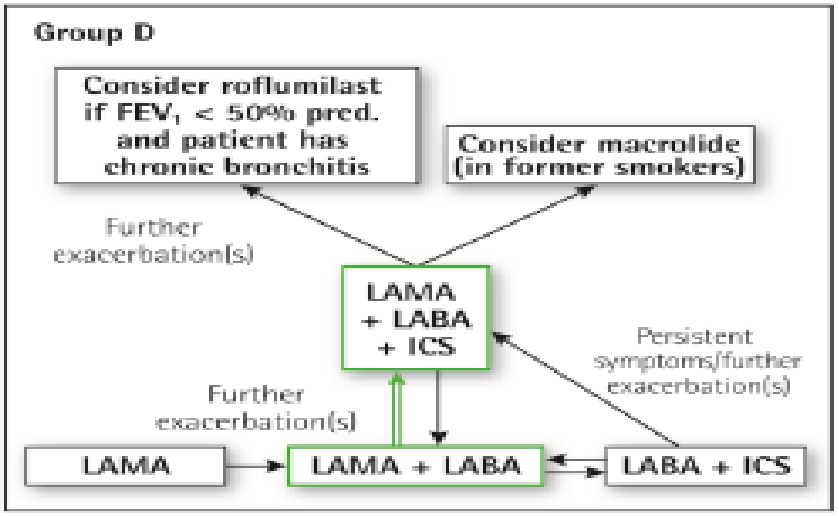
COPD as pulmonary component of multimorbidity

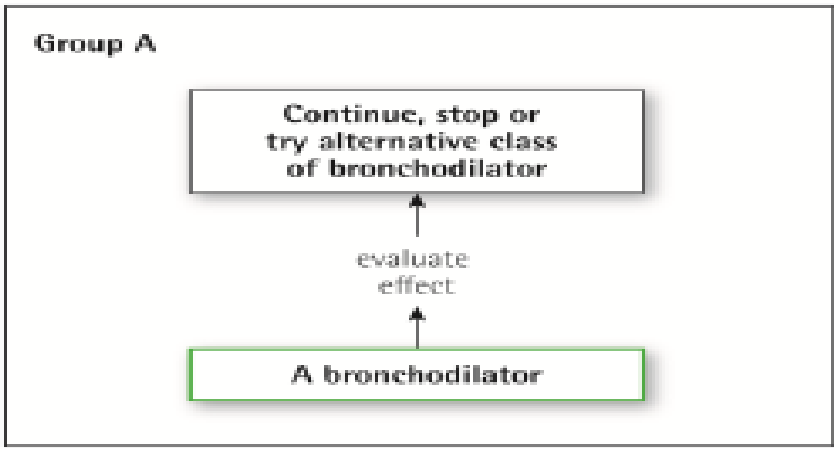
Treatment of concomitant chronic diseases in COPD

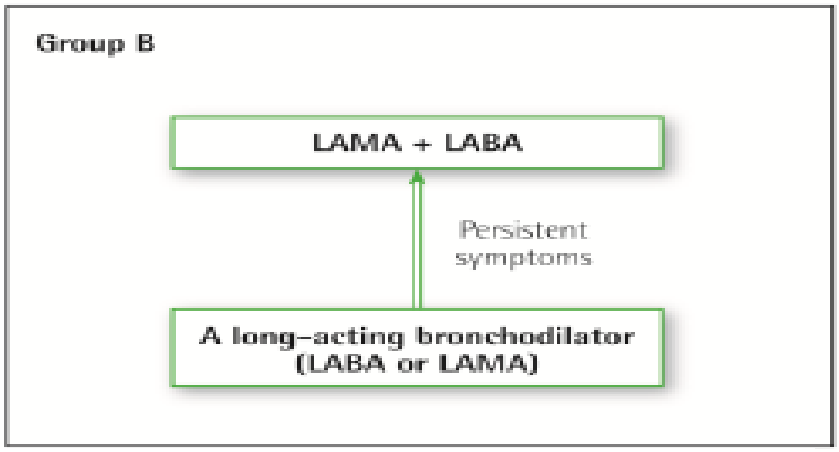
Conclusions

THERAPEUTIC RECOMMENDATIONS









*Roflumilast ot available in Australia

GOLD 2017, www.goldcopd.org

C.R. 20 October 2015

- Male, 88 year
- Moderate dyspnea on exercise
- No chronic bronchitis
- No occupational exposure
- Ex-smoker (20 p/y).
- Diagnosis of COPD 6 months ago in conjunction with an AECOP requiring hospitalization
- Recommended regular inhalation treatment with aerosolied bronchodilator/steroids (not taken)

HOSPITALIZED AND TREATED FOR EXCERBATION OF COPD

- Three days admission 6 months ago, after few days of cough, sputum, dyspnea, fever
- Normal chest X-Ray
- No fever, cyanosis, nor edema at admission

HOSPITALIZED AND TREATED FOR EXCERBATION OF COPD

- $Sa0_2$ 87% (no arterial blood gases available)
- CRP 8.8 mg/dL (0-0.5) - < 0.6 at discharge
- proBNP ECLIA 2515 pico gr/ml (0-194)
- Troponin T hs 13 ng/L (50 ng/L)
- No spirometry before, during or after admission

COMORBIDITIES

- Obese (BMI=36)
- Diabetes
- Arterial hypertension
- Dyslipidemia
- Atrial fibrillation
- Ischaemic heart disease
- Heart failure with increased PaP (55mmHg)
- Benign Prostatic Hypertrophy

TREATMENT

- Metformin
- Olmesartan
- Medoximil
- Larcanedipin
- Carvedilol
- Finasteride
- Silodosin
- Warfain

C.R. 20 October 2015

Since 1 year:

- Moderate progressive dyspnoea on exercise (mMRC2)
- Dyspnea in the early morning
- Occasional cough, no purulent sputum

Reduced fremitus, in/espiratory ronchi, bilateral basal in/espiratory crackles

C.R. 20 October 2015

SPIROMETRY
(not diagnostic for COPD)

- **FEV_1: 1.37 L (50% predicted)**
- **Post-BD FEV1=1.40 L (+2%)**
- **FVC: 2.05 L 54% predicted)**
- **FEV_1/FVC: 68 %**
- **RV: 2.95 L (104 % predicted)**
- **RV/TLC: 59 %**
- **6MWT: 280 m, SaO2 95%-88%**

SIX MINUTE WALKING TEST (6MWT)

SaO2 pre:	95%
SaO2 post:	88%
PA pre	140/85 mm Hg
PA post	160/80 mm Hg
FC pre	70/min
FC post	85/min
Meters:	280

Meters:	≥350	Good
	250–349	Mild impairment
	150–249	Moderate
	≤149	Severe

CONCLUSIONS AND RECOMMENDATIONS AT FIRST VISIT

- **Tiotropium 2.5 ug 2 inhalation in the evening**

- Recommended rehabilitation, including weight reduction

- Confirmed ongoing treatment of comorbidities

- Weekly telephone contact

- Hematochemical exams + chest X ray

- Clinical control at 1 month

CONCLUSIONS AND RECOMMENDATIONS AT FOLLOW UP

- **Tiotropium 2 inhalation in the evening+**
- **Formoterol/budesonide combination bid**

- **Rehabilitation, weight reduction, exercise**

- **Confirmed ongoing treatment of comorbidities**

- **Montly telephone contacts**

- **Clinical control at 3 monthS**

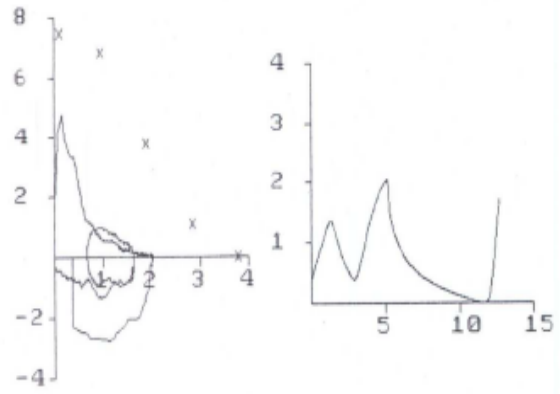
GLOBAL STRATEGY FOR DIAGNOSIS, MANAGEMENT AND PREVENTION OF COPD

DEFINITION OF COPD 2016

COPD, a disease, is characterized by persistent airflow limitation, ie FEV1/FVC < 70%

		oss.	teorici	%	lim.
VC	l	2.45	3.93	62	3.01-4.85
FVC	l	2.22	3.79	59	2.79-4.79
FEV1	l	1.21	2.74	44	1.90-3.58
FEV1/VC	%	49.39	71.46	69	59.7-83.3
FEV1/FVC	%	54.50			
FIV1	l	2.02			
FEF25-75	l/s	0.55	2.43	22	0.72-4.14
PEF	l/s	4.83	7.49	64	5.50-9.48
MEF75	l/s	2.35	6.86	34	4.05-9.67
MEF50	l/s	0.59	3.79	16	1.62-5.96
MEF25	l/s	0.22	1.09	20	-0.19-2.37
IVC	l	2.45	3.93	62	3.01-4.85

Teorici di Riferimento: Polgar 71 (6<eta'<18) ERS93 (18<=eta')



REALITY
patient was being treated with

Tiotropium 2 inhalations in the morning

Formoterol/budesonide combination bid

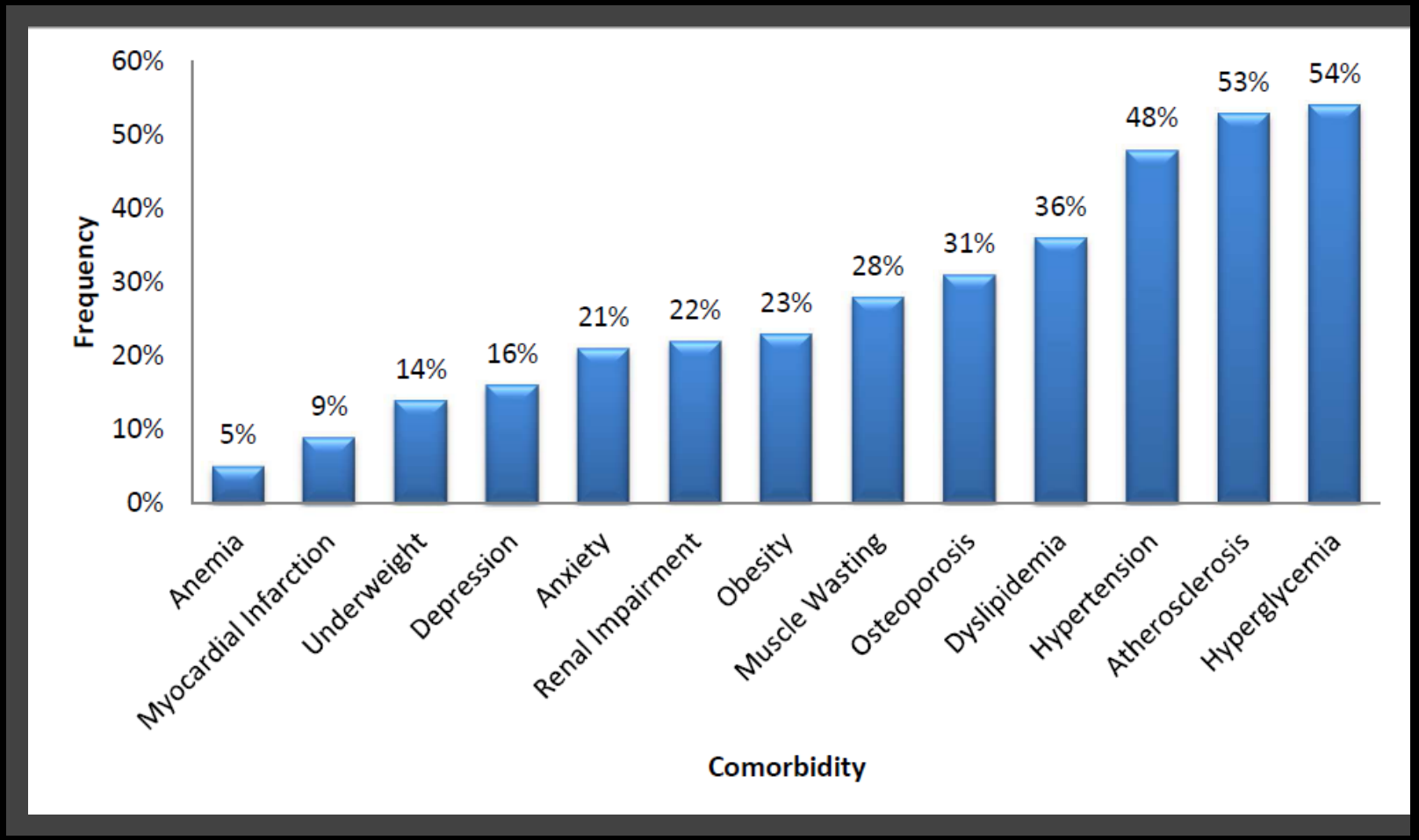
Aspirin 75 mg 1 tablet OD

Valsartan 160 mg 1 cp al mattino

O_2 1 L/min during exercise

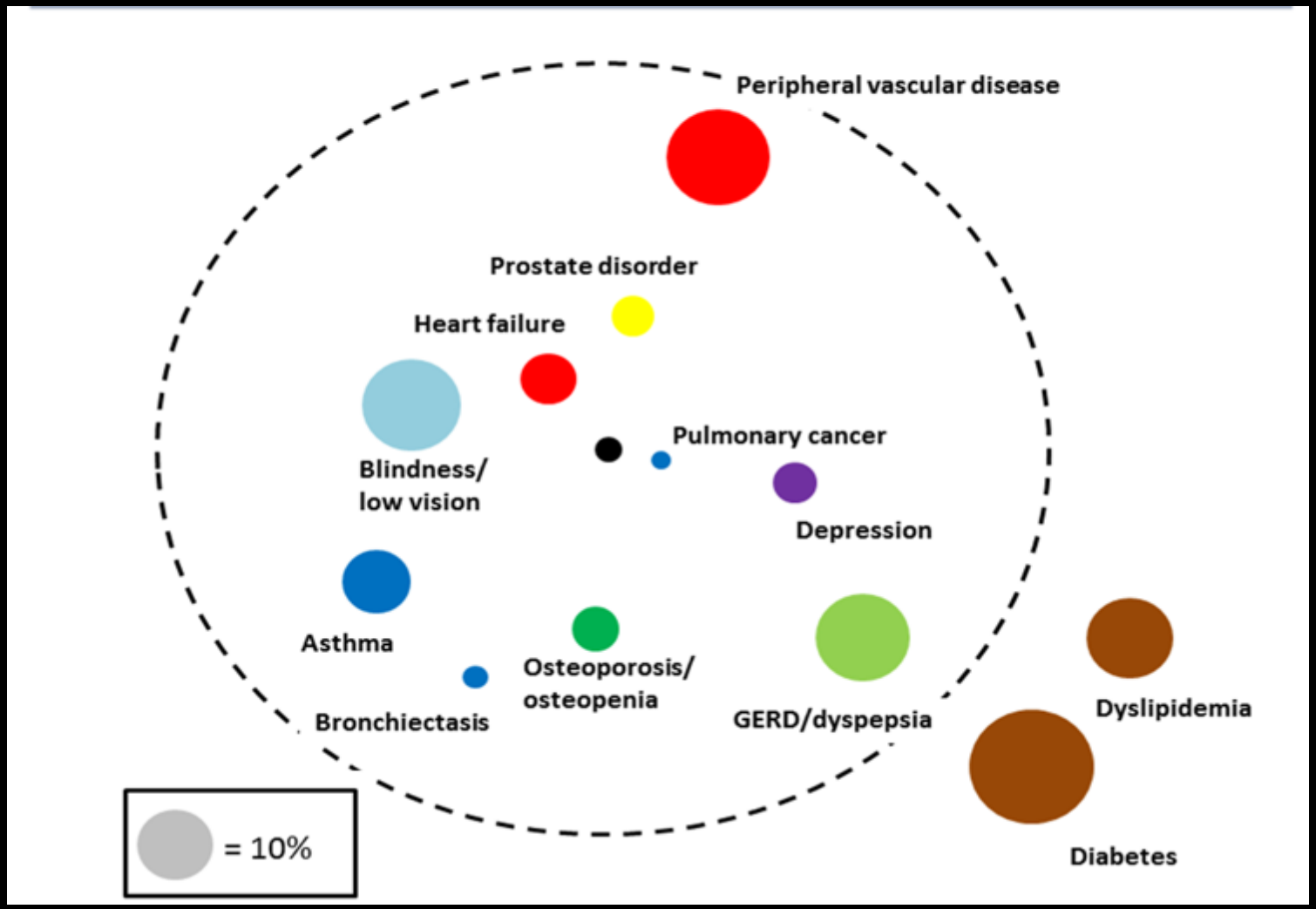
No rehabilitation

FREQUENCIES OF OBJECTIFIED COMORBIDITIES

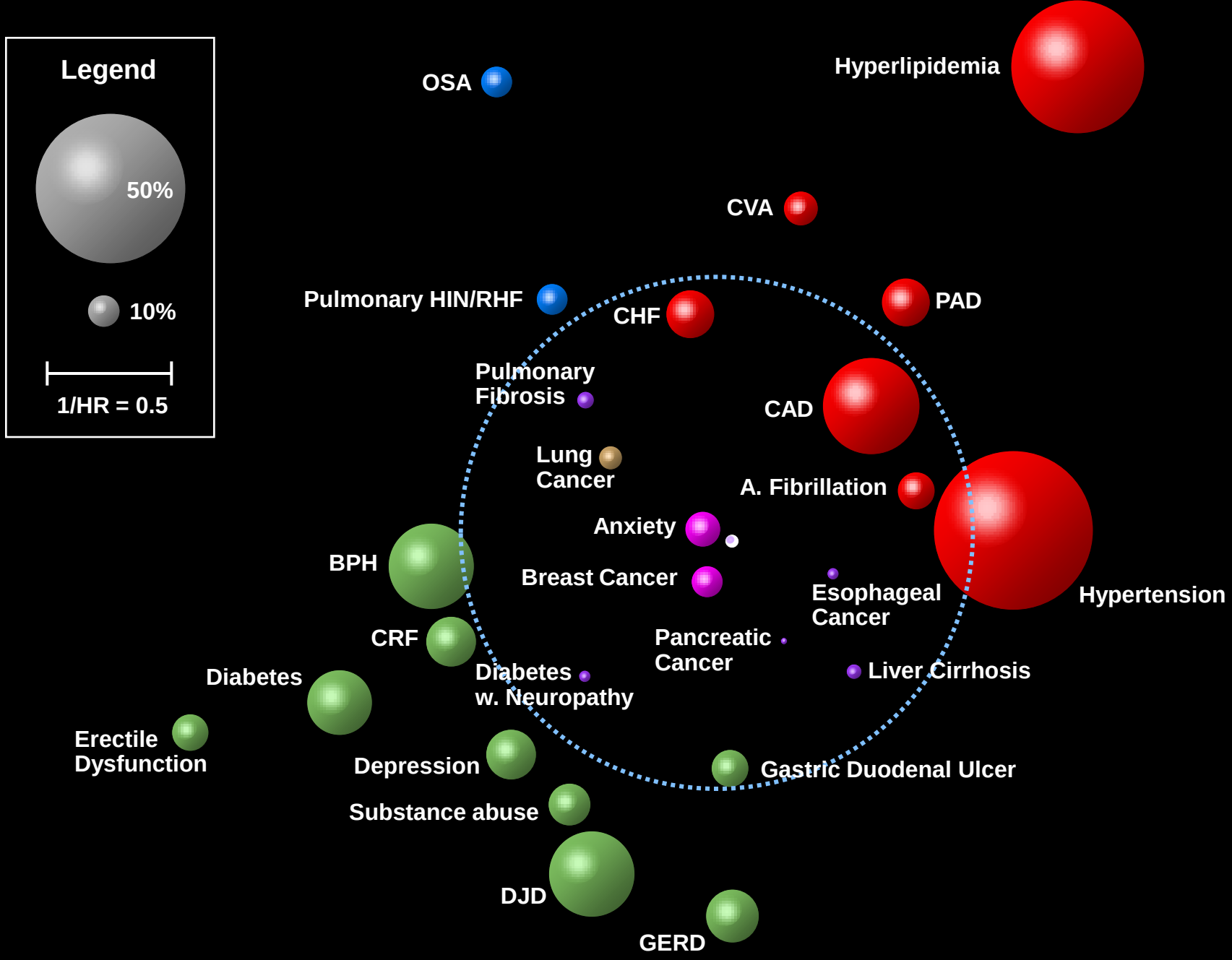


Vanfleteren L.E.G.W., et al. AJRCCM 2013 Apr;187(7):728-35.

ASSOCIATION BETWEEN COMORBIDITIES OF COPD AND RISK OF > 2 EXACERBATIONS/YEAR



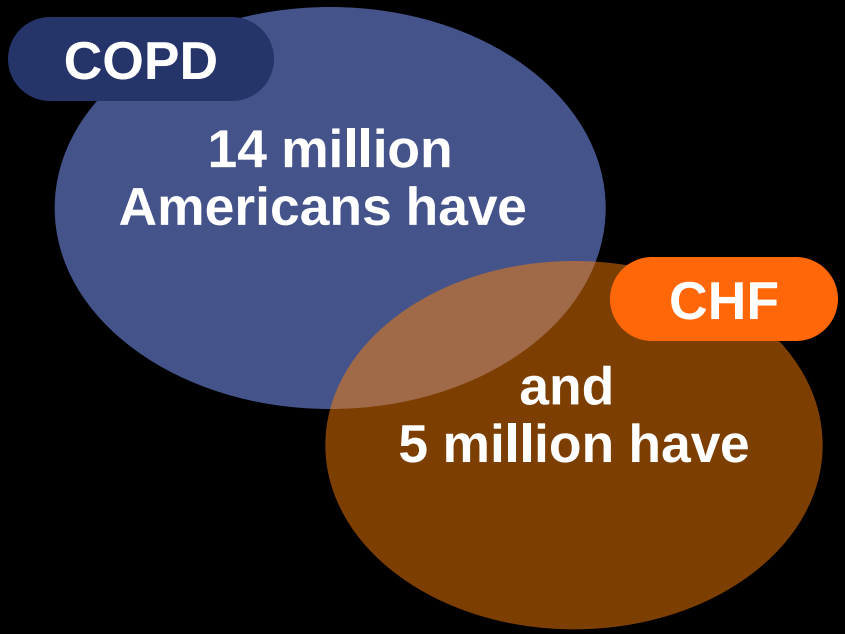
Westerik JAM et al, ERS congress 2016; poster PA871



Divo M et al, Am J Respir Cr Care Med 2012;186(2):155-61

COPD vs CHF

- Up to 1\5 of elderly pts. with COPD have CHF
- Up to 1\3 of elderly pts. with CHF have COPD



The risk ratio of developing HF in COPD pts is 4.5

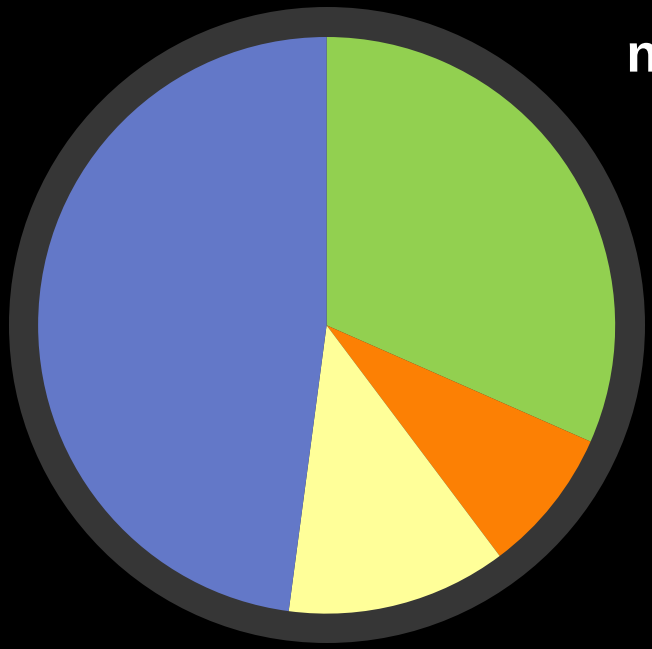
The rate-adjusted hospital prevalence of CHF is 3 times greater among pts. discharged with a diagnosis of COPD compared with patients discharged without mention of COPD

Padeletti-LeJemtel et al. Int. J Cardiology, 2008

UNRECOGNIZED HEART FAILURE IN ELDERLY PATIENTS WITH STABLE COPD

405 elderly with a diagnosis of COPD, but no CHF by GPs

Echo + spiro reassessment



no CHF, no COPD: 128 (32)%

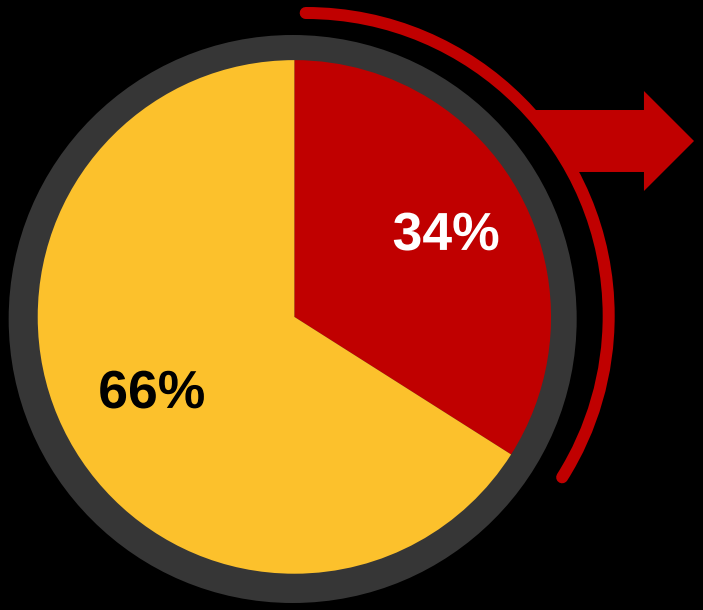
COPD only: 194 (48%)

COPD + CHF: 50 (12%)

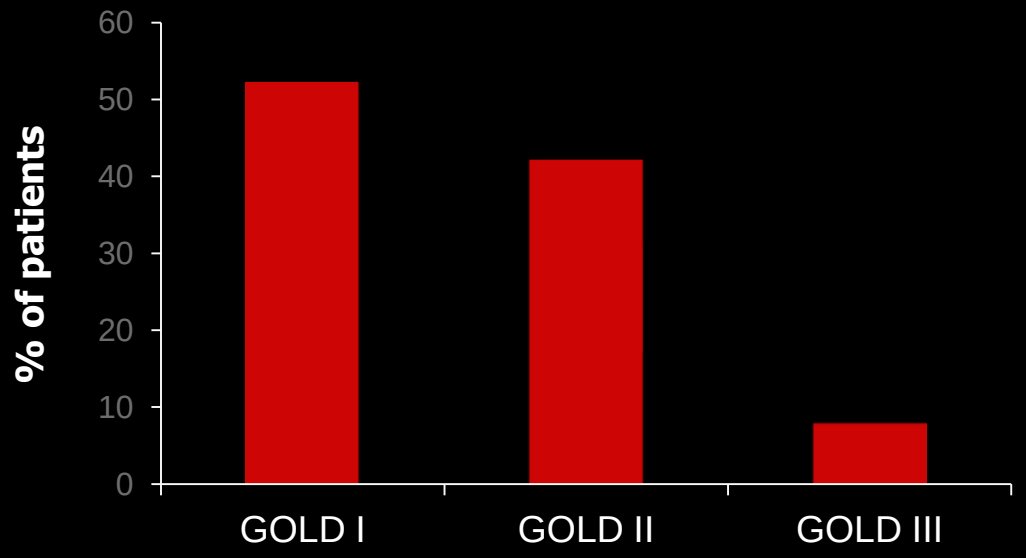
CHF only: 33 (8%)

Rutten FH et al, Eur Heart J 2005

ECHOCARDIOGRAPHY, SPIROMETRY, AND SYSTEMIC ACUTE-PHASE INFLAMMATORY PROTEINS IN SMOKERS WITH COPD OR CHF: AN OBSERVATIONAL STUDY



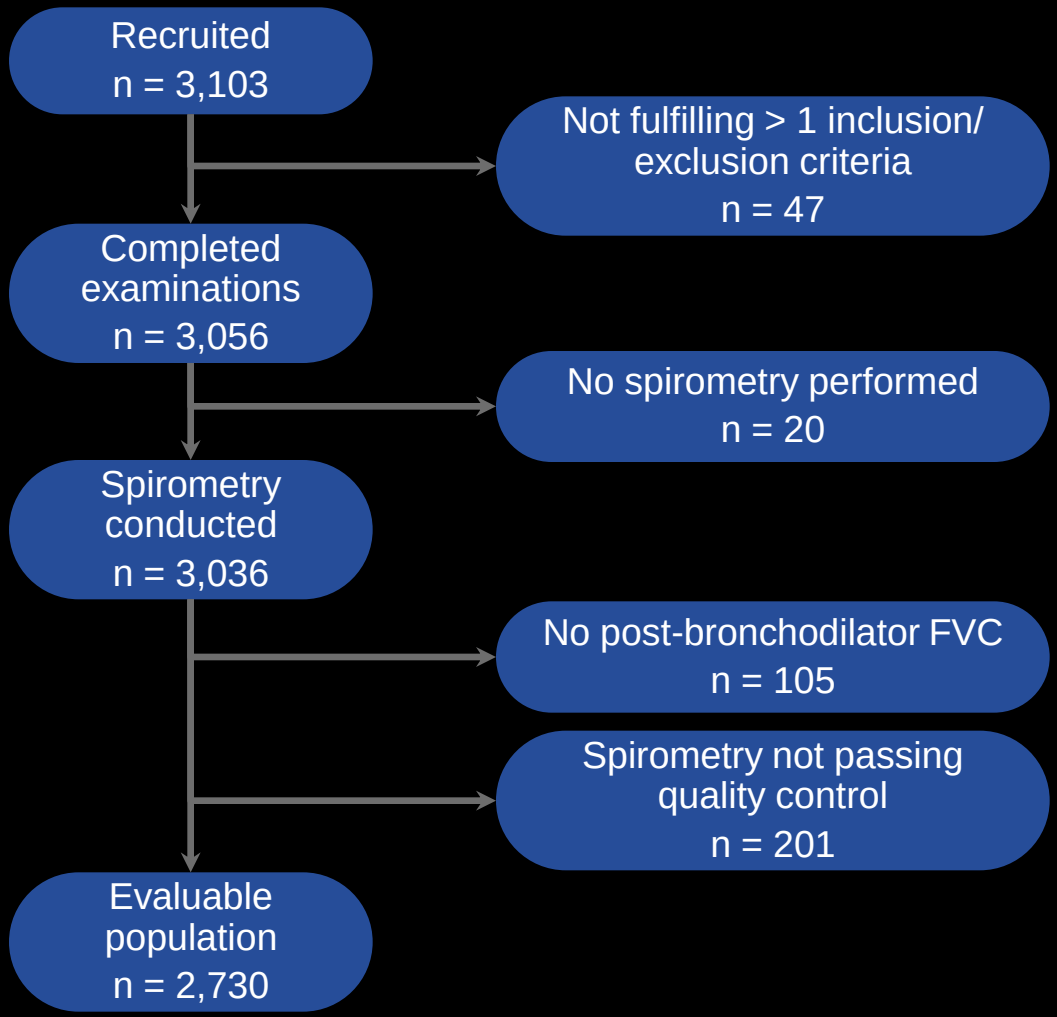
CHF patients



Only 10 of 42 (<25%) pts. with both CHF and COPD were aware of airflow limitation and properly treated

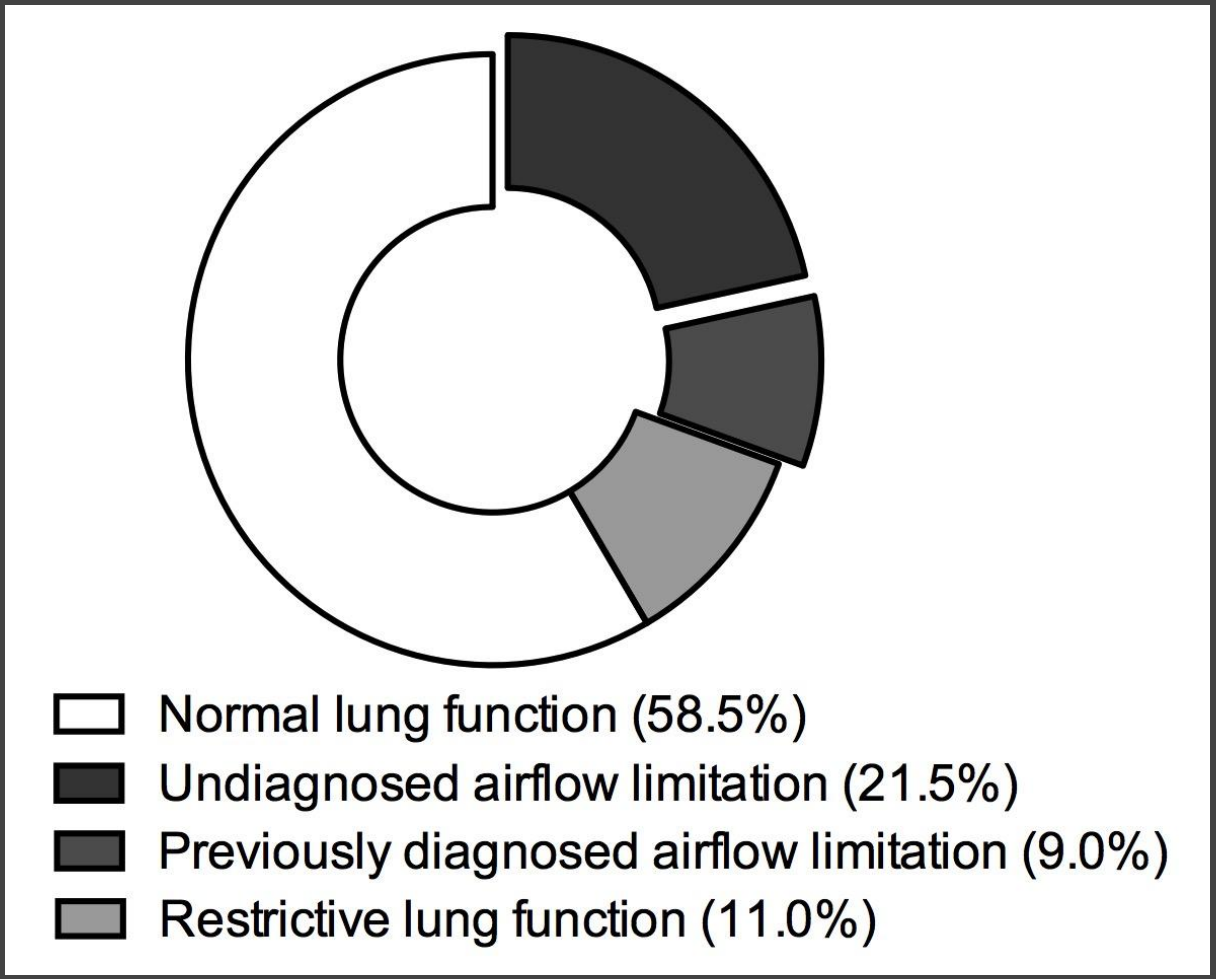
Beghé B et al. PlosOne 2013 Nov 11;8

LUNG FUNCTION ABNORMALITIES IN PATIENTS WITH ISCHEMIC HEART DISEASES



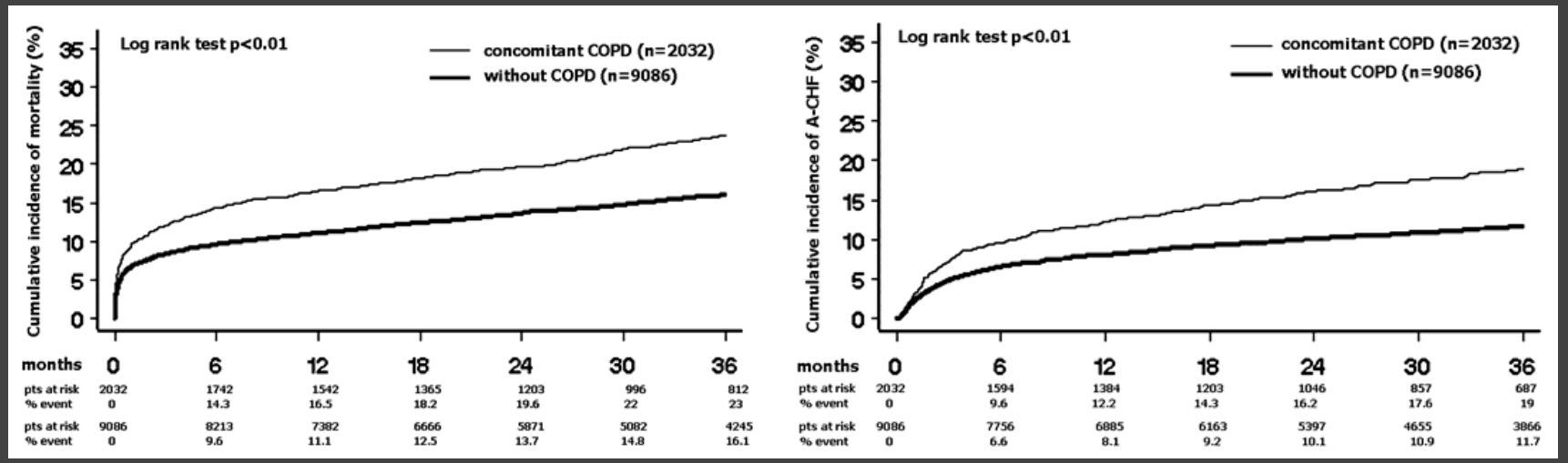
Franssen et al, Am J Respir Cr Care Med 2016

LUNG FUNCTION ABNORMALITIES IN PATIENTS WITH ISCHEMIC HEART DISEASES



Franssen et al, Am J Respir Cr Care Med 2016

IMPACT OF COPD ON LONG-TERM OUTCOME AFTER STEMI RECEIVING PRIMARY PCI

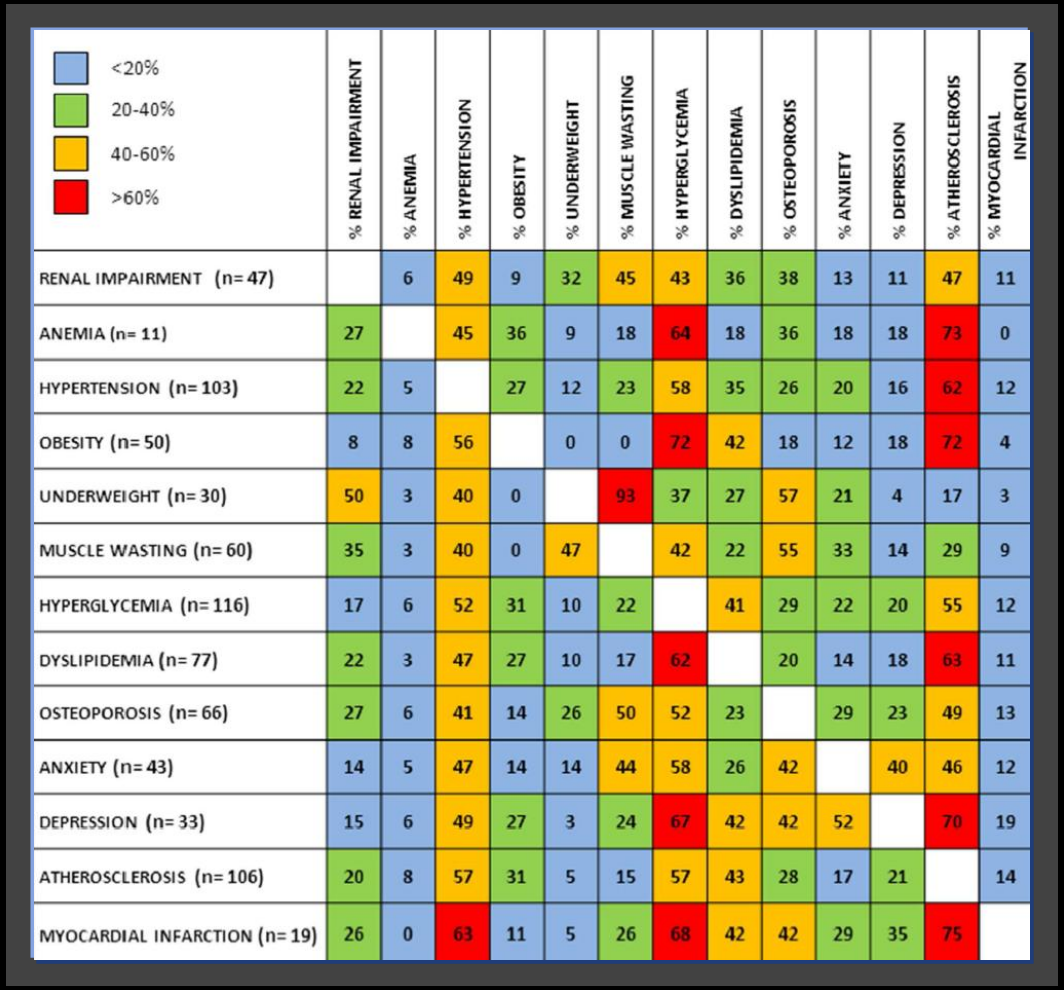


As compared to patients without COPD, patients with STEMI and concomitant COPD are at greater risk for

- **death (25% vs 16.5%)**
- **hospital readmissions due to cardiovascular causes (recurrent MI, HF and bleedings)**

Campo G. et al. Chest 2013;144:750-7

FROM COMORBIDITIES TO MULTIMORBIDITY



<20% 20-40% 40-60% >60%	% RENAL IMPAIRMENT	% ANEMIA	% HYPERTENSION	% OBESITY	% UNDERWEIGHT	% MUSCLE WASTING	% HYPERGLYCEMIA	% DYSLIPIDEMIA	% OSTEOPOROSIS	% ANXIETY	% DEPRESSION	% ATHEROSCLEROSIS	% MYOCARDIAL INFARCTION
RENAL IMPAIRMENT (n= 47)		6	49	9	32	45	43	36	38	13	11	47	11
ANEMIA (n= 11)	27		45	36	9	18	64	18	36	18	18	73	0
HYPERTENSION (n= 103)	22	5		27	12	23	58	35	26	20	16	62	12
OBESITY (n= 50)	8	8	56		0	0	72	42	18	12	18	72	4
UNDERWEIGHT (n= 30)	50	3	40	0		93	37	27	57	21	4	17	3
MUSCLE WASTING (n= 60)	35	3	40	0	47		42	22	55	33	14	29	9
HYPERGLYCEMIA (n= 116)	17	6	52	31	10	22		41	29	22	20	55	12
DYSLIPIDEMIA (n= 77)	22	3	47	27	10	17	62		20	14	18	63	11
OSTEOPOROSIS (n= 66)	27	6	41	14	26	50	52	23		29	23	49	13
ANXIETY (n= 43)	14	5	47	14	14	44	58	26	42		40	46	12
DEPRESSION (n= 33)	15	6	49	27	3	24	67	42	42	52		70	19
ATHEROSCLEROSIS (n= 106)	20	8	57	31	5	15	57	43	28	17	21		14
MYOCARDIAL INFARCTION (n= 19)	26	0	63	11	5	26	68	42	42	29	35	75	

Vanfleteren LEGW et al. AJRCCM 2013 Apr;187(7):728-35

CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND CARDIAC DISEASES: AN URGENT NEED FOR INTEGRATED CARE

The aim of this review was s to summarize the evidence on the relationship between COPD and the three most frequent and important cardiac comorbidities in COPD patients – i.e.,

ISCHAEMIC HEART DISEASE, HEART FAILURE, AND ATRIAL FIBRILLATION

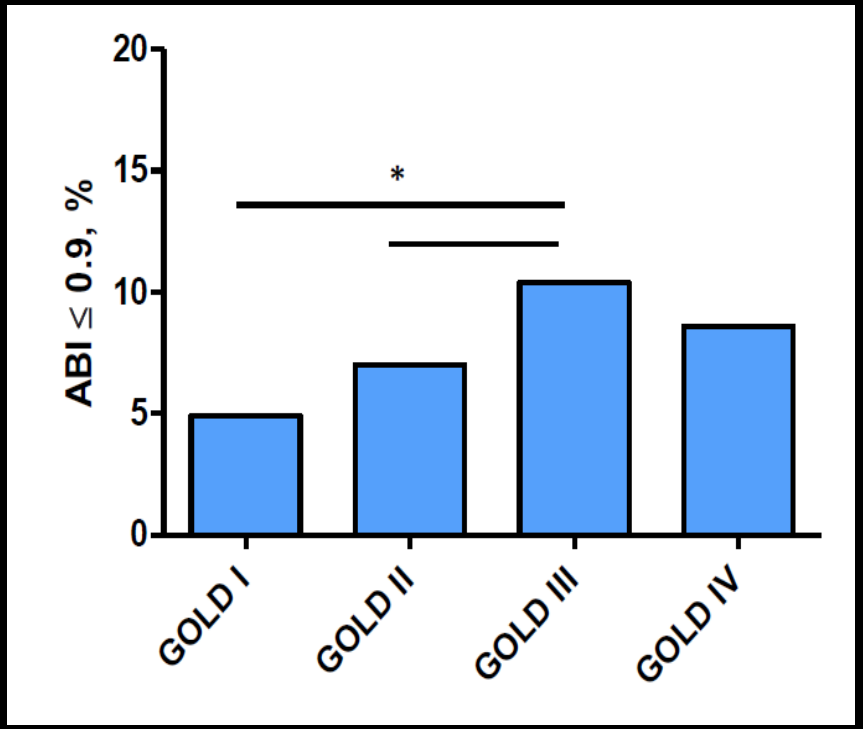
We believe that these cardiac disorders should always be searched for in COPD patients, and we provide up-to-date practical indications for treatment and management of patients with COPD and heart diseases

Roversi S, Sin D, Hawkins M, and Agusti A, Am J Respir Cr Care Med 2016

PERIPHERAL ARTERY DISEASE AND ITS CLINICAL RELEVANCE IN PATIENTS WITH COPD IN THE COSYCONET STUDY

In a large cohort of patients with COPD, 8.8% were diagnosed with PAD which is higher than the prevalence in non-COPD controls

PAD was associated with a clinically relevant reduction in functional capacity and health status



Houben-Wilke S et al., AJRCCM 2016 in press

OBESITY IS ASSOCIATED WITH INCREASED MORBIDITY IN MODERATE TO SEVERE COPD

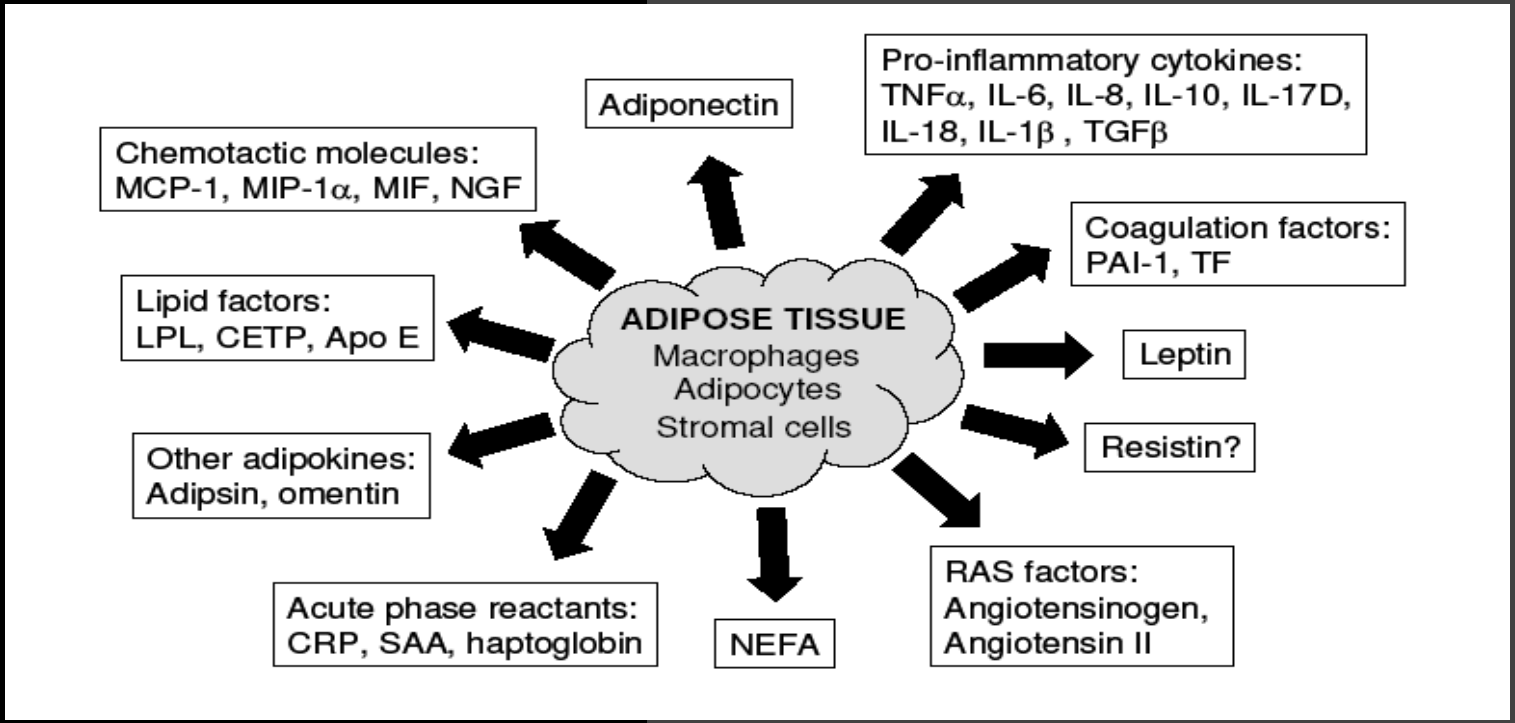
Obesity is prevalent (> 35%) among individuals with COPD and is associated with worse COPD-related outcomes, ranging from QOL and dyspnea to 6MWD and severe AECOPD

These associations were strengthened when obesity was analyzed as a dose dependent response

Obesity in patients with COPD may contribute to a worse COPD-related course

Lambert AA et al, Chest. 2017 Jan;151(1):68-77

METABOLIC SYNDROME IS FREQUENT IN PATIENTS WITH COPD



Watz H, et al Chest. 2009;136:1039-46

OSA AND RISK OF CARDIOVASCULAR DISEASES

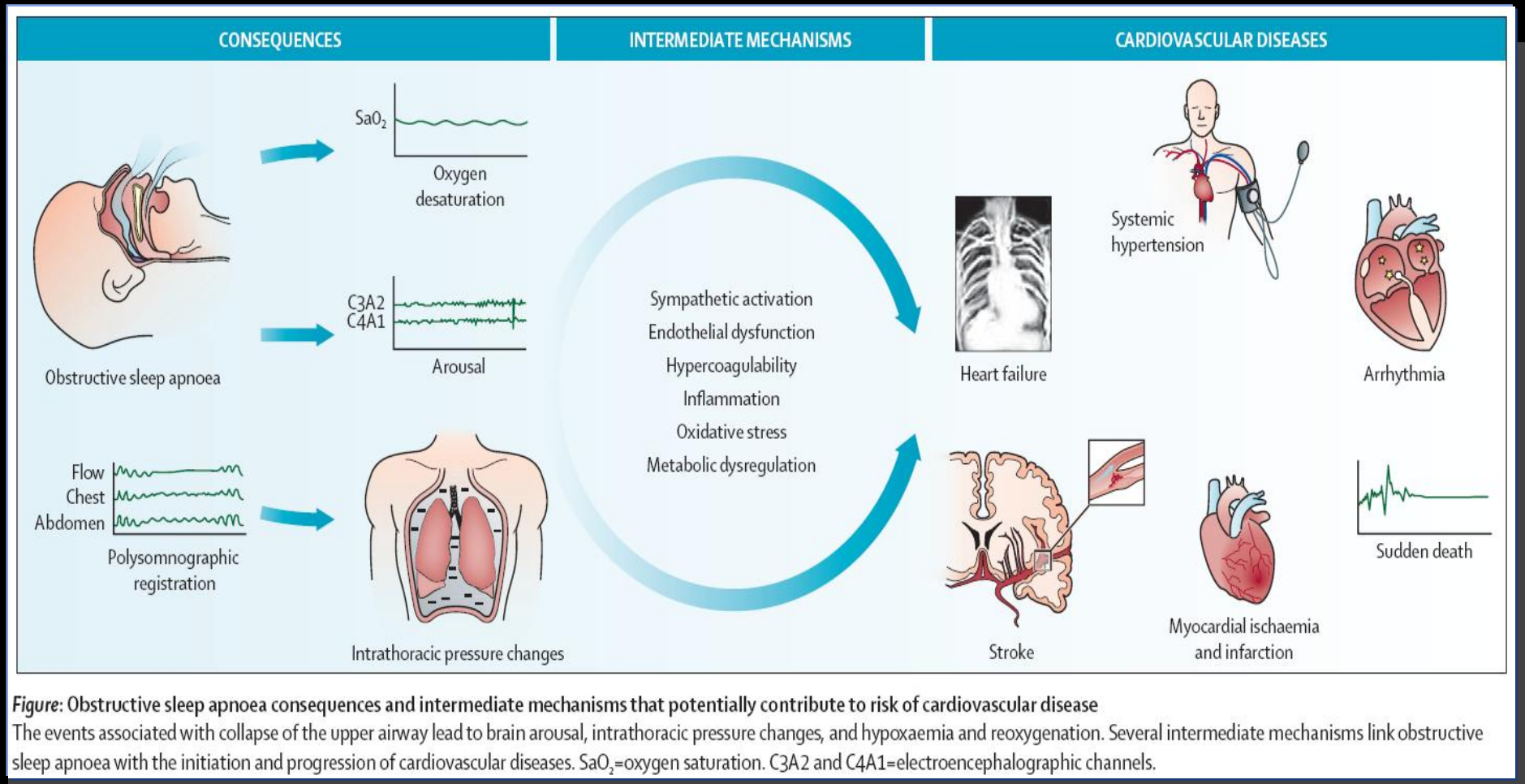
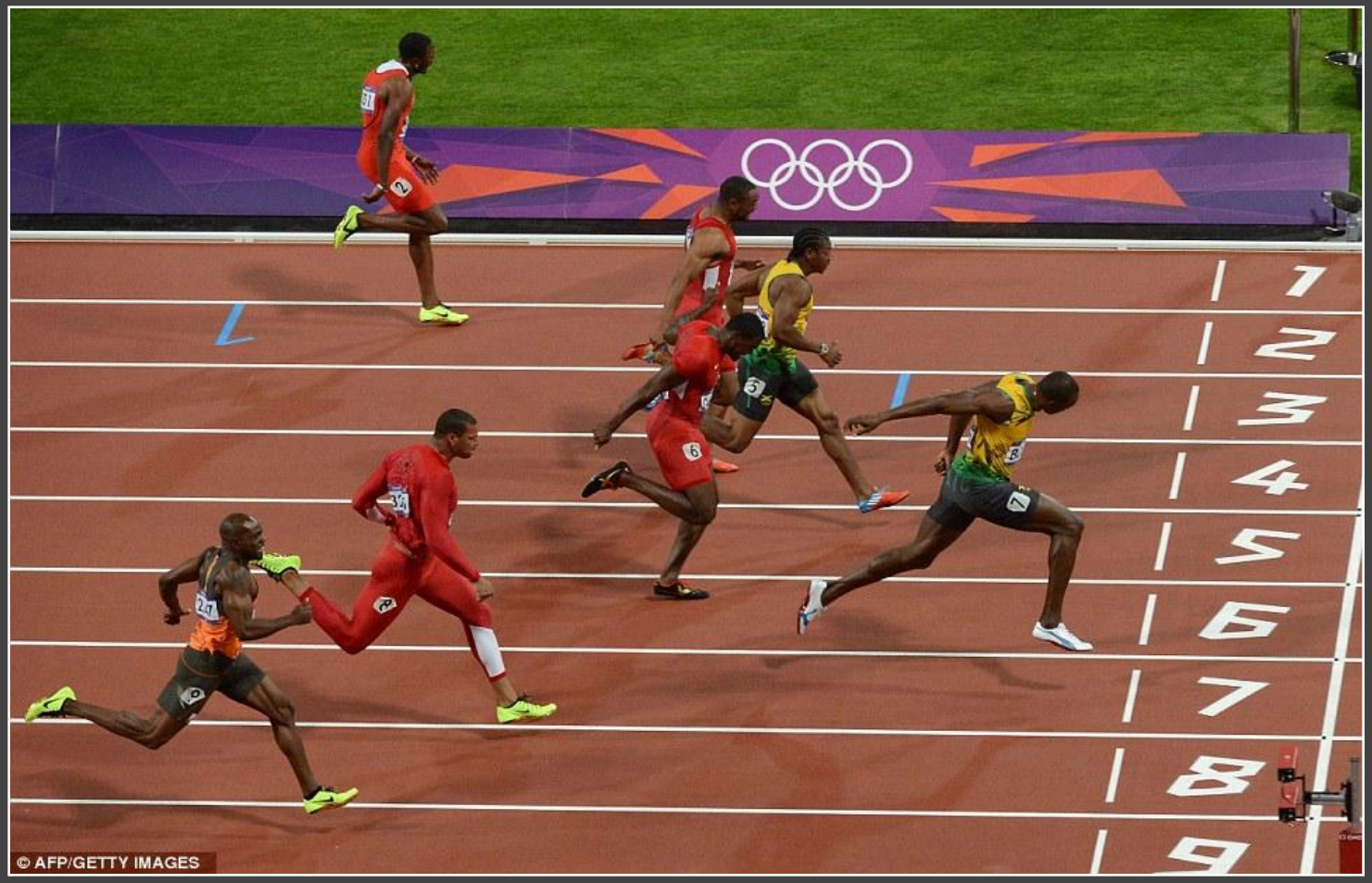


Figure: **Obstructive sleep apnoea consequences and intermediate mechanisms that potentially contribute to risk of cardiovascular disease**
The events associated with collapse of the upper airway lead to brain arousal, intrathoracic pressure changes, and hypoxaemia and reoxygenation. Several intermediate mechanisms link obstructive sleep apnoea with the initiation and progression of cardiovascular diseases. SaO_2=oxygen saturation. C3A2 and C4A1=electroencephalographic channels.

Barbe et al, Lancet Respir Med 2013;1: 61-72

SIMULTANEOUS DEVELOPMENT OF CHRONIC DISEASES



Courtesy of K.F. Rabe, 2014

National Clinical Guideline Centre

Draft for Consultation

Multimorbidity: clinical assessment and management

Multimorbidity: assessment, prioritisation and management of care for people with commonly occurring multimorbidity

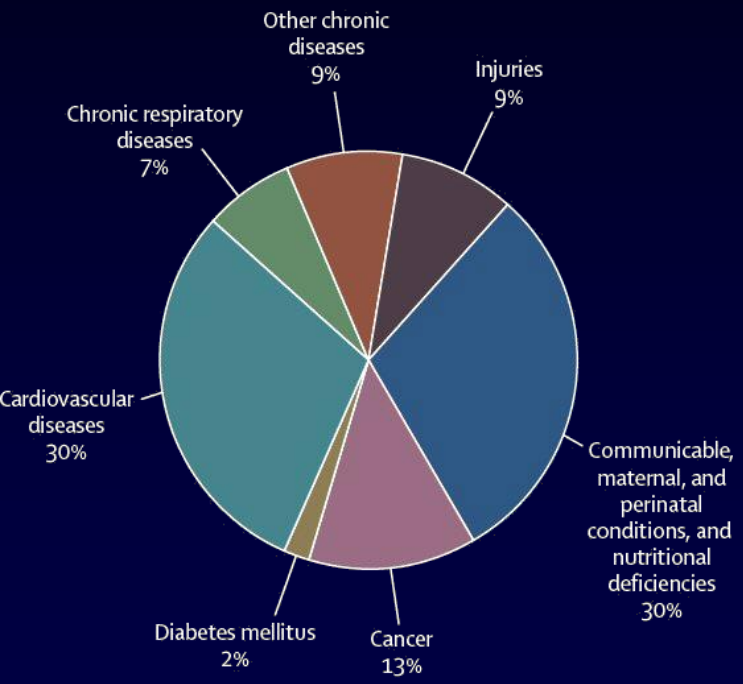
NICE guideline

Methods, evidence and recommendations

31 March – 12 May 2016

Commentary by Vanfleterern , Spruit and Franssen, Eur Resp J 2016 , in press

Chronic diseases represent a huge proportion of human illness



58 million deaths in 2005:

- **Cardiovascular disease 30%**
- **Cancer 13%**
- **Chronic respiratory diseases 7%**
- **Diabetes 2%**

Beaglehole R *et al. Lancet* 2007;370:2152-57.

NONCOMMUNICABLE DISEASES

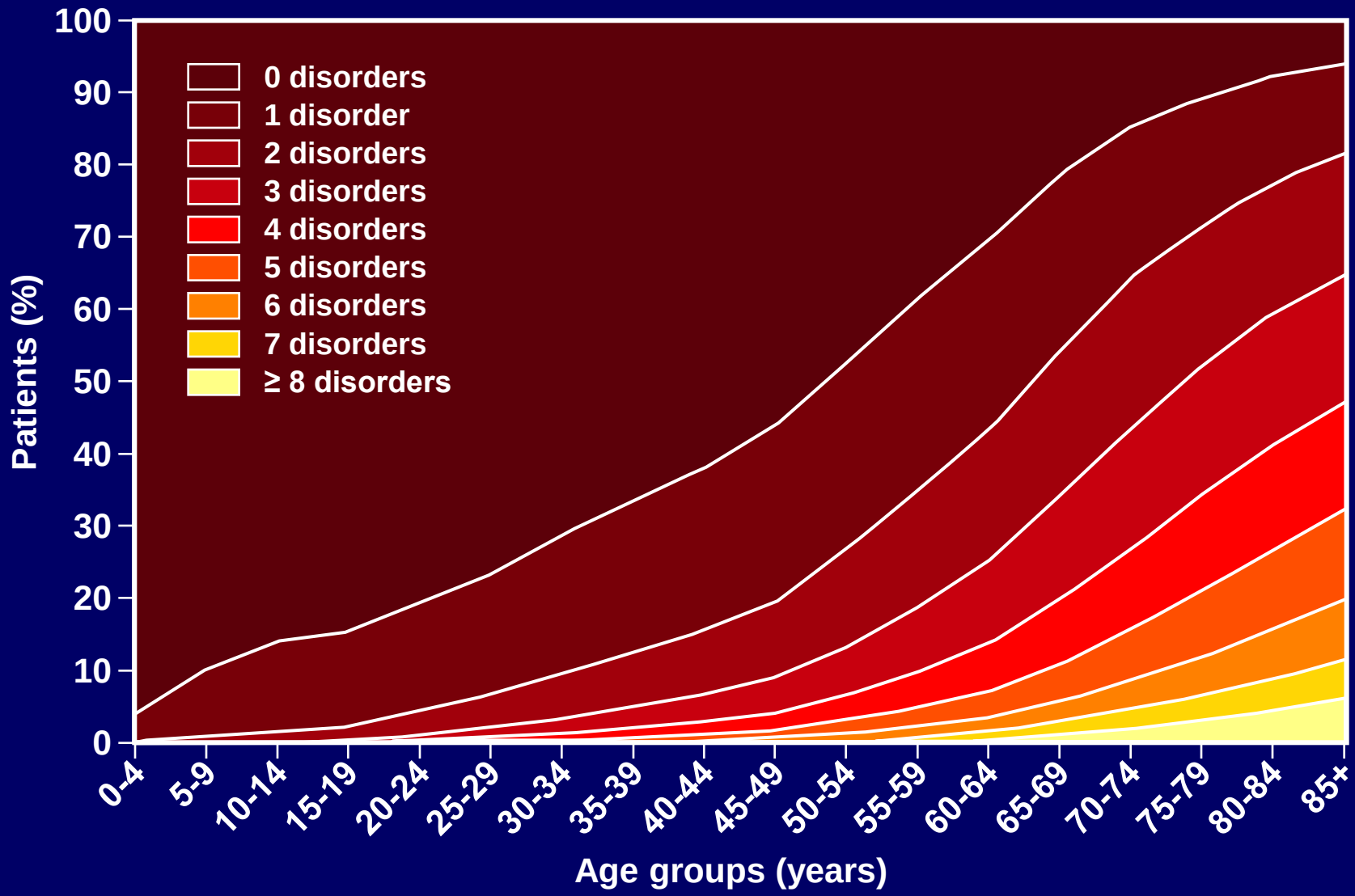
Noncommunicable diseases will be the predominant global public health challenge of the 21st century

Prevention of premature deaths due to noncommunicable diseases and reduction of related health care costs will be the main goals of health policy.

Improving the detection and treatment of noncommunicable diseases and preventing complications and catastrophic events will be the major goals of clinical medicine.

Hunter DJ and Reddy KS. N Engl J Med 2013; 369:1336-1343

NUMBER OF CHRONIC DISORDERS BY AGE-GROUP



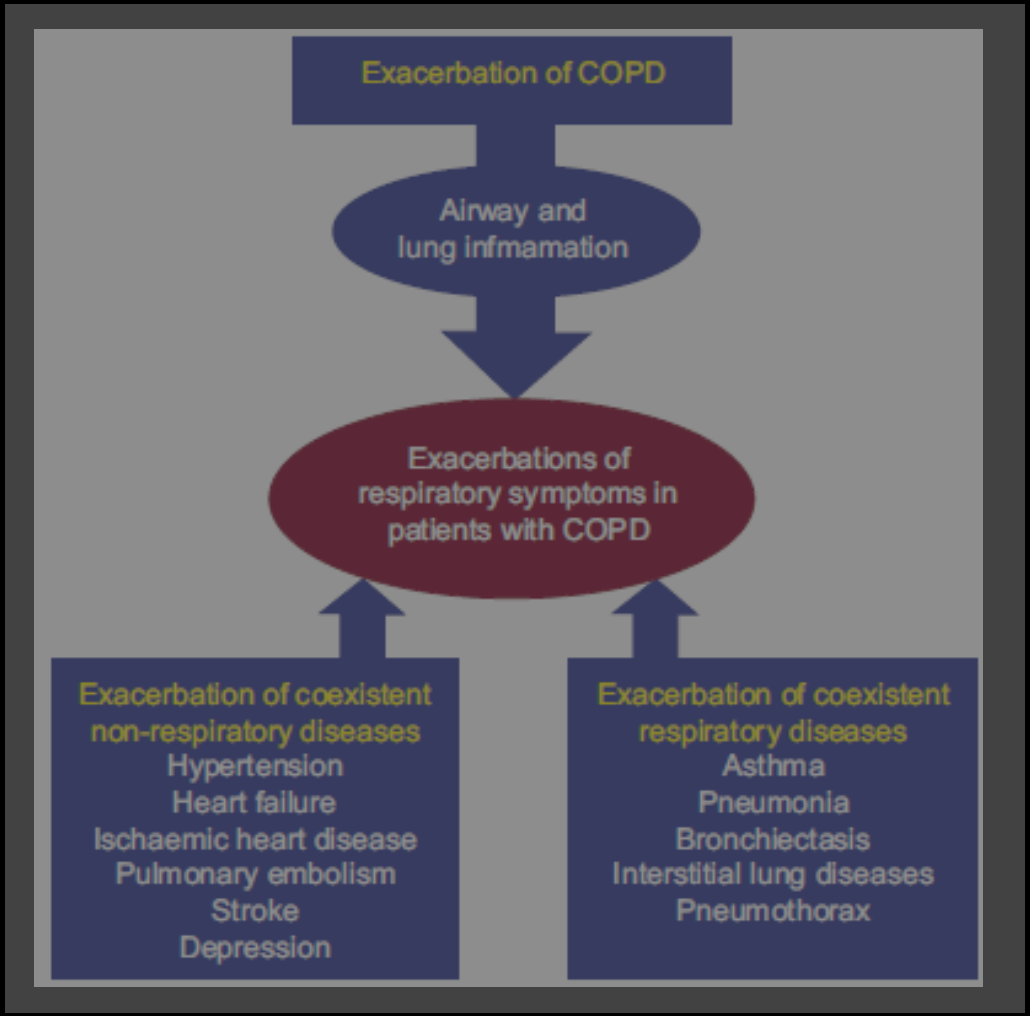
Barnett, K et al, 2012 Jul 7;380(9836):37-43

EPIDEMIOLOGY OF MULTIMORBIDITY AND IMPLICATIONS FOR HEALTH CARE, RESEARCH, AND MEDICAL EDUCATION: A CROSS-SECTIONAL STUDY

Our findings challenge the single-disease framework by which most health care, medical research, and medical education is configured. A complementary strategy is needed, supporting generalist clinicians to provide personalised, comprehensive continuity of care, especially in socioeconomically deprived areas.

Barnett, K et al, 2012 Jul 7;380(9836):37-43

EXACERBATIONS OF RESPIRATORY SYMPTOMS IN PATIENTS WITH COPD MAY NOT BE EXACERBATIONS OF COPD



Beghé B, Verduri A, Roca M and Fabbri LM. Eur Respir J 2013; 41: 993-5
Roca M, Verduri A, Clini EM, Fabbri LM and Beghé B. Eur J Clin Invest, 2013;43:510

G.Z.L.

- Male, 72 year/old
- Lawyer
- Very heavy smoker (165 p/y).
- Very severe airflow limitation, GOLD D
- Arterial hypertension
- Treatment: lisinopril, frusemide, beclometasone/formoterol, tiotropium

CLINICAL HISTORY-1

Since 5-6 days:

- Increasing dyspnoea
- cough and purulent sputum without chest pain
- fever (temp 37.8 ° C)

CLINICAL HISTORY-2

BP:180/80mmHg
HR 90/min
SpO2 89%
RR 25/min
BT 37.5° C

- Dyspnoea, fatigue, use of accessory muscles

- Chest auscultation: reduced breath sounds, diffuse expiratory wheezing

- Sinus tachycardia (110 bpm)

CLINICAL HISTORY-3

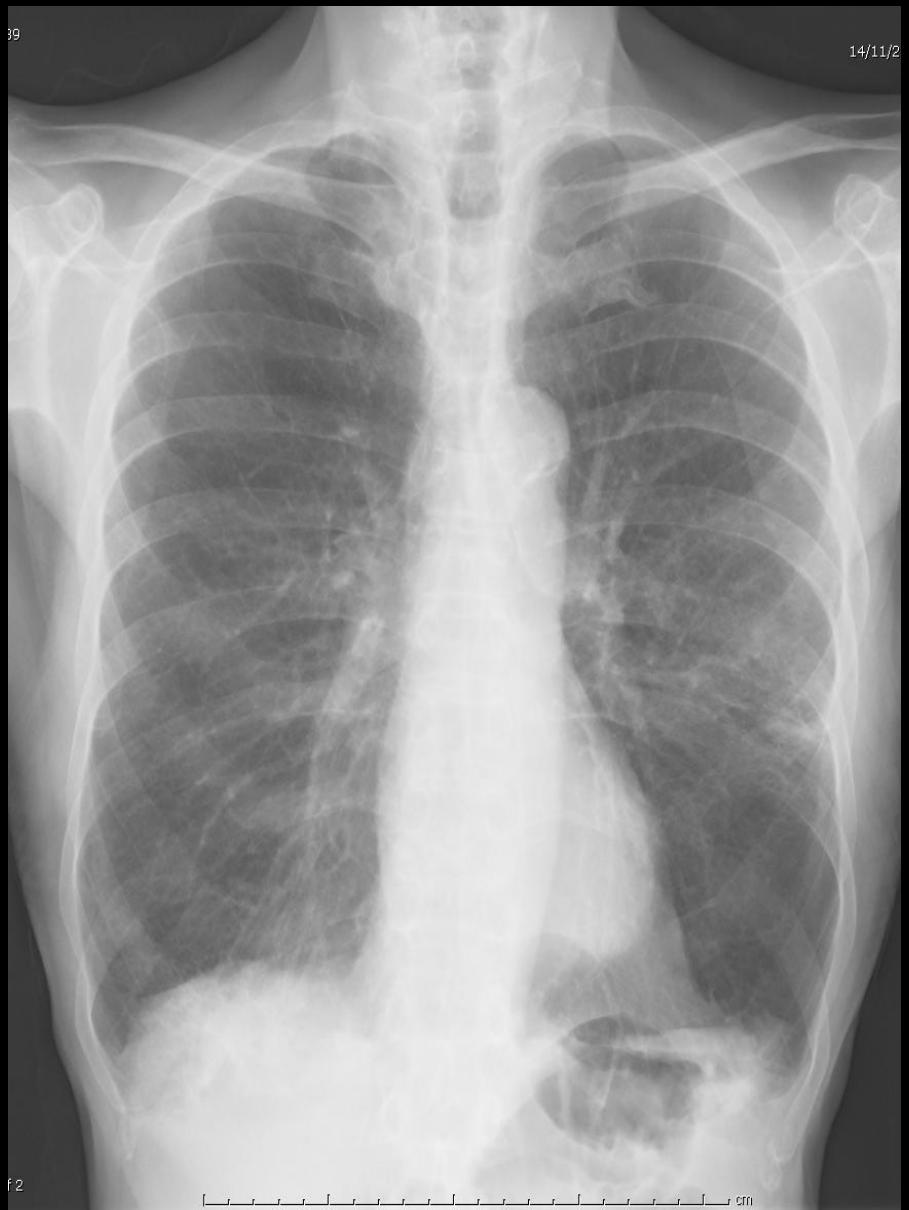
BLOOD TESTS

- WBC= 12.130 ↑
- HB =15,9 gr/dl
- Creatinine: 0,8 mg/dl
- Troponin: 0,01 mg/dl
- CRP= 12,50 mg/dl↑
- D-Dimer 580 ng/ml

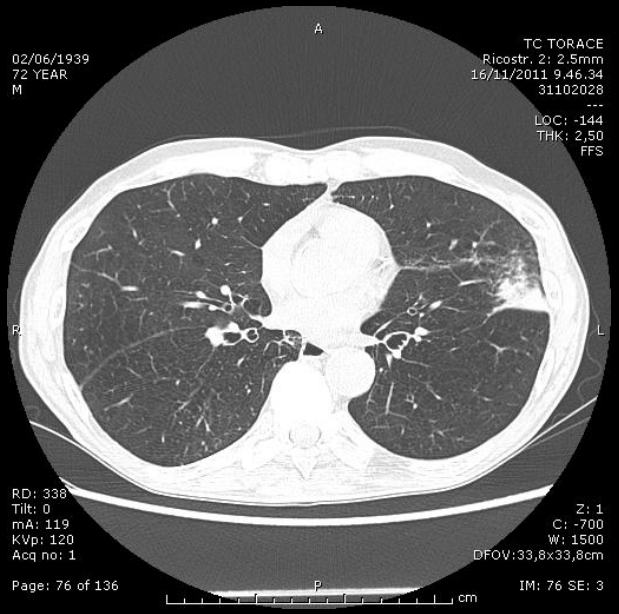
ARTERIAL BLOOD GASES

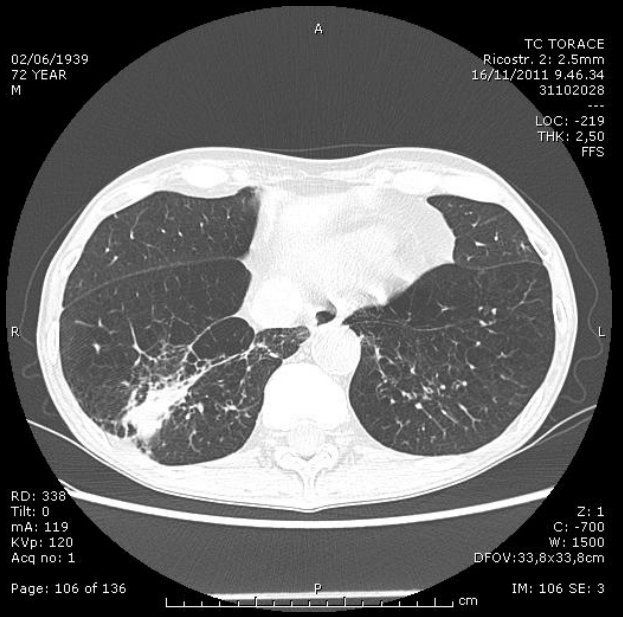
- PH= 7.40
- PO2= 57 mmHg ↓
- PCO2= 50 mmHg ↑
- HCO3 = 30 mmol/L ↑
- Sat O2 88%

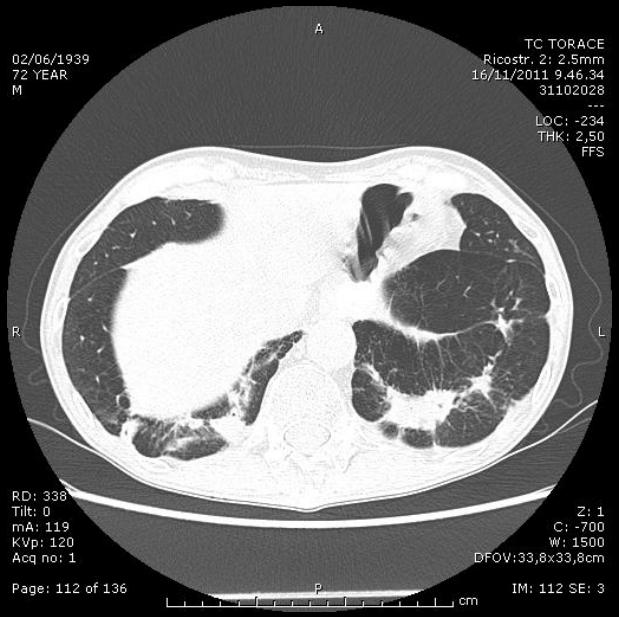
CHEST X-RAY



CT-SCAN before treatment



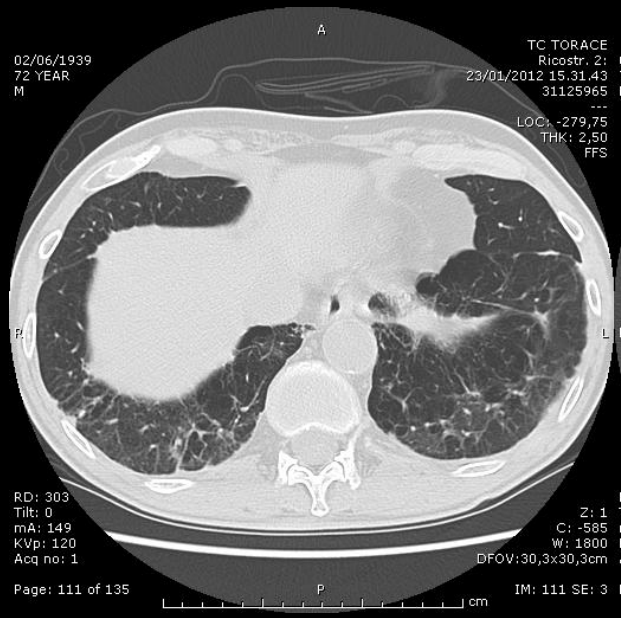




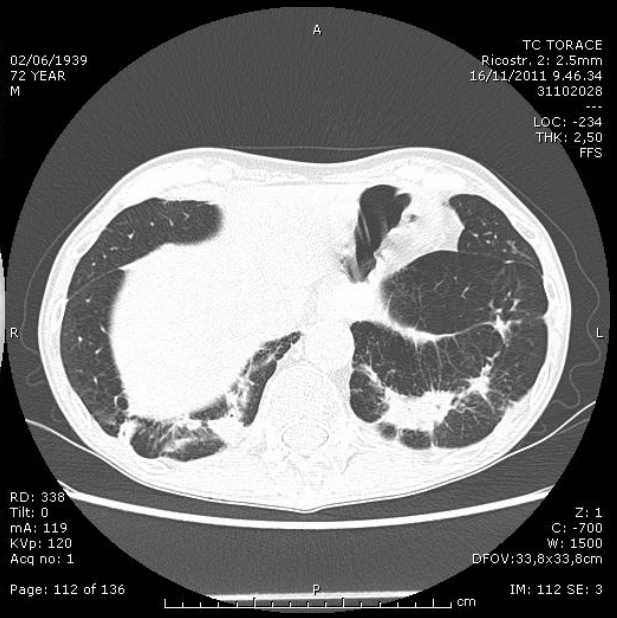
TREATMENT

- O2 therapy at 1 L/min, continuous
- Metylprednisolone 40 mg/die ev od
- Ampicillin/Sulbactam 1,5 g/die ev tid
- Nebulized beclomethasone 1 fl, ipratropium ½ fl, salbutamol 8 gtt qid

CT SCAN at follow up



CT SCAN at admission



Which treatment was effective?

- Bronchodilators and steroids
- Antibiotics
- Diuretics
- All of the above
- We don’t know!

COMORBIDITIES AND SUBGROUPS OF PATIENTS SURVIVING SEVERE ACUTE HYPERCAPNIC RESPIRATORY FAILURE IN THE ICU

- 67% had COPD), only 19 previously diagnosed
- Non-COPD patients were primarily obese
- Obstructive sleep apnea was 51% in COPD and 81% in non-COPD patients
- Previously undiagnosed cardiac dysfunction with preserved ejection fraction was highly prevalent (44%), as well as hypertension (67%)

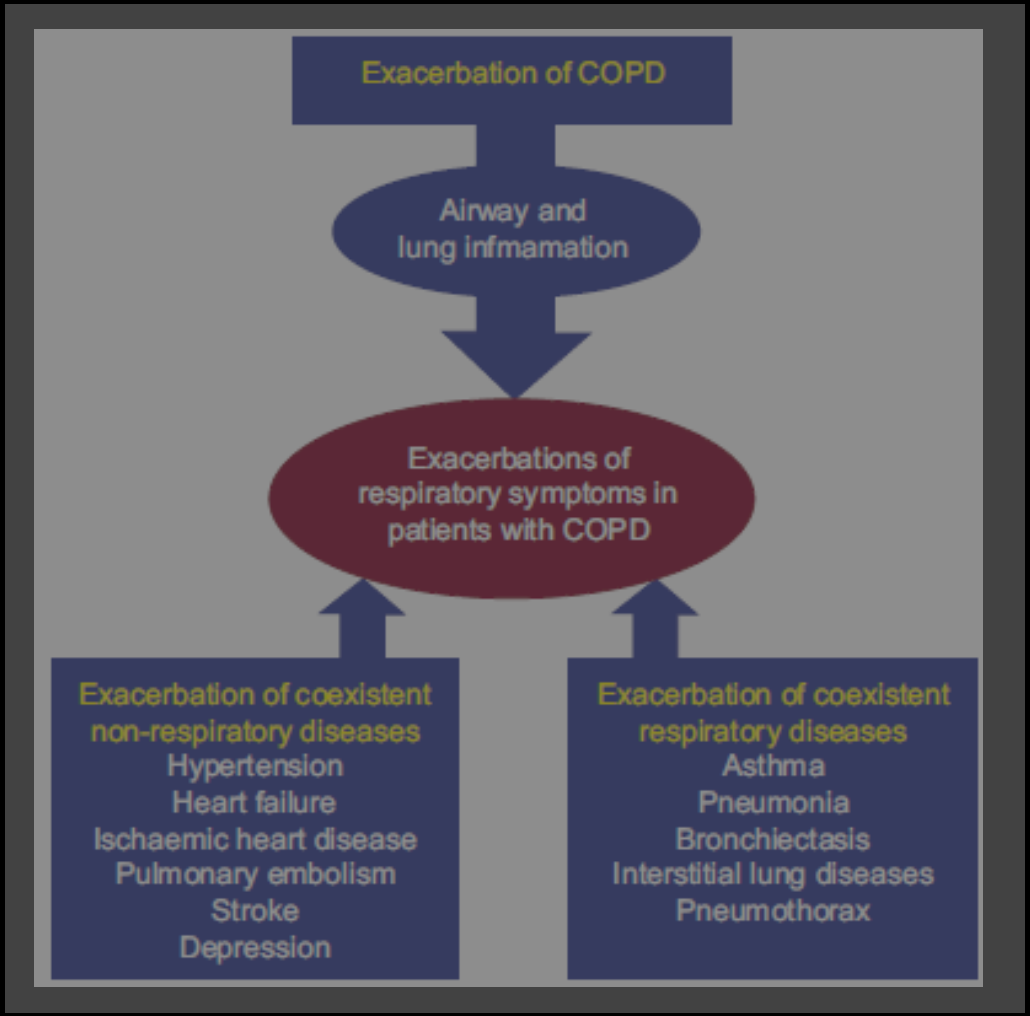
Brochard L et al, Am J Respir Cr Care Med, 12 Feb 2017, on line

COMORBIDITIES AND SUBGROUPS OF PATIENTS SURVIVING SEVERE ACUTE HYPERCAPNIC RESPIRATORY FAILURE IN THE ICU

- Multimorbidity was associated with longer time to hospital discharge
- Hospital readmission or death occurred in 46% of patients over 3.5 months post-discharge
- Multi-morbidity is common, most often unrecognized, and may be associated with poor outcome

Brochard L et al, Am J Respir Cr Care Med, 12 Feb 2017, on line

EXACERBATIONS OF RESPIRATORY SYMPTOMS IN PATIENTS WITH COPD MAY NOT BE EXACERBATIONS OF COPD



Beghé B, Verduri A, Roca M and Fabbri LM. Eur Respir J 2013; 41: 993-5
Roca M, Verduri A, Clini EM, Fabbri LM and Beghé B. Eur J Clin Invest, 2013;43:510

DIFFERENTIAL DIAGNOSIS OF ACUTE EXACERBATIONS OF COPD

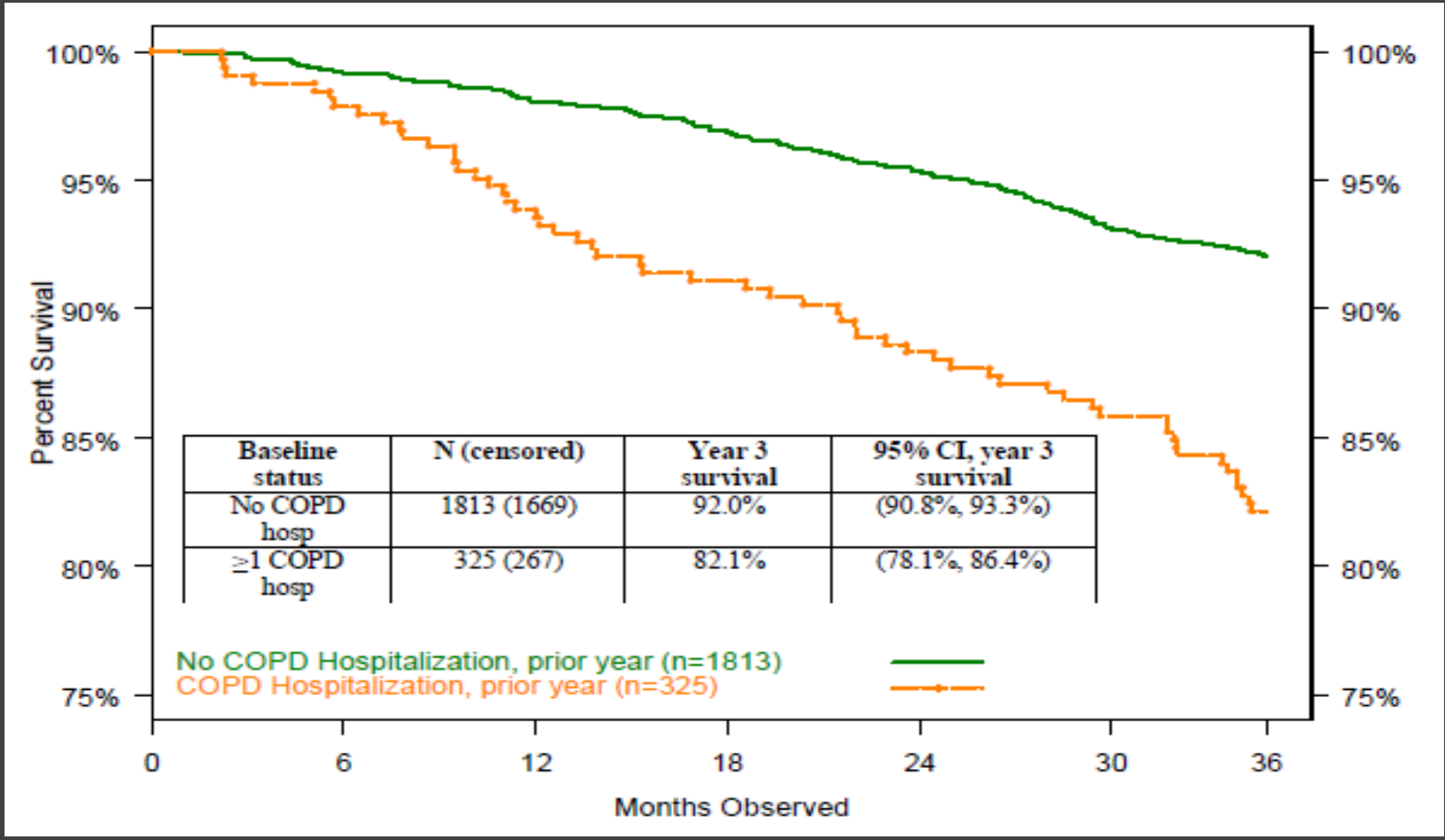
- AECOPD is a clinical diagnosis, defined as worsening of respiratory symptoms and change in medication and/or hospital admission

- However, there is no defined etiology (usually, airway inflammation and bronchitis)

- Role of cardiac comorbidities as putative triggers of AECOPD is currently under investigation

Beghé B et al, Eur Respir J 2013; 41: 993-5
Roca M et al, Eur J Clin Invest, 2013;43:510

RISK OF MORTALITY IN PATIENTS WITH OR WITHOUT HISTORY OF HOSPITALIZATIONS DUE TO COPD EXACERBATIONS IN THE ECLIPSE STUDY



Baseline status	N (censored)	Year 3 survival	95% CI, year 3 survival
No COPD hosp	1813 (1669)	92.0%	(90.8%, 93.3%)
≥1 COPD hosp	325 (267)	82.1%	(78.1%, 86.4%)

Mullerova et al, Chest 2014, published on line November 6, 2014

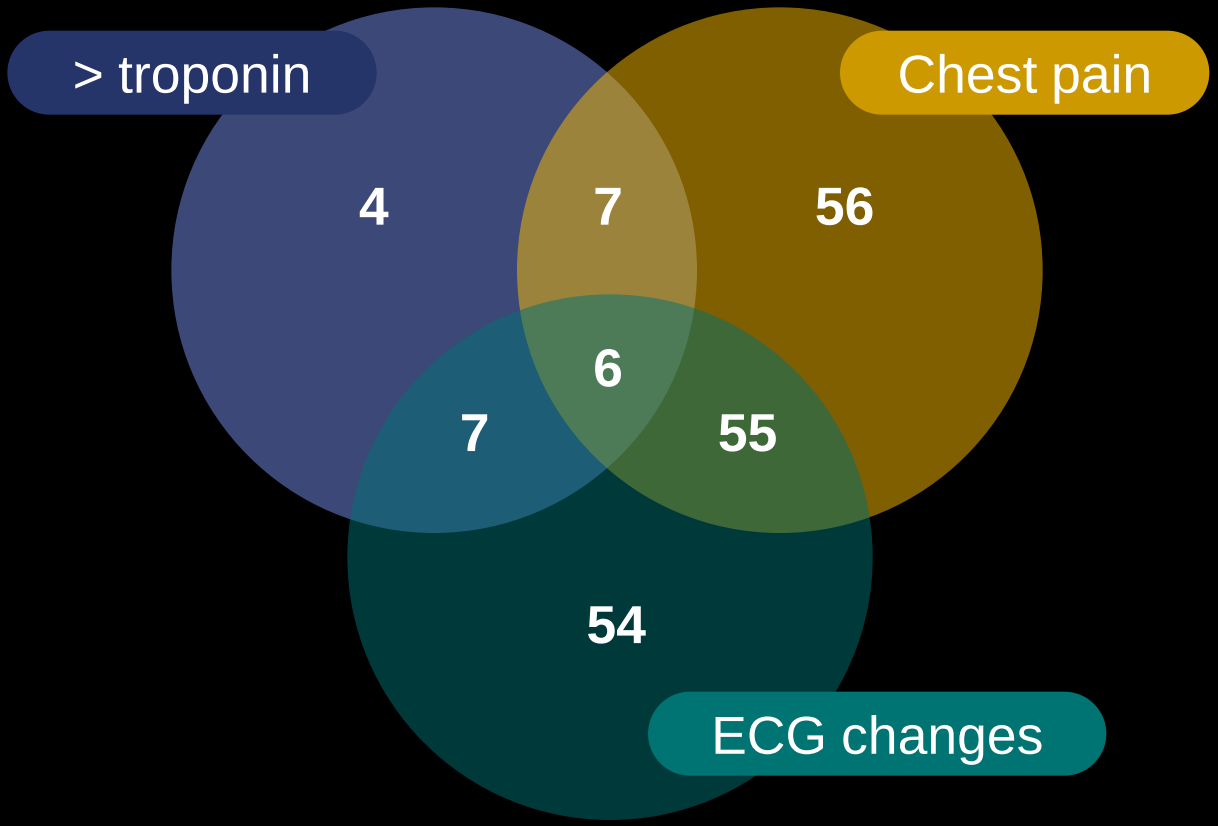
BIOCHEMICAL MARKERS OF CARDIAC DYSFUNCTION PREDICT MORTALITY IN ACUTE EXACERBATIONS OF COPD

Elevated levels of NT-proBNP and troponin T are strong predictors of early mortality among patients admitted to hospital with acute exacerbations of COPD independently of other known prognostic indicators

The pathophysiological basis for this is unknown, but indicates that cardiac involvement in exacerbations of COPD may be an important determinant of prognosis

Chang CL et al, Thorax. 2011 Sep;66(9):764-8.

BIOCHEMICAL MARKERS OF CARDIAC DYSFUNCTION PREDICT MORTALITY IN ACUTE EXACERBATIONS OF COPD



McAllister et al. Eur Respir J 2012; 3:1097-103

BIOCHEMICAL MARKERS OF CARDIAC DYSFUNCTION PREDICT MORTALITY IN ACUTE EXACERBATIONS OF COPD

Raised troponin, chest pain and serial ECG changes are common in patients admitted to hospital with exacerbation of COPD

Overall, 20/242, ie 1/12 patients with ECOPD met the criteria for myocardial infarction

Whether these patients would benefit from further cardiac investigation is unknown

McAllister et al. Eur Respir J 2012; 3:1097-103

BIOCHEMICAL MARKERS OF CARDIAC DYSFUNCTION PREDICT MORTALITY IN ACUTE EXACERBATIONS OF COPD

Raised troponin, chest pain and serial ECG changes are common in patients admitted to hospital with exacerbation of COPD

Overall, 20/242, ie 1/12 patients with ECOPD met the criteria for myocardial infarction

Whether these patients would benefit from further cardiac investigation is unknown

McAllister et al. Eur Respir J 2012; 3:1097-103

NATRIURETIC PEPTIDE TESTING FOR PREDICTING ADVERSE EVENTS FOLLOWING HEART FAILURE HOSPITALIZATION

Changes in BNP or NT-proBNP following treatment should be considered an important part of the pre-discharge decision making for patients hospitalized with AHF

Jannuzzi JL et al. Congest Heart Fail. 2012 Sep;18 Suppl 1:S9-S13
Thygesen C et al, Recommendations for the use of natriuretic peptides in acute cardiac care. Eur Heart J 2012; 33: 2001-2006

Manage COPD Exacerbations

BRONCHODILATORS

STEROIDS

ANTIBIOTICS

OXYGEN/NON INVASIVE VENTILATION

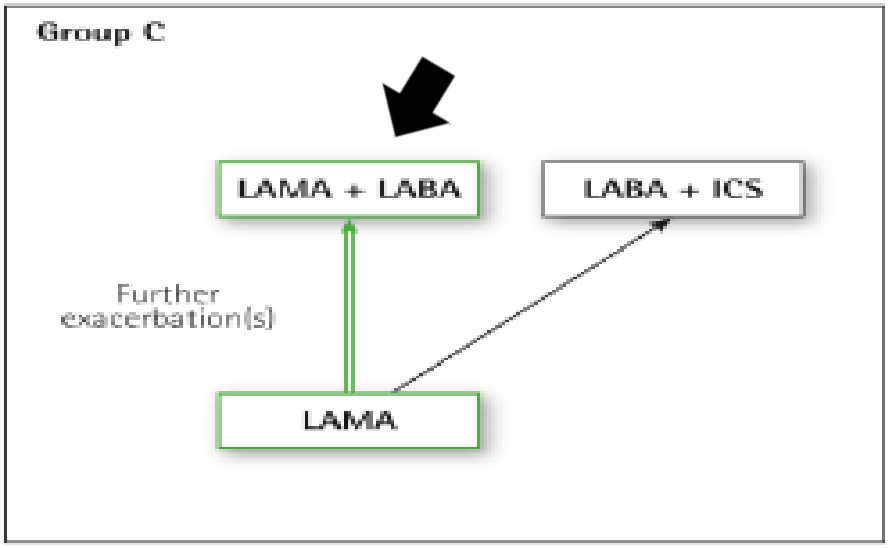
MECHANICAL VENTILATION

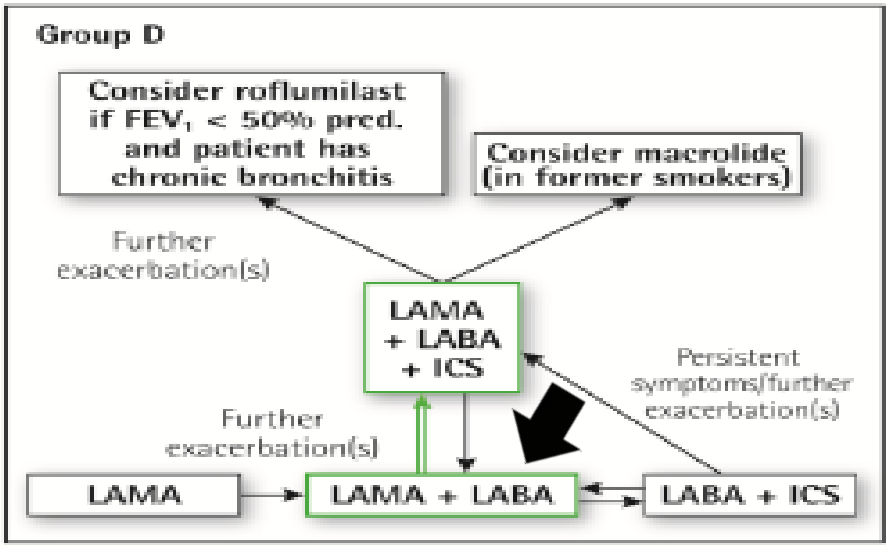
COPD EXACERBATIONS: home versus hospital

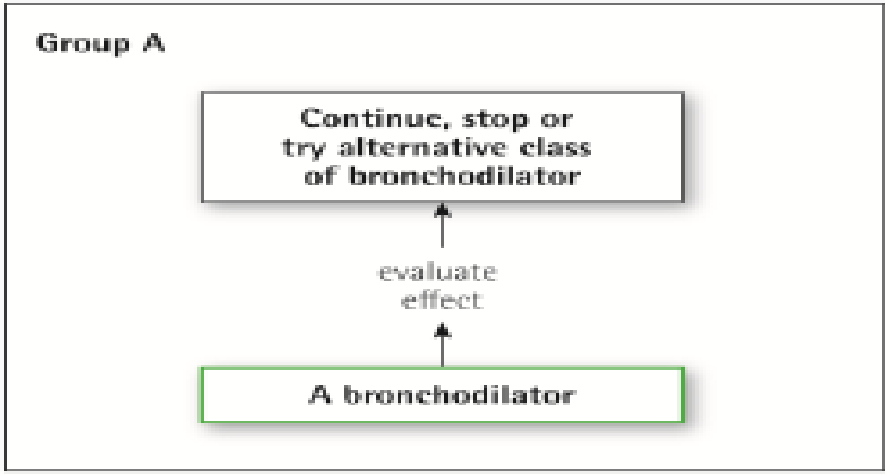
Leonardo M. Fabbri

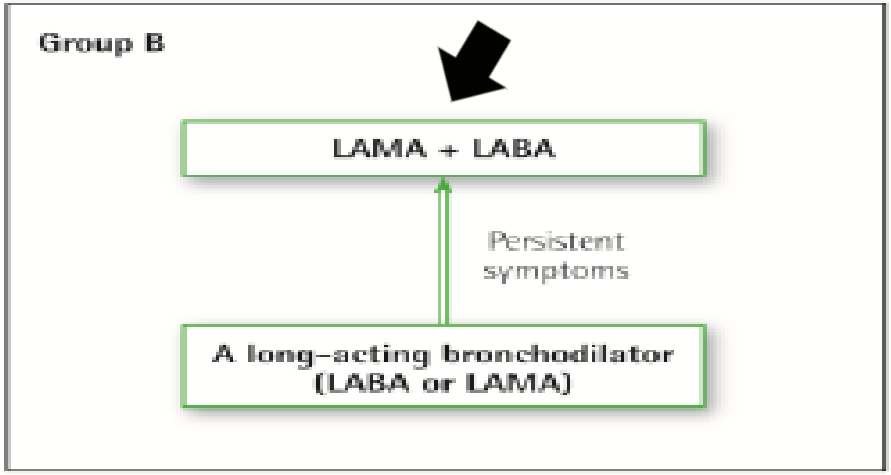
- ✓ COPD, COPD PHENOTYPES AND MULTIMORBIDITY
- ✓ COMPLEXITY OF ACUTE EXACERBATIONS
- ✓ PREVENTION AND MANAGEMENT OF ACUTE EXACERBATIONS

GOLD 2017 THERAPEUTIC RECOMMENDATIONS





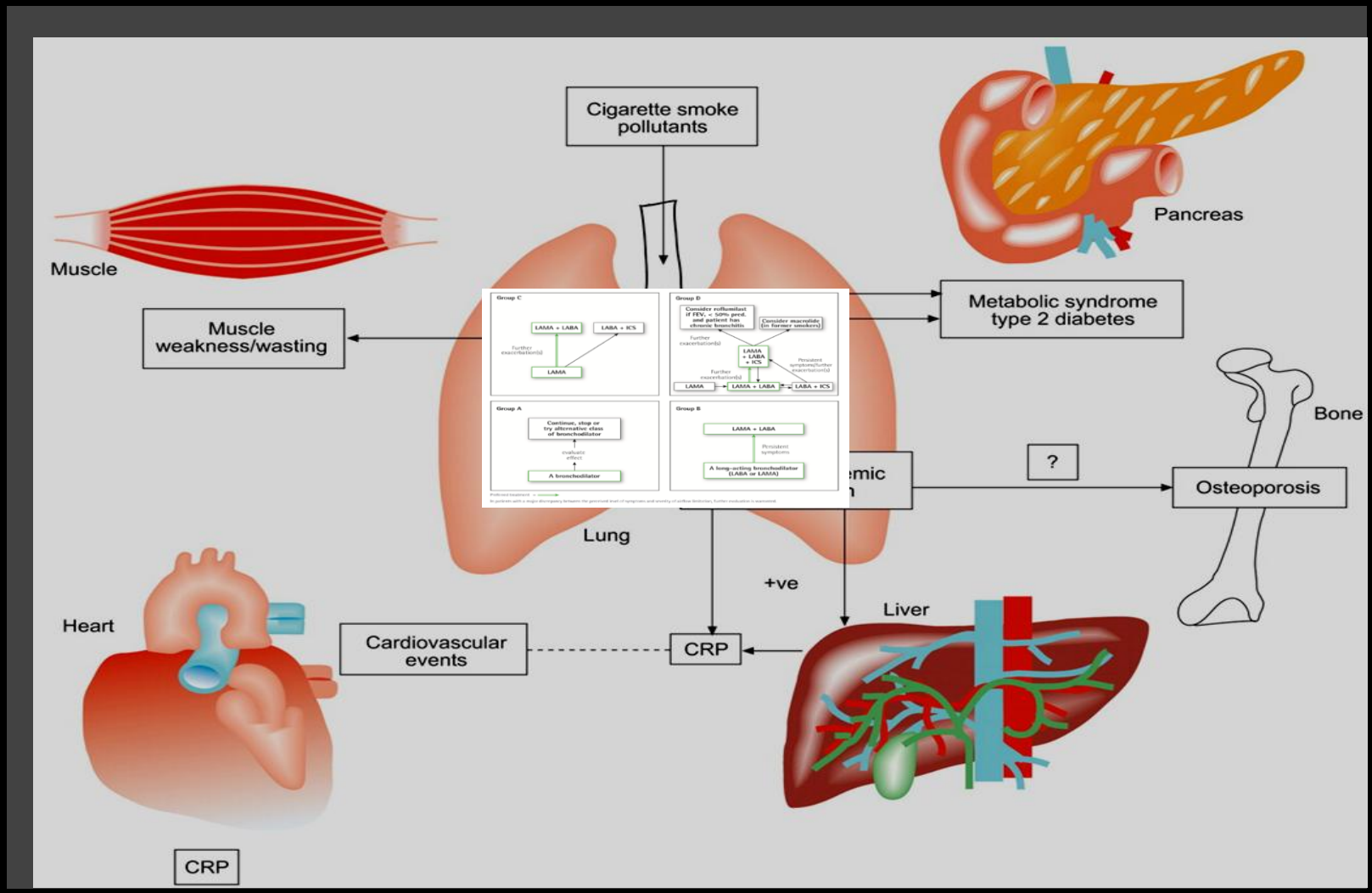




*Roflumilast ot available in Australia

GOLD 2017, www.gold.copd.org

COPD AS THE PULMONARY COMPONENT OF MULTIMORBIDITY



Fabbri LM, Luppi F, Beghe B, and Rabe KF - Eur Respir J 2008;31:204-212

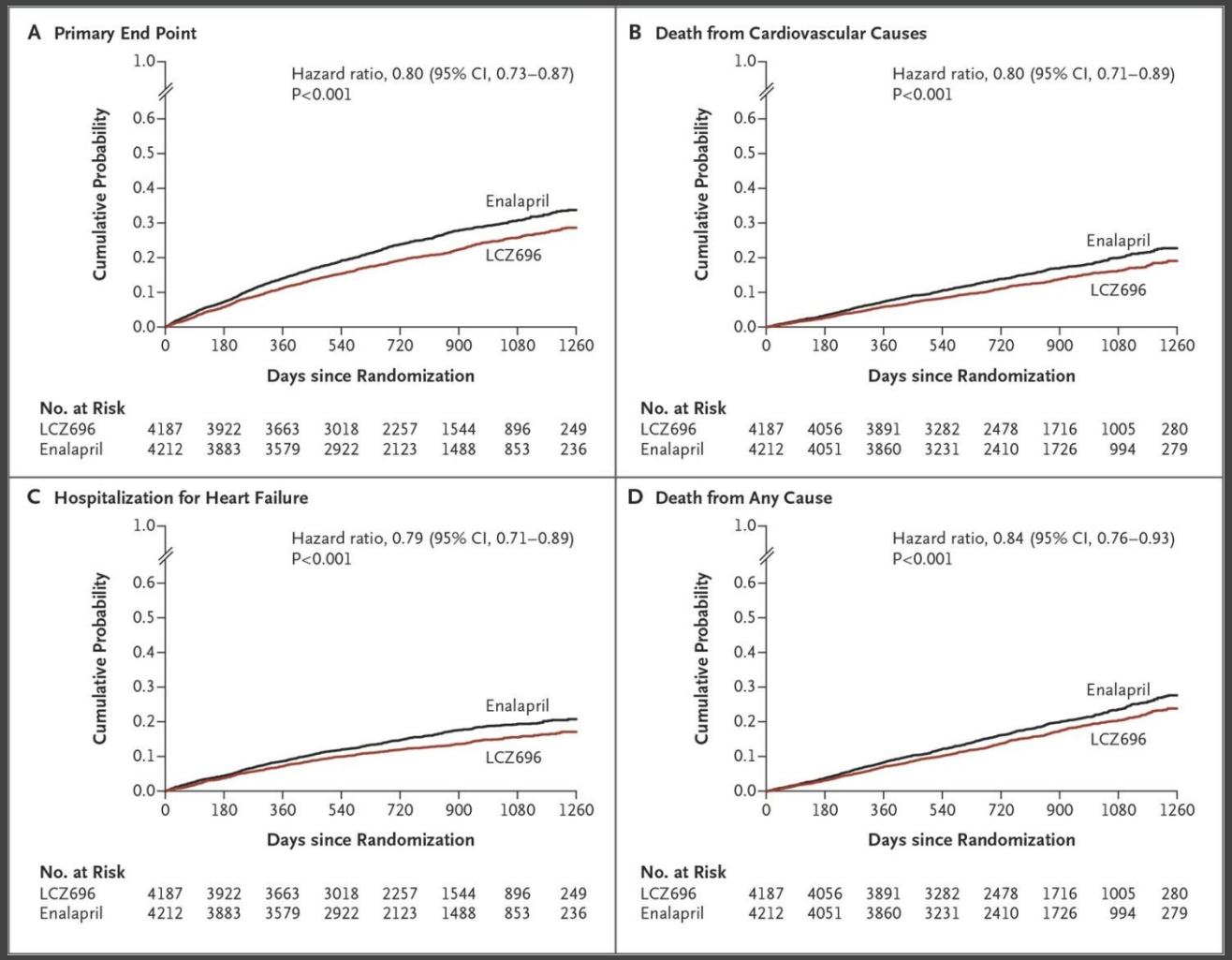
ANGIOTENSIN–NEPRILYSIN INHIBITION VERSUS ENALAPRIL IN HEART FAILURE

We compared the angiotensin receptor–neprilysin inhibitor LCZ696 with enalapril in patients who had heart failure with a reduced ejection fraction.

LCZ696 was superior to enalapril in reducing the risks of death and of hospitalization for heart failure

McMurray JJV et al N Engl J Med 2014; 371(11):993-1004

ANGIOTENSIN–NEPRILYSIN INHIBITION VERSUS ENALAPRIL IN HEART FAILURE



McAllister et al. Eur Respir J 2012; 3:1097-103

SACUBRITIL-VALSARTAN:THE NEWEST ADDITION TO THE TOOLBOX FOR GUIDELINES DIRECTED MEDICAL THERAPY FOR HEART FAILURE

Sacubitril/valsartan combines a neprilysin inhibitor with an angiotensin receptor blocker.

As an inhibitor of neprilysin, an enzyme that degrade biologically active natriuretic peptides, this first-in-class therapy increases levels of circulating natriuretic peptides resulting in natriuretic, diuretic, and vasodilatory effects

American College of Cardiology/American Heart Association/Heart Failure Society of America recently updated guideline recommendations for Stage C patients with heart failure with reduced ejection fraction to recommend angiotensin converting enzyme inhibitors, angiotensin receptor blockers or sacubitril/valsartan in conjunction with other evidence-based therapies to reduce morbidity and mortality.

Rodgers et al, Am J Medicine , 2017, in press

COPD AS PULMONARY COMPONENT OF MULTIMORBIDITY

Leonardo M. Fabbri, MD, FERS

Definition and assessment of severity of COPD

Management of of COPD

COPD as pulmonary component of multimorbidity

Treatment of concomitant chronic diseases in COPD

Conclusions

GLOBAL STRATEGY FOR DIAGNOSIS, MANAGEMENT AND PREVENTION OF COPD

DEFINITION OF COPD 2011

2011

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. Exacerbations and comorbidities contribute to the overall severity in individual patients

2017

Chronic Obstructive Pulmonary Disease (COPD) is a common, preventable and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases

Global Strategy for Diagnosis, Management and Prevention of COPD

Diagnosis of COPD

SYMPTOMS

shortness of breath

chronic cough

sputum

EXPOSURE TO RISK FACTORS

tobacco

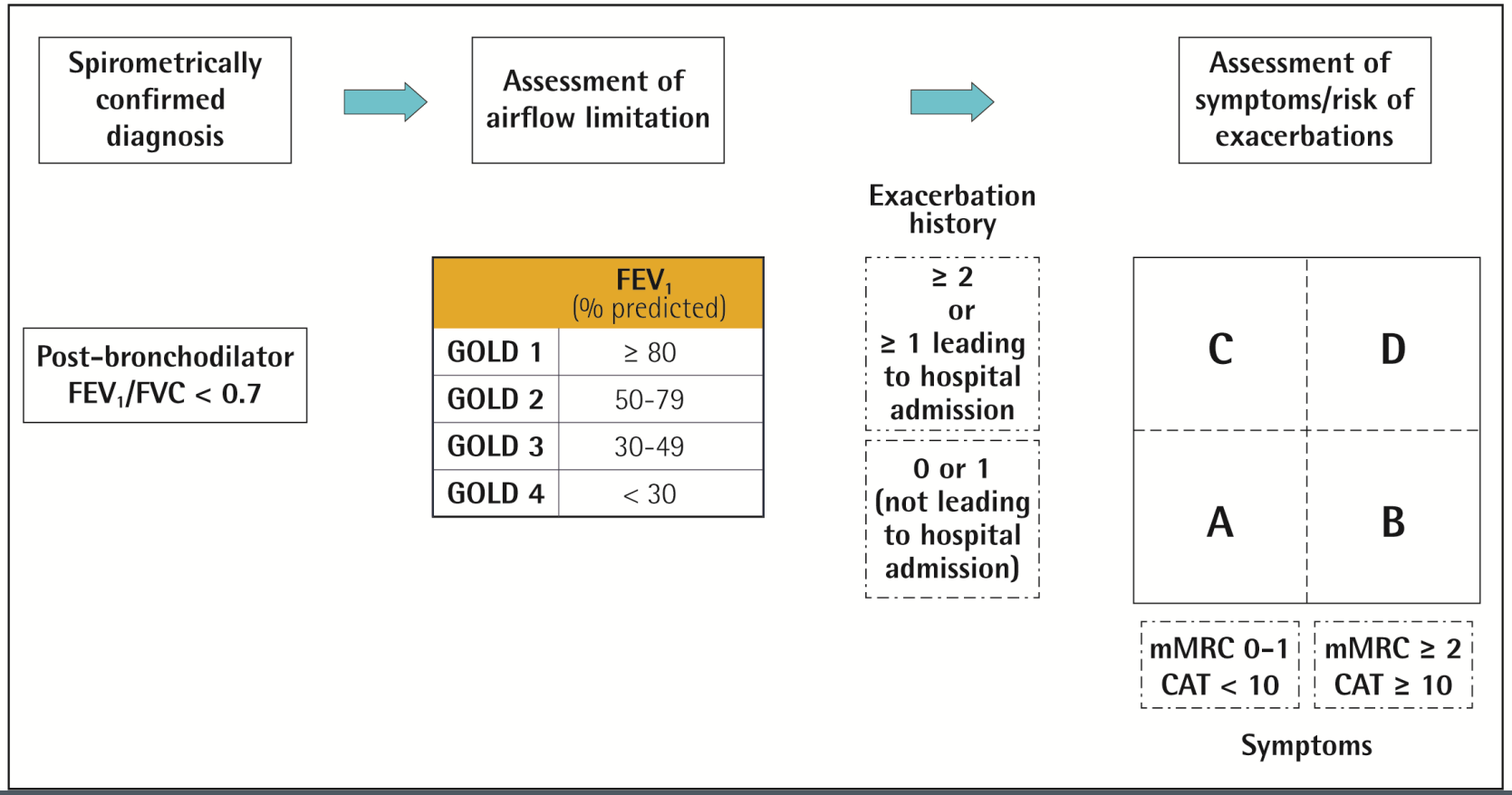
occupation

indoor/outdoor pollution

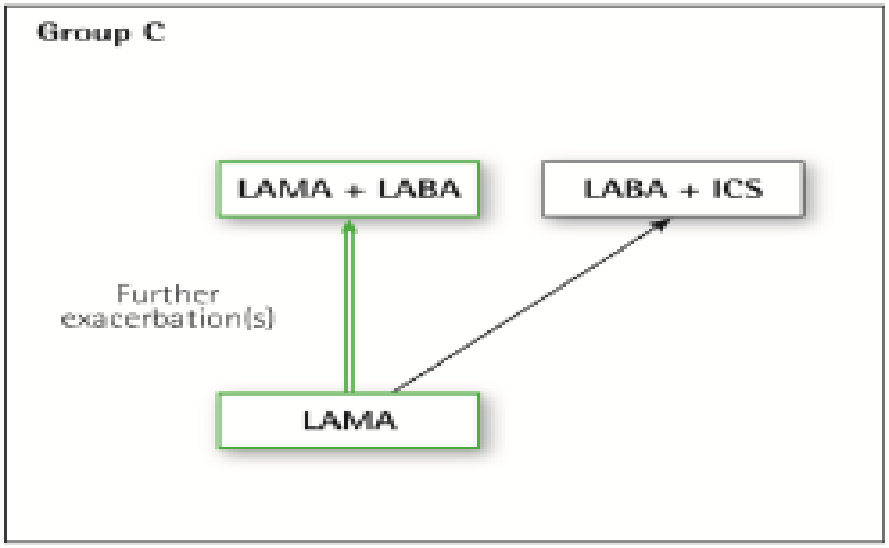
SPIROMETRY: Required to establish diagnosis

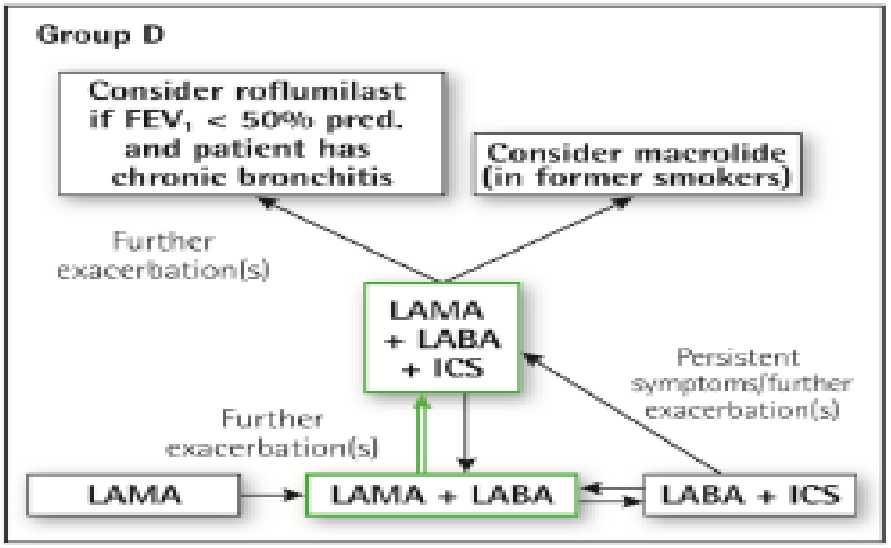
ABCD Assessment Tool

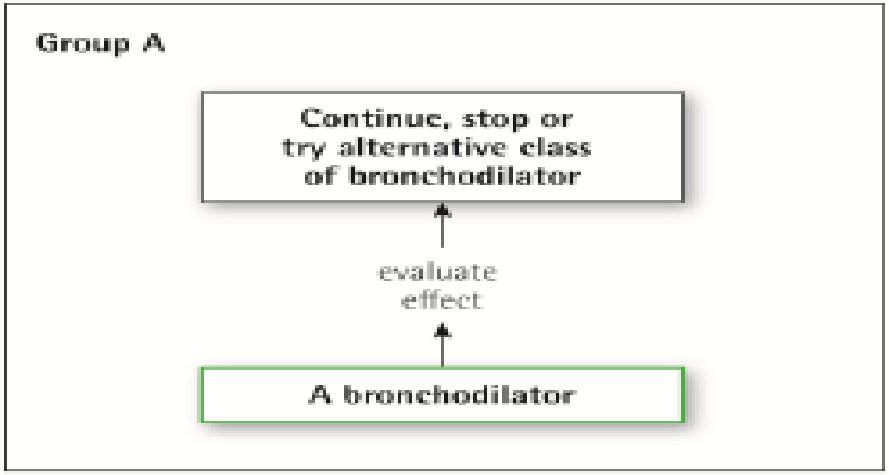
Figure 2.4. The refined ABCD assessment tool

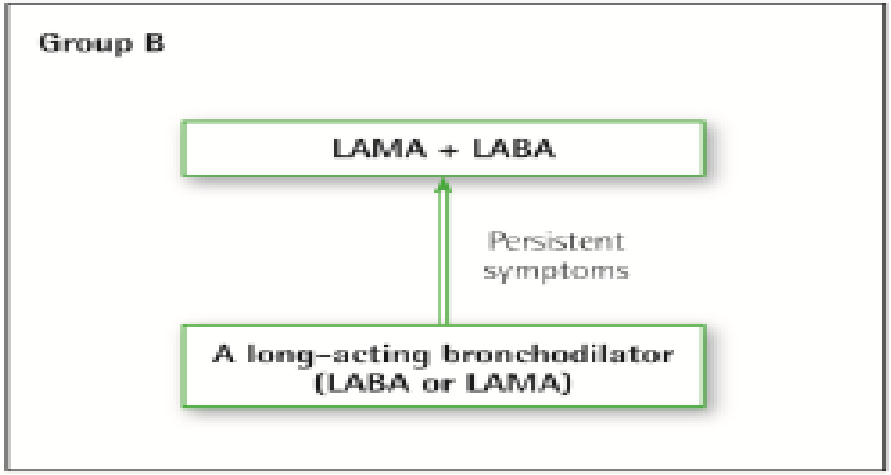


GOLD 2017 THERAPEUTIC RECOMMENDATIONS





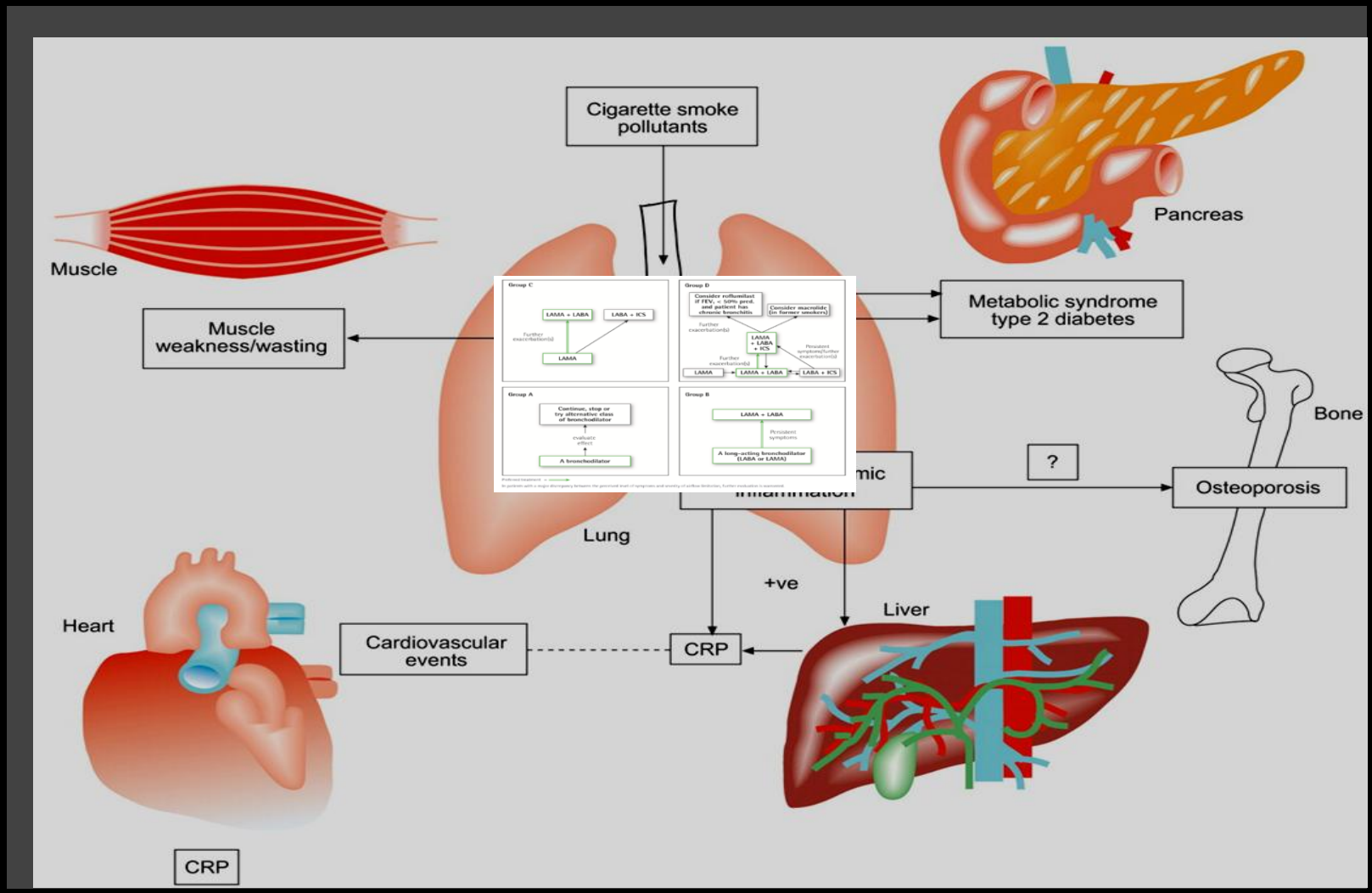




*Roflumilast ot available in Australia

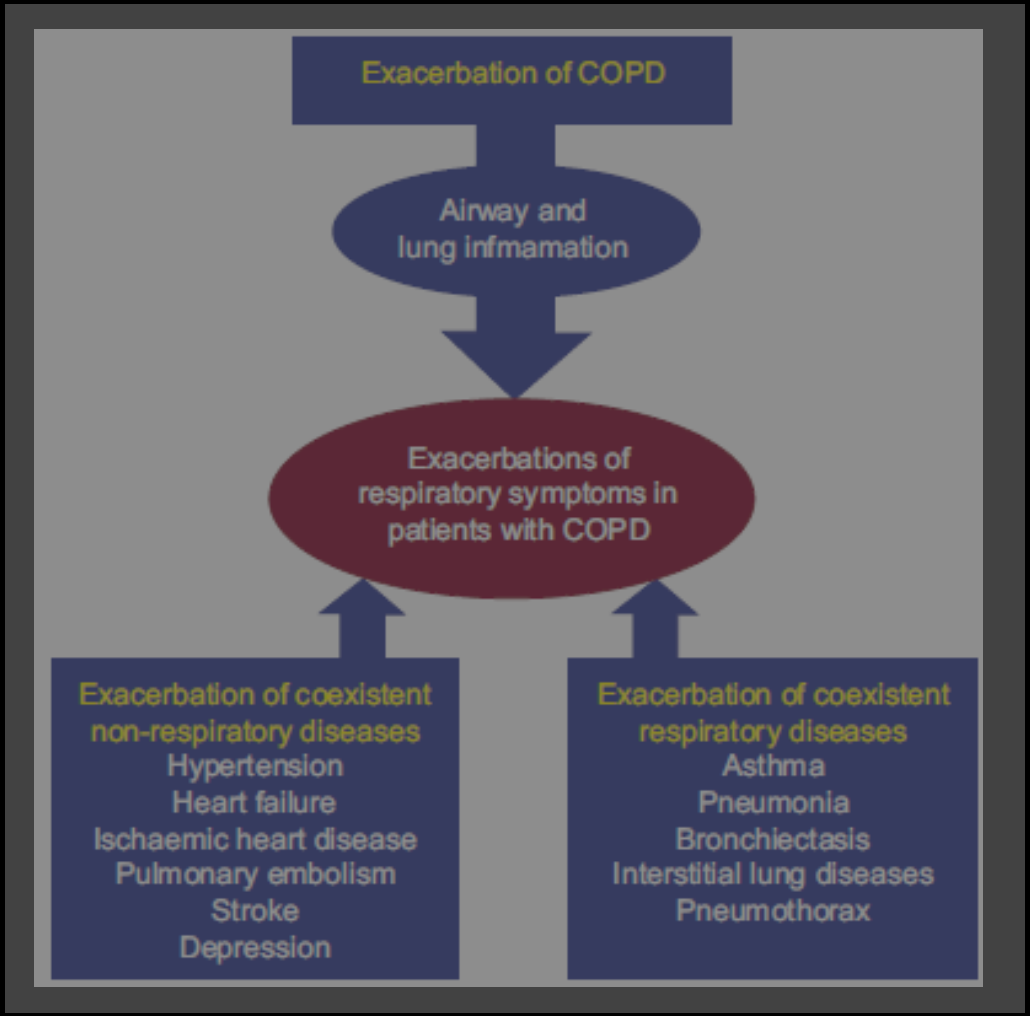
GOLD 2017, www.gold.copd.org

COPD AS THE PULMONARY COMPONENT OF MULTIMORBIDITY



Fabbri LM, Luppi F, Beghe B, and Rabe KF - Eur Respir J 2008;31:204-212

EXACERBATIONS OF RESPIRATORY SYMPTOMS IN PATIENTS WITH COPD MAY NOT BE EXACERBATIONS OF COPD



Beghé B, Verduri A, Roca M and Fabbri LM. Eur Respir J 2013; 41: 993-5
Roca M, Verduri A, Clini EM, Fabbri LM and Beghé B. Eur J Clin Invest, 2013;43:510

Pulmonary Symposium
Novotel, Poznan 8 April 2017

BETWEEN GOLD GUIDELINES AND EVERYDAY REALITY IN COPD

Leonardo M. Fabbri, MD, FERS, AE

Professor of Respiratory and Internal Medicine (-2016)

University of Modena and Reggio Emilia