



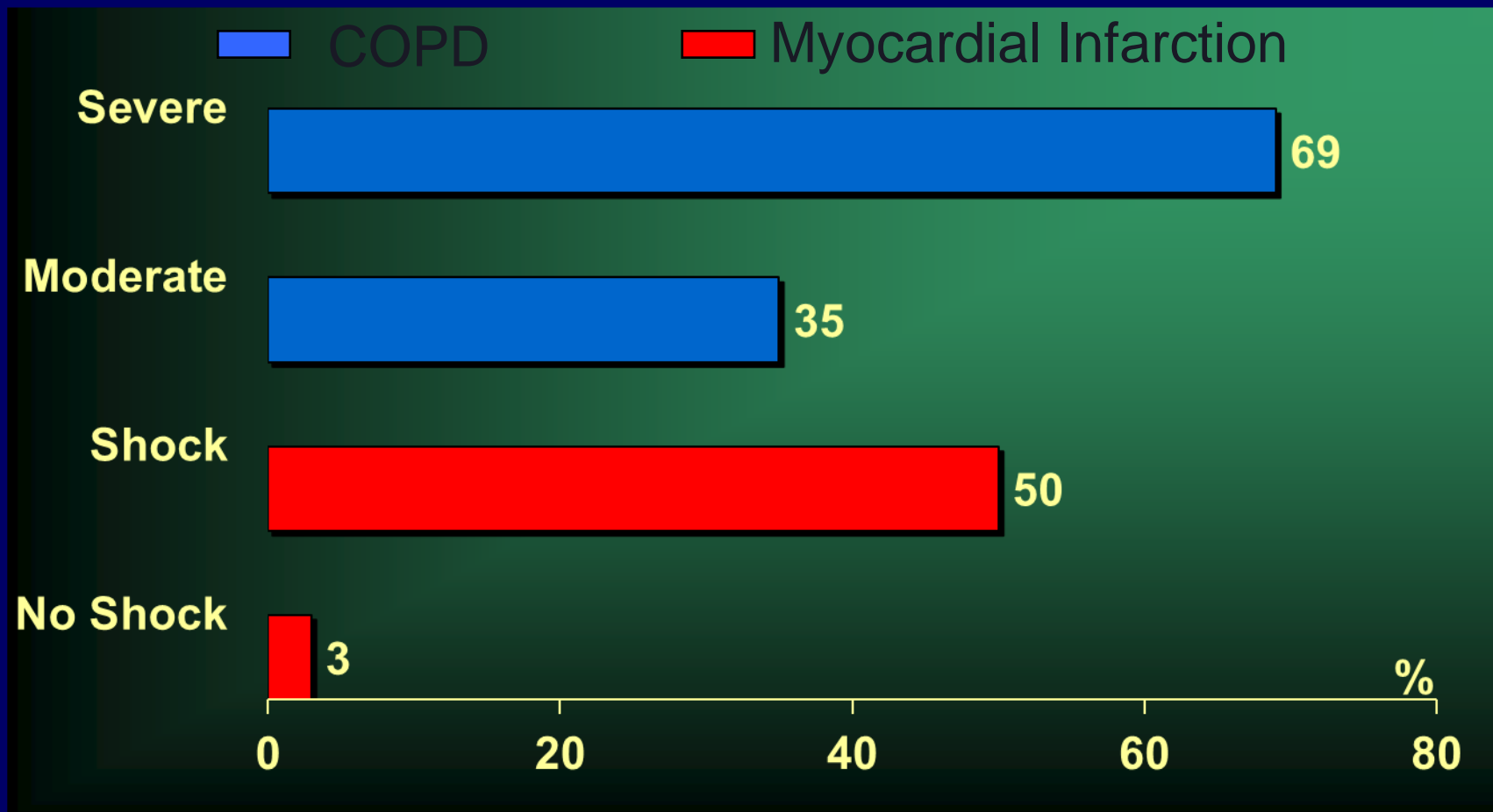
# ΕΙΣΑΓΩΓΗ ΣΤΗ ΧΡΟΝΙΑ ΑΠΟΦΡΑΚΤΙΚΗ ΠΝΕΥΜΟΝΟΠΑΘΕΙΑ

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Crete, Greece

# ΥΠΟΘΕΤΙΚΗ ΕΡΩΤΗΣΗ

- n Τι θα θελατε να παθετε ΠΑΡΟΞΥΝΣΗ ΧΑΠ η' εμφραγμα του μυοκαρδιου????

# Mortality comparisons across diseases

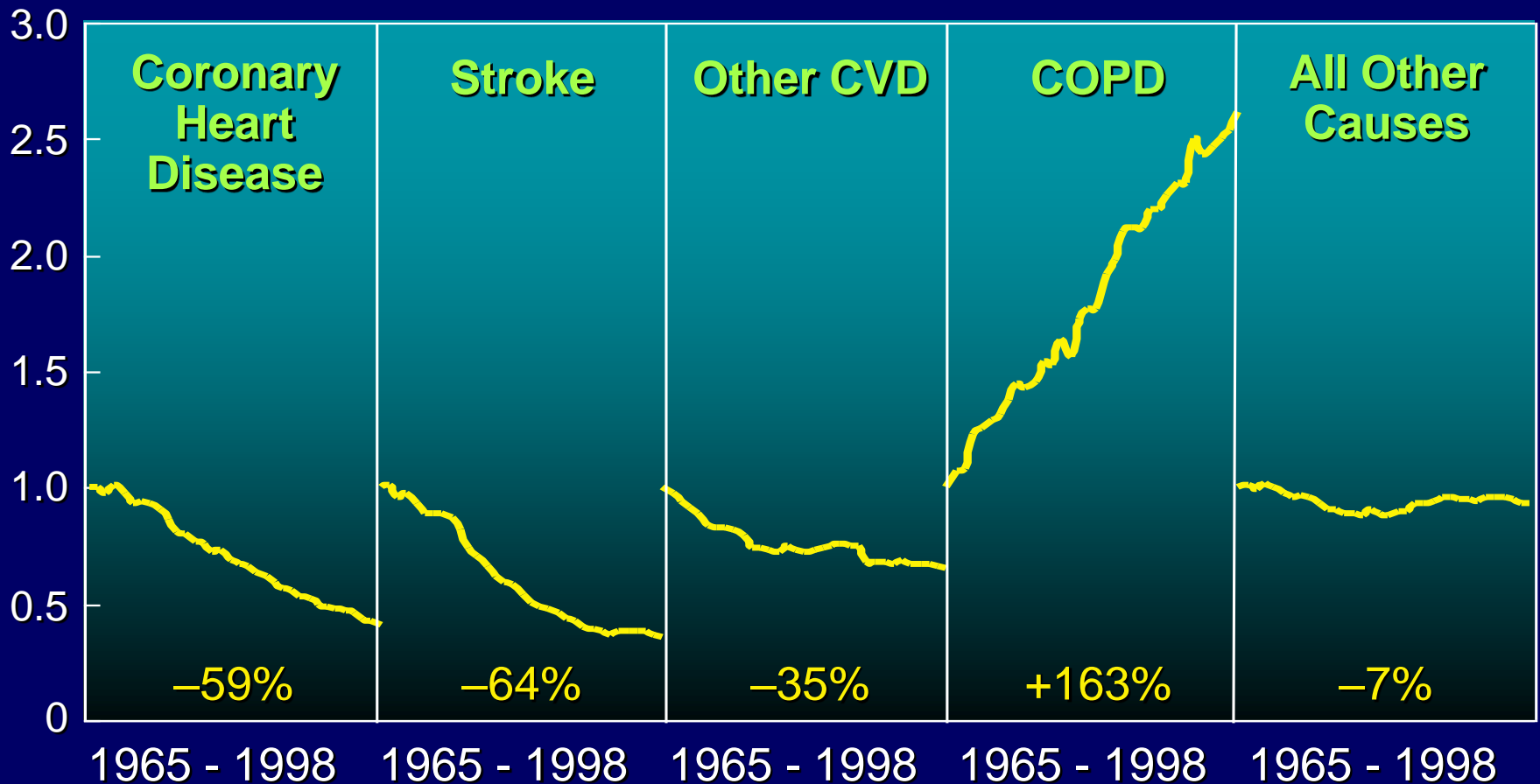


# COPD

- ✓ “COPD is a **preventable** and **treatable** disease state characterised by airflow limitation that is not fully reversible. The airflow limitation is usually progressive and is associated with an **abnormal inflammatory response of the lungs** to noxious particles or gases, primarily caused by cigarette smoking. It also produces **significant systemic consequences.**”
- ✓ 5<sup>th</sup> leading cause of death
- ✓ **Pathogenesis remains unclear**

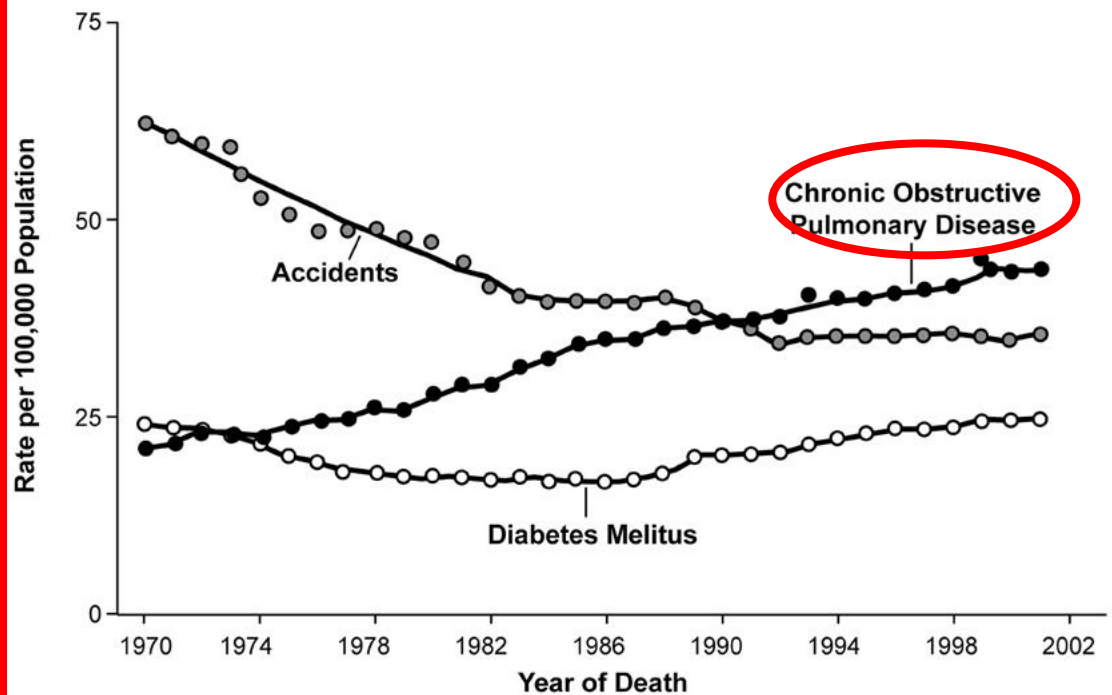
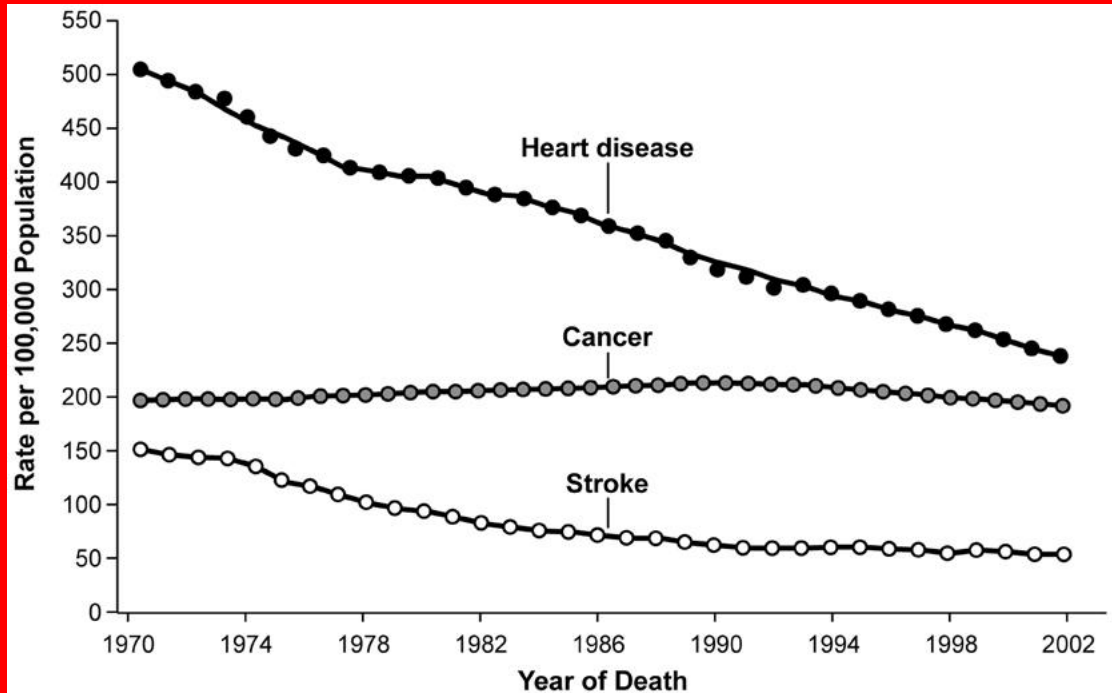
# Percent Change in Age-Adjusted Death Rates, U.S., 1965-1998

Proportion of 1965 Rate



Source: NHLBI/NIH/DHHS

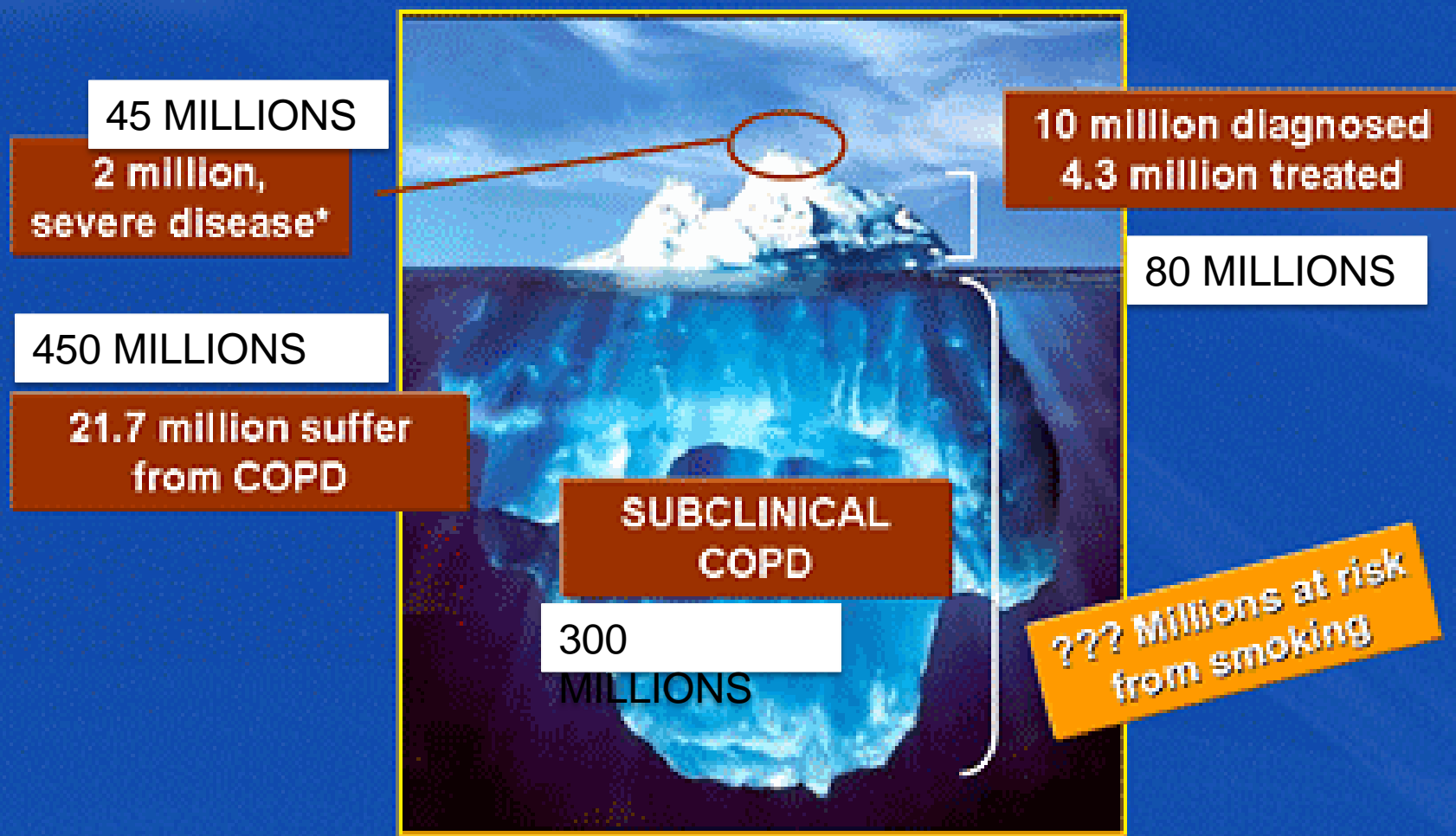
Of the six leading causes of death in the United States, only COPD has been increasing steadily since 1970



Source: Jemal A. et al. *JAMA* 2005

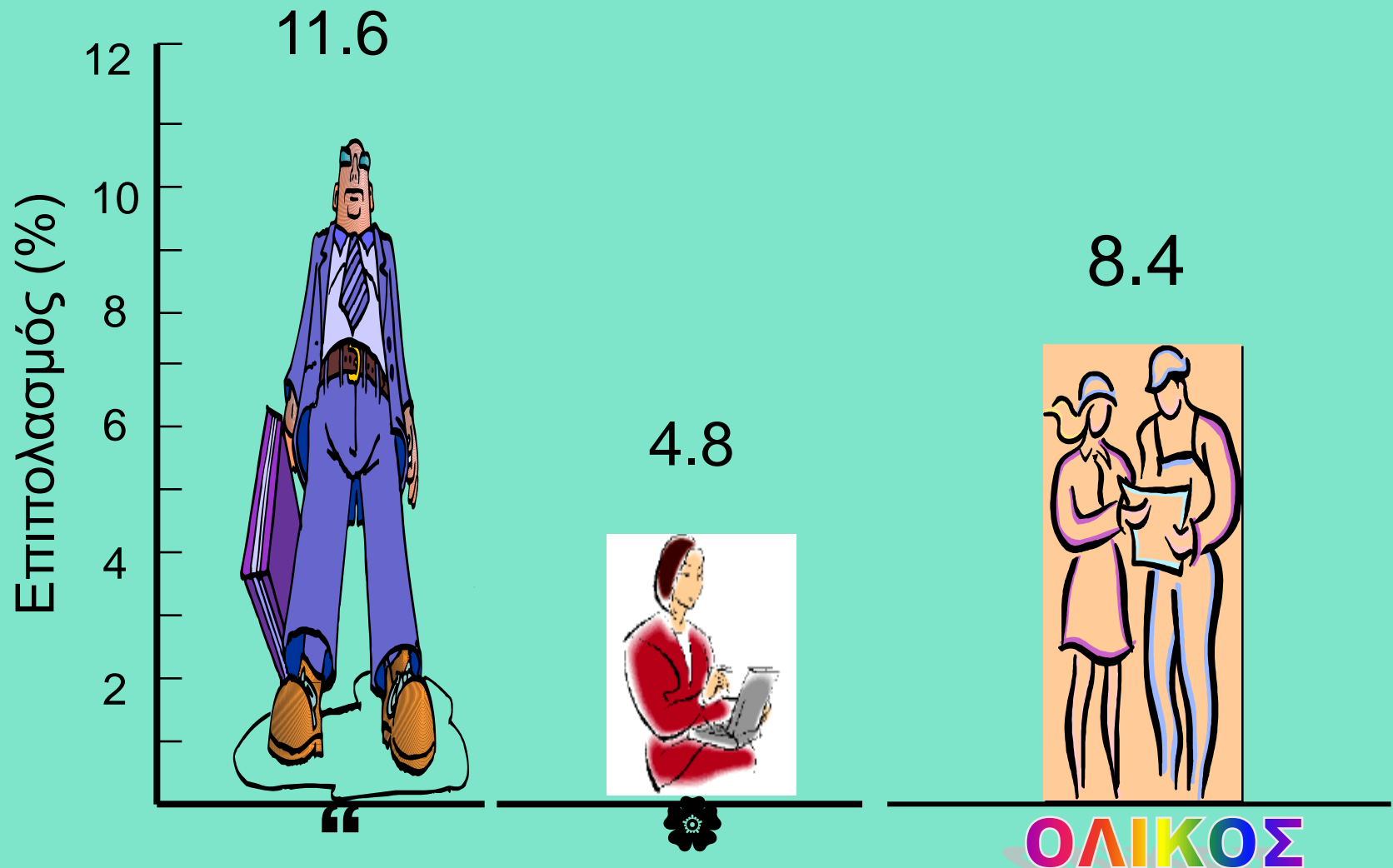


# Clinical COPD Is Just the Tip of the Iceberg

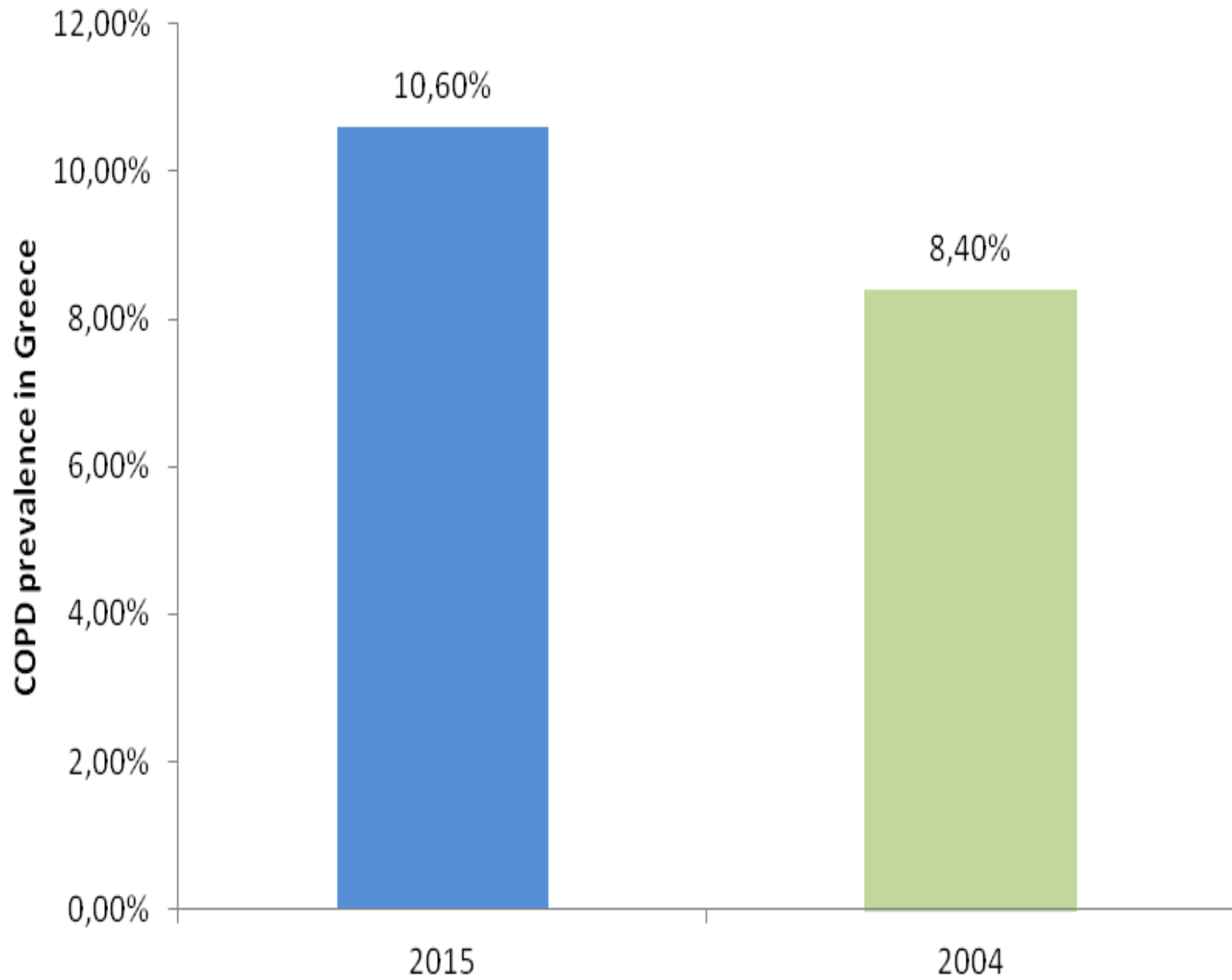


\*Repeated exacerbations and hospitalizations.  
Mannino et al. *MMWR Surveill Summ.* 2002;51:1-16.

# Επιπολασμός (Crude)





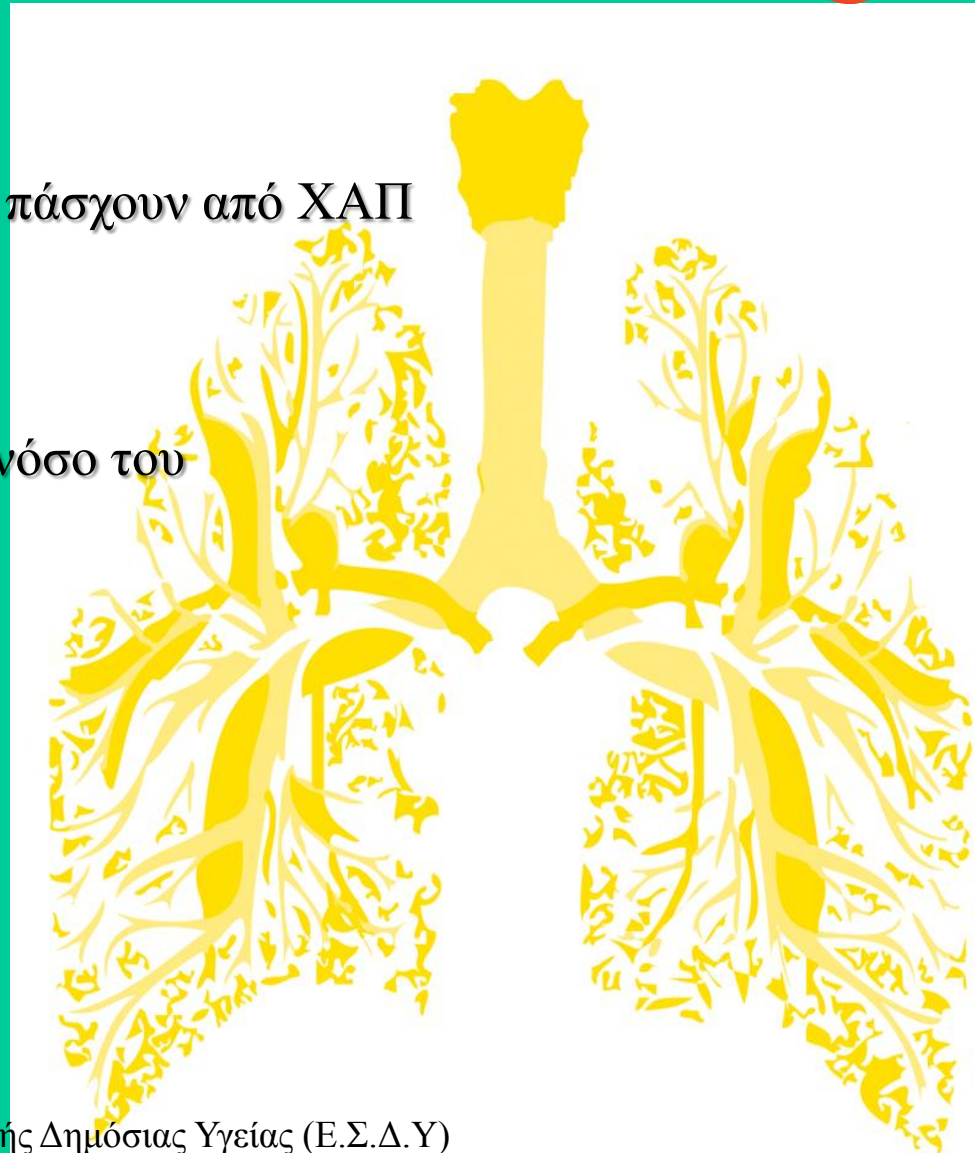


Tzanakis et al. Chest. 2004  
Maniadakis et al. 2015, 24<sup>th</sup> Hellenic Thoracic Society Congress

# Η ΧΑΠ στην Ελλάδα



- >500.000 Έλληνες άνω των 40 ετών, πάσχουν από ΧΑΠ
- 200.000 ΔΕΝ το γνωρίζουν
- 45.3% αισθάνεται ότι δεν ελέγχει τη νόσο του



# Risk Factors for COPD

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## Genes

## Exposure to particles

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

Lung growth and development

Oxidative stress

Gender

Age

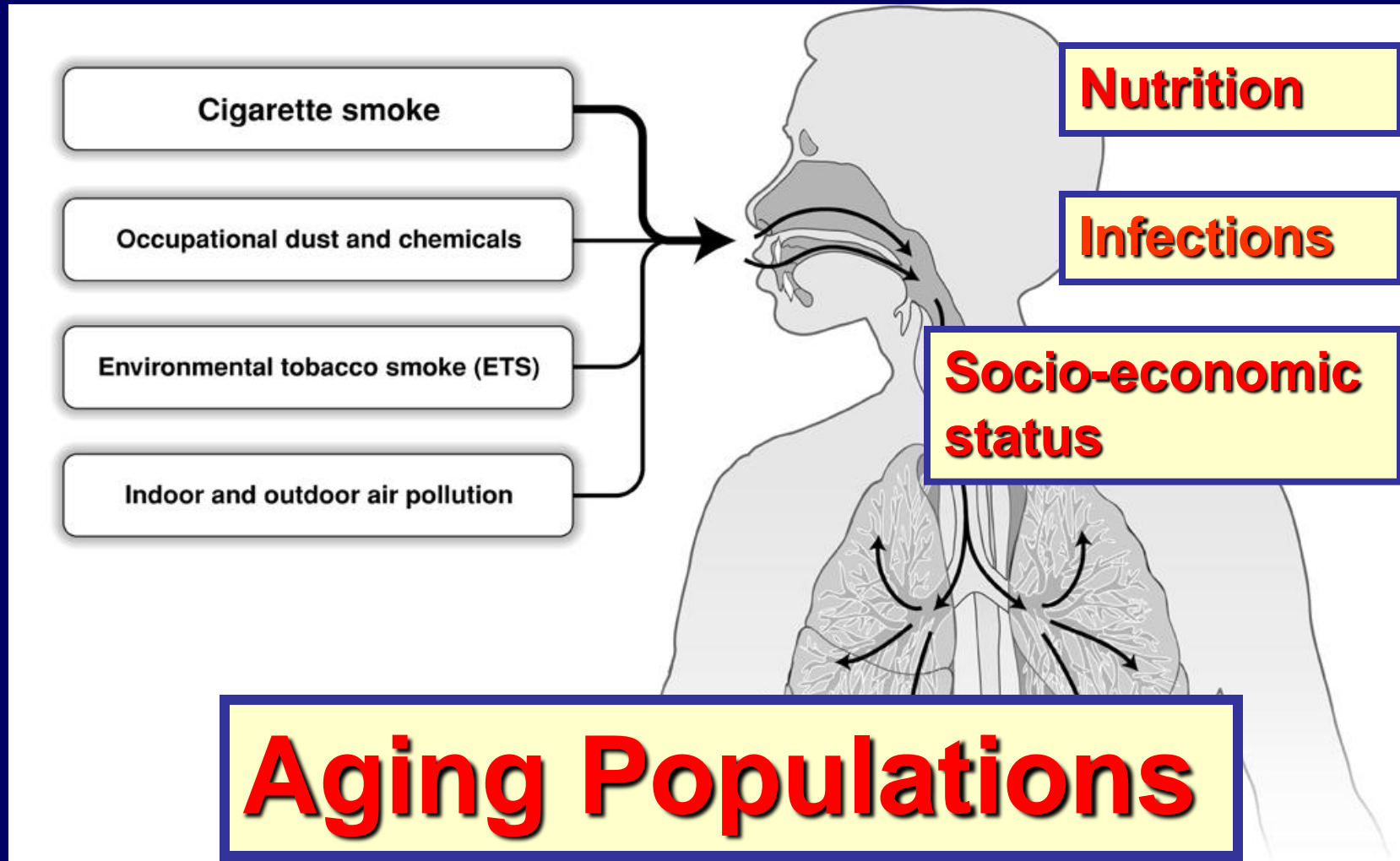
Respiratory infections

Socioeconomic status

Nutrition

Comorbidities

# Risk Factors for COPD



# INFLAMMATION IN COPD

```
graph TD; A[INFLAMMATION IN COPD] --> B[Small airway disease]; A --> C[Parenchymal destruction]; B --> D[AIRFLOW LIMITATION]; C --> D;
```

## Small airway disease

Airway inflammation  
Airway remodeling

## Parenchymal destruction

Loss of alveolar attachments  
Decrease of elastic recoil

# AIRFLOW LIMITATION

# Pathogenesis of COPD

Cigarette smoke  
Biomass particles  
Particulates



Host factors  
Amplifying mechanisms



Anti-oxidants

Anti-proteinases

Oxidative stress

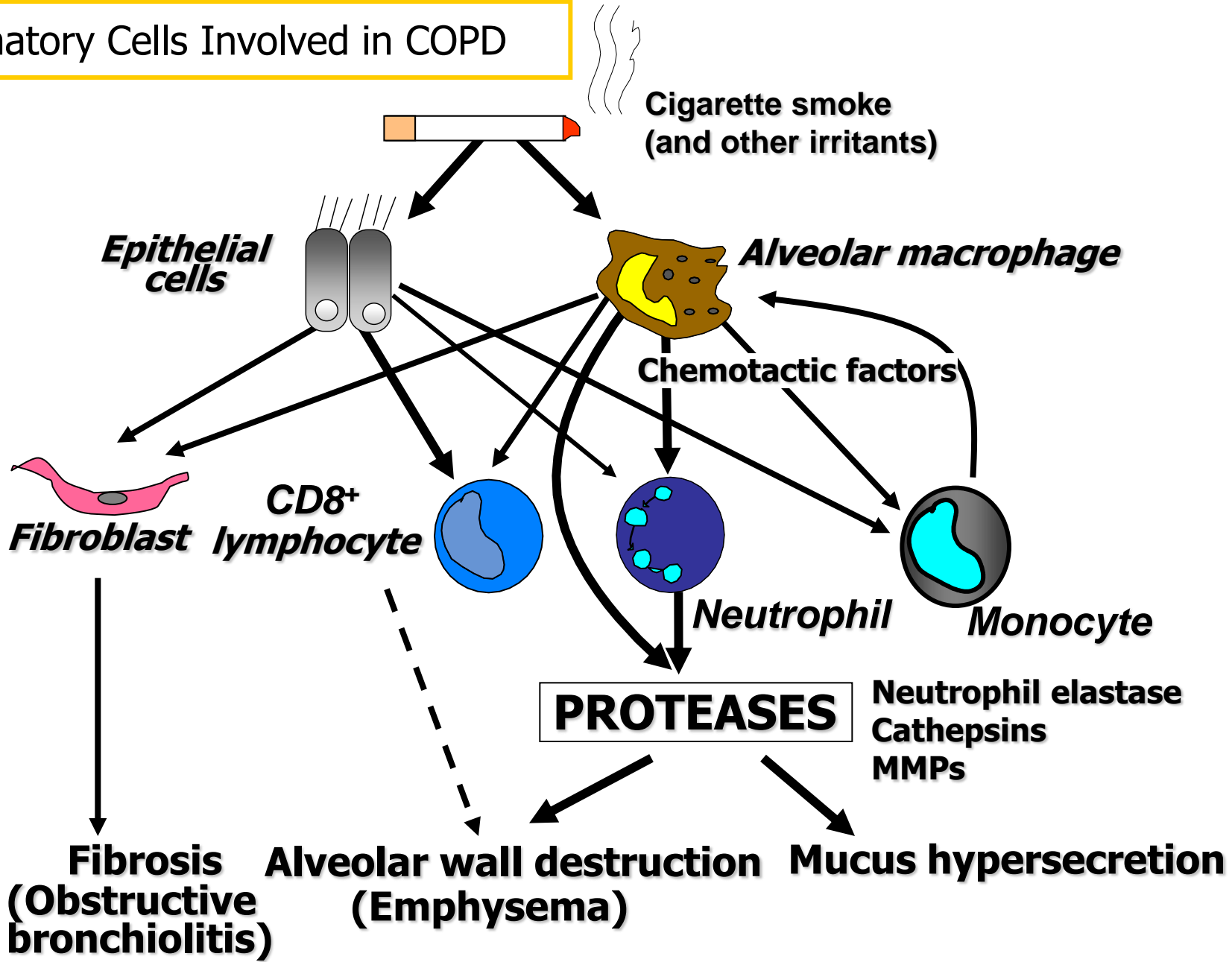
Proteinases

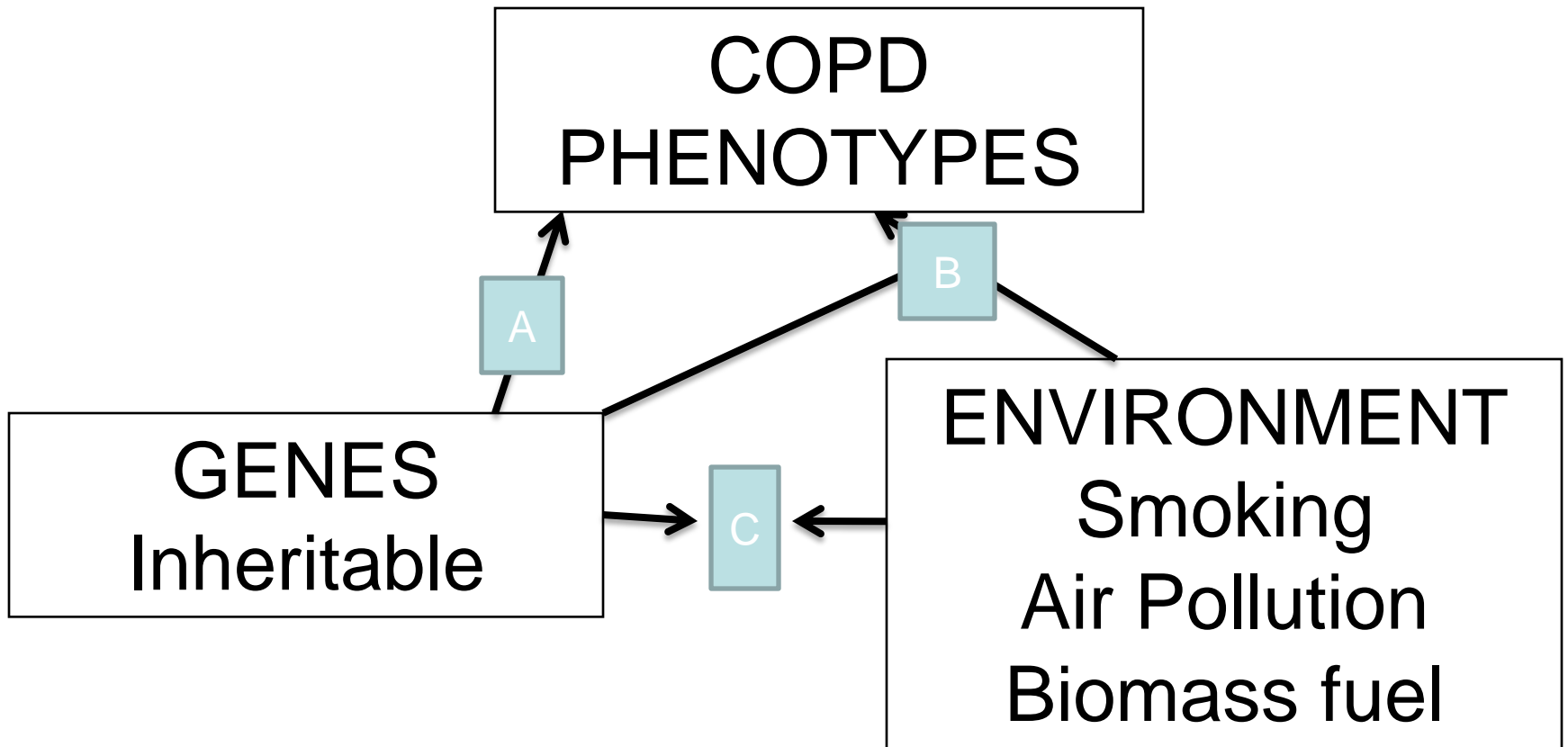
Repair mechanisms

COPD PATHOLOGY

Source: Peter J. Barnes, MD

# Inflammatory Cells Involved in COPD





A =  $\alpha$ 1-antitrypsin

GENETICS

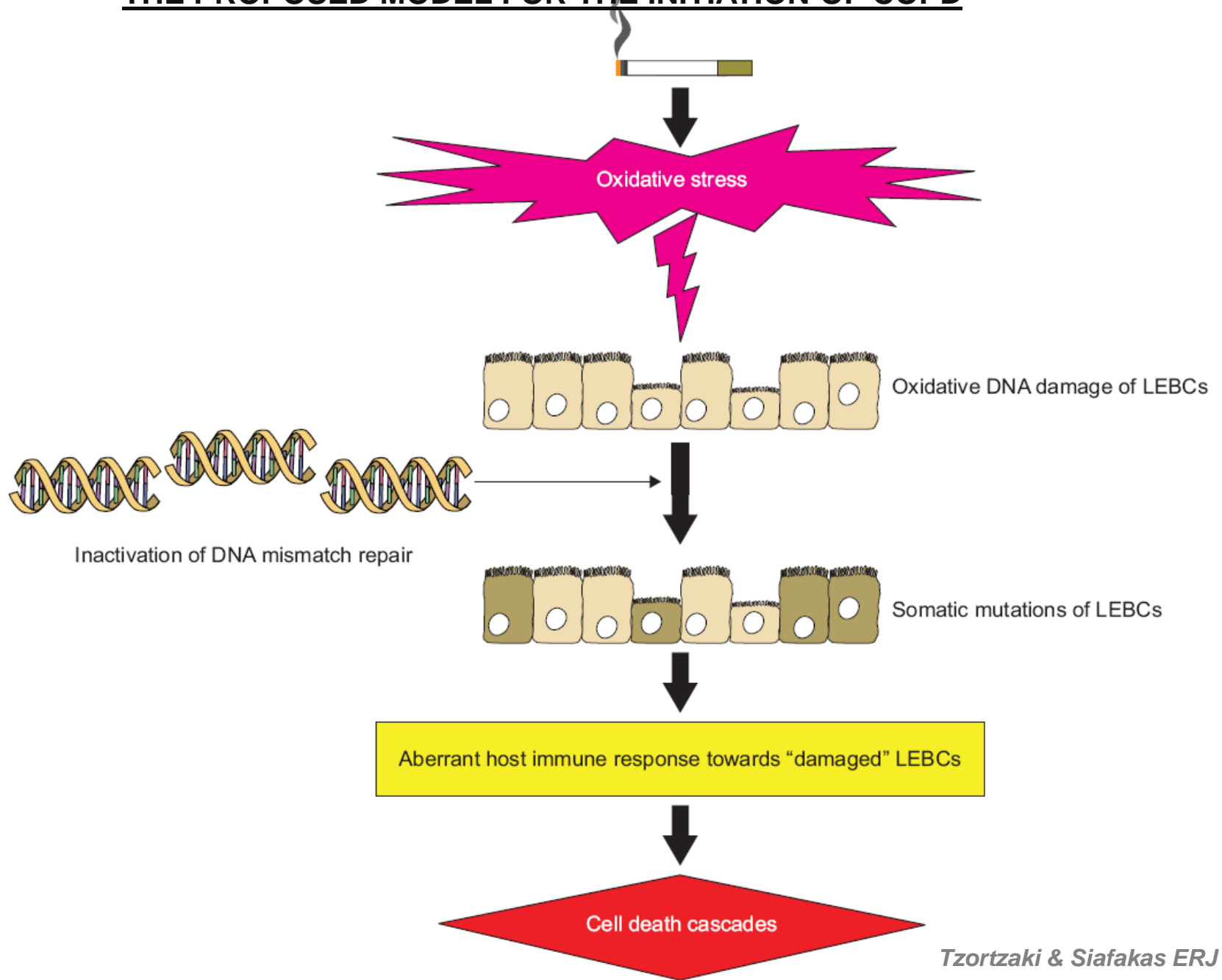
B = Smoking

EPIGENETICS

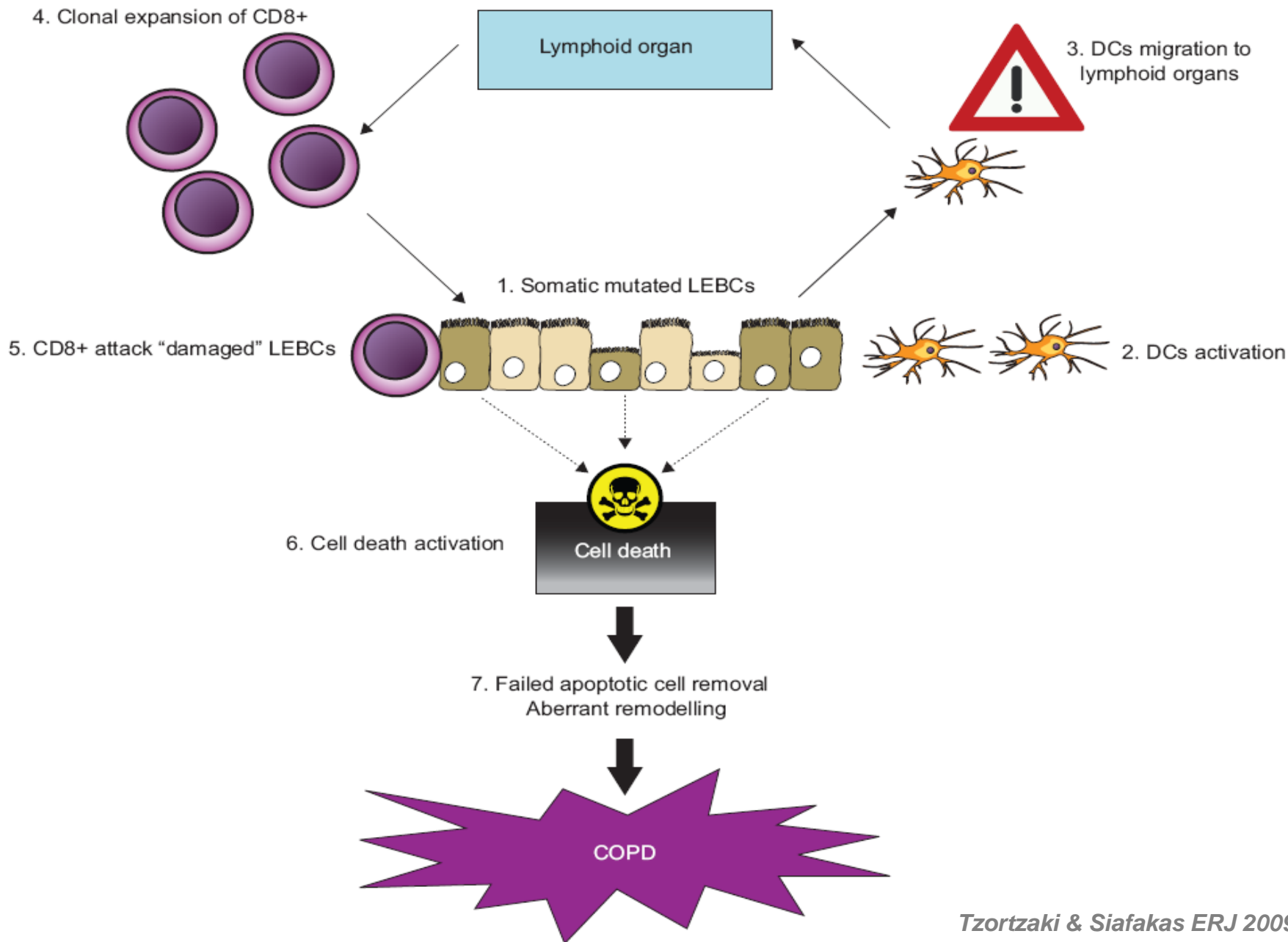
C = Nutrition



# THE PROPOSED MODEL FOR THE INITIATION OF COPD



# ACQUIRED SOMATIC MUTATIONS OF LUNG EPITHELIAL BARRIER CELLS IN COPD



# Diagnosis of COPD

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## SYMPTOMS

cough  
sputum  
shortness of breath

## EXPOSURE TO RISK FACTORS

tobacco  
occupation  
indoor/outdoor pollution



## SPIROMETRY

# Differential Diagnosis: COPD and Asthma

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## COPD

- Onset in mid-life
- Symptoms slowly progressive
- Long smoking history
- Dyspnea during exercise
- Largely irreversible airflow limitation

## ASTHMA

- Onset early in life (often childhood)
- Symptoms vary from day to day
- Symptoms at night/early morning
- Allergy, rhinitis, and/or eczema also present
- Family history of asthma
- Largely reversible airflow limitation

# COPD Phenotypes

- n **Chronic Bronchitis (Blue bloater)**
- n **Emphysema (Pink puffer)**
- n **A1-antitrypsin deficiency**
- n **Frequent exacerbators**
- n **Patients with or without systemic involvement**
- n **COPD with or without comorbidities**
- n **Significant hyperinflation**
- n **Fast decliner (FEV1)**
- n **ACOS**
- n **Current smoker**



## Pink Puffer

Individuals in this category tend to have the following features:

- Intense dyspnoea often with purse-lip breathing

- Thin and often elderly

- Small sputum volume

- Rarely develop oedema or overt heart failure

Investigations may show:

- Near-normal blood gas values (until terminally)

- Very severe airways obstruction

- Increased total lung capacity

- Radiological evidence of emphysema

- Impairment of transfer factor.

# Blue Bloater



Individuals in this category tend to have the following features:

Relatively mild dyspnoea

Often obese

Large sputum volume and frequent infective exacerbations

Often oedematous and easily lapse into congestive heart failure.

Investigation may show:

Abnormal blood gases—hypercapnia, hypoxaemia with elevated plasma bicarbonate and polycythaemia, severe nocturnal hypoxaemia during REM sleep

Sometimes only moderately severe airways obstruction

Fairly normal total lung capacity

No radiological evidence of emphysema

Little or no reduction in transfer factor.

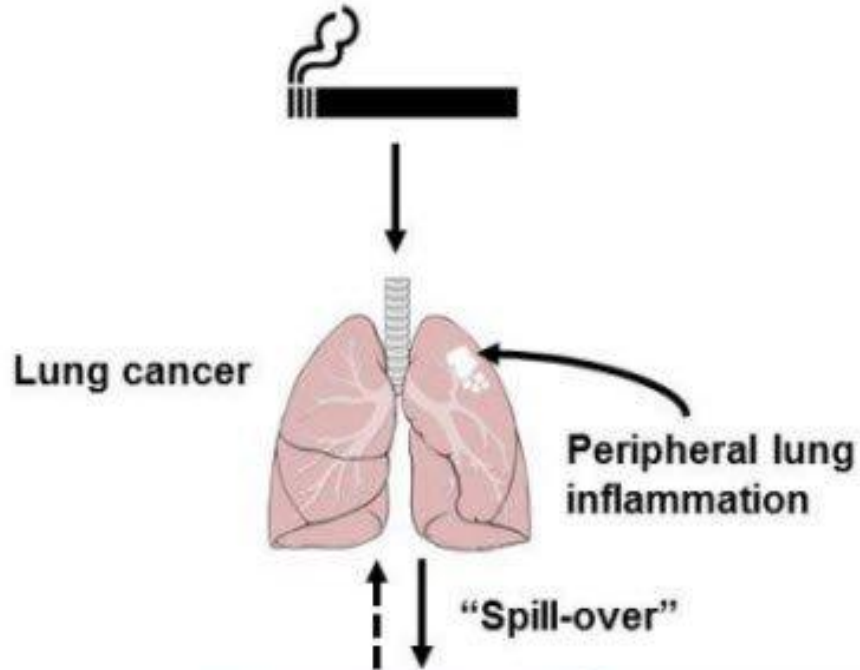
# Phenotype: Emphysema and Hyperinflation

- limitations in functional capacity
- decreased diffusion capacity
- homogeneous distribution of emphysema → high risk for death
- IC/TLC ratio predicts respiratory and all-cause mortality better than  $FEV_1$  (*Casanova et al. AJRCCM 2005;171:591-97*)
- different therapeutic options depending on emphysema distribution (*National Emphysema Treatment Trial Research Group. NEJM 2003; 348:1059-73*)



# **Phenotype: COPD with Systemic Involvement**

- **hypoxemia → poor prognosis, but correction associated with improved survival**
- **BMI < 0.21 → independent predictor of death**
- **peripheral muscle dysfunction → poor exercise capacity, independent predictor of survival**
- **anemia in 10-20% of patients → correlation with mortality**
- **overflow of inflammatory cytokines and activated cells in peripheral circulation?**



Skeletal muscle weakness  
Cachexia

**Systemic inflammation**  
IL-6, IL-1 $\beta$ , TNF- $\alpha$

Acute phase proteins  
CRP  
Serum amyloid A  
Surfactant protein D

Ischemic heart disease

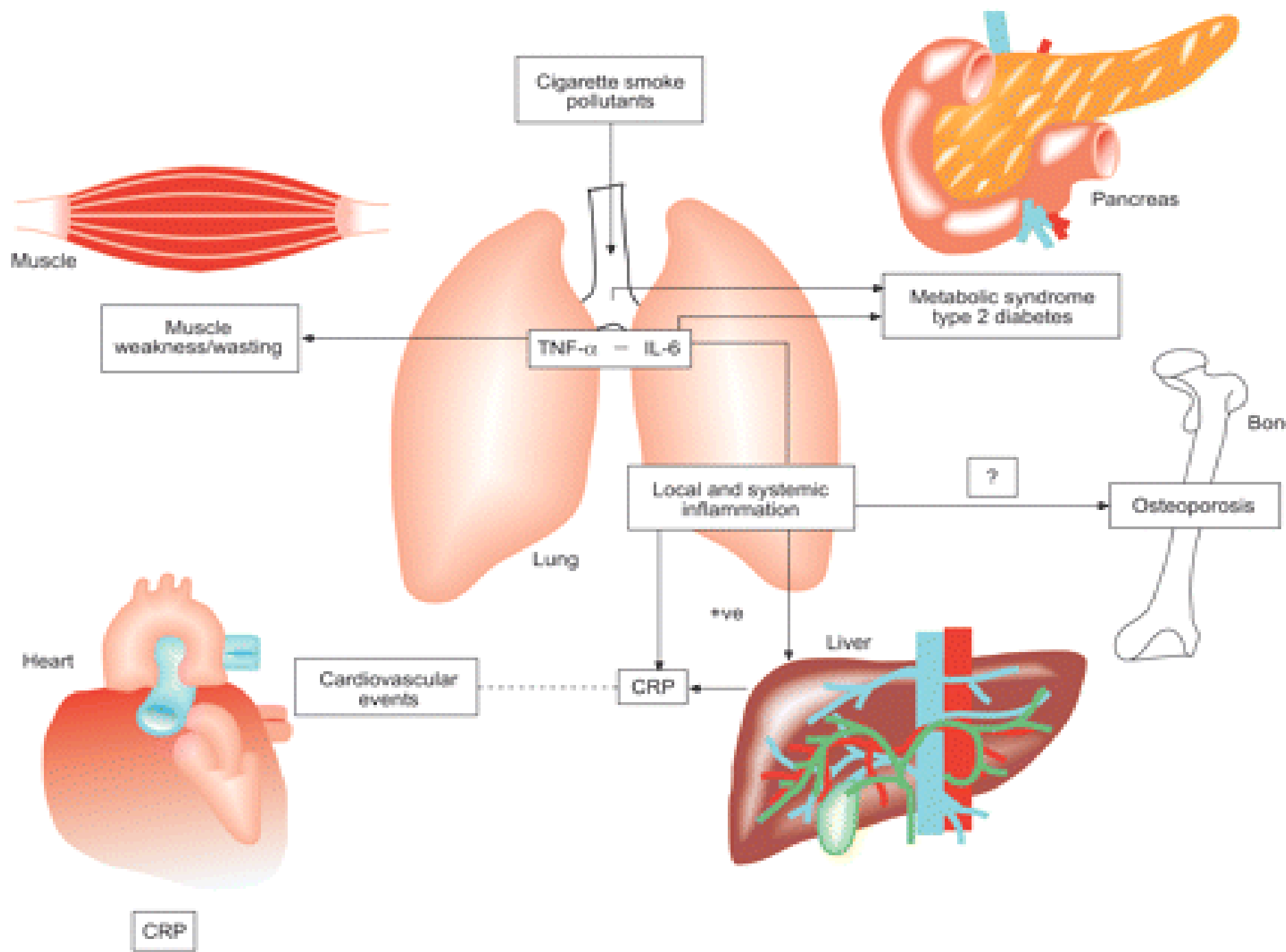
Cardiac failure

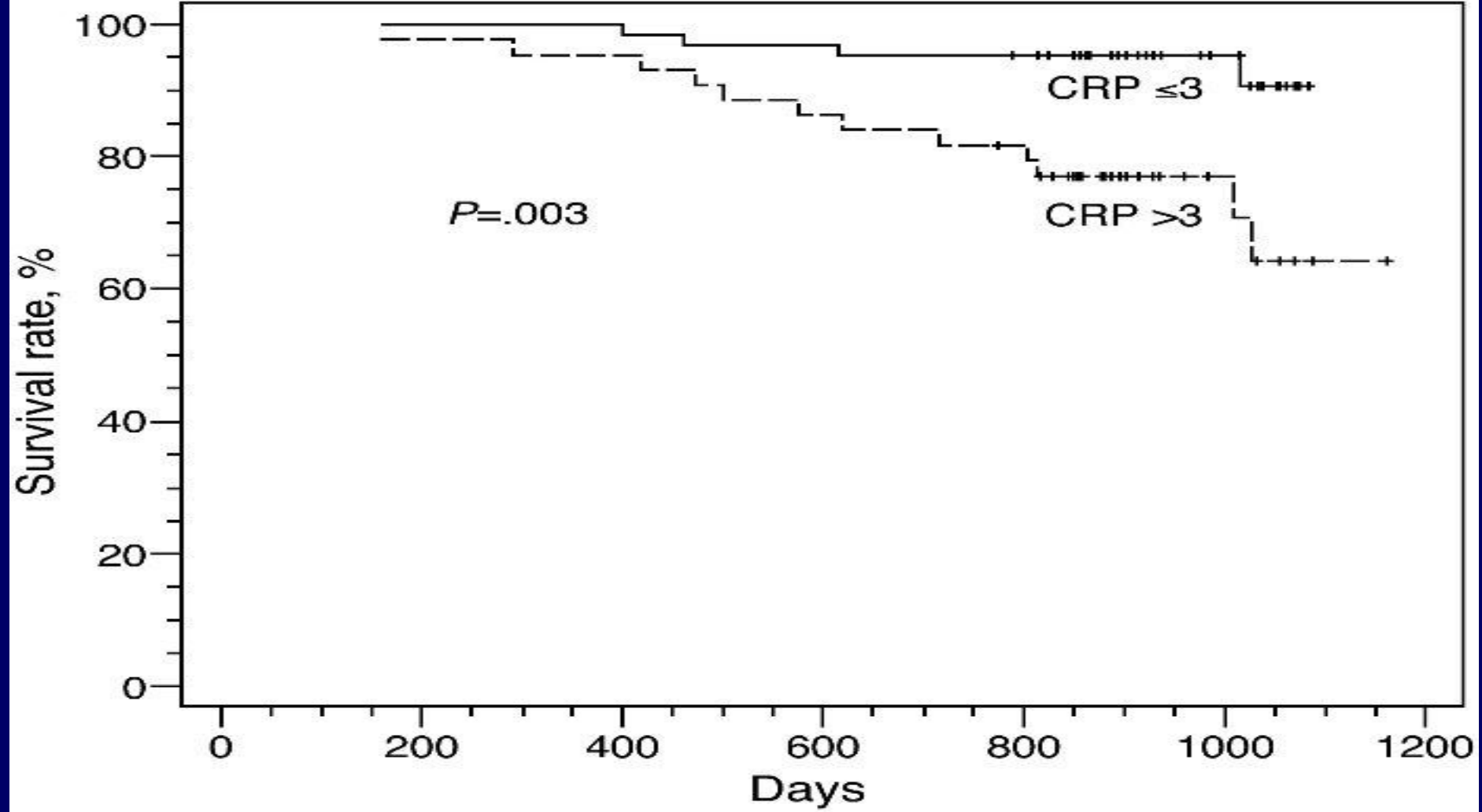
Osteoporosis

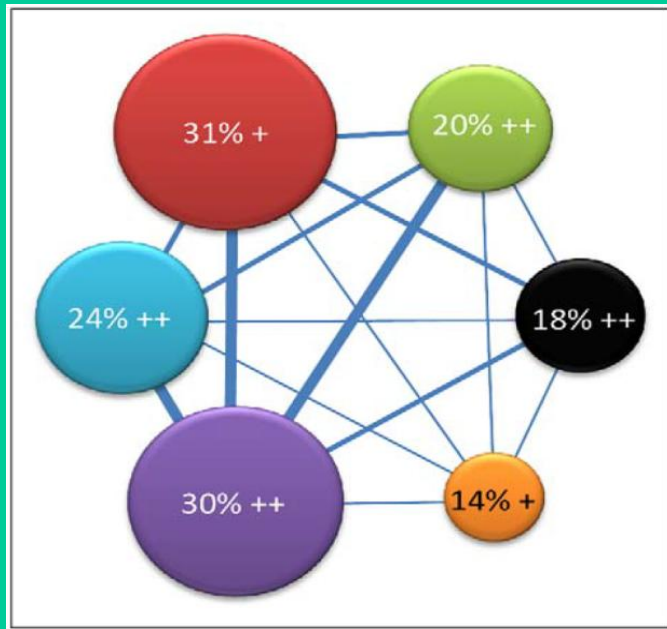
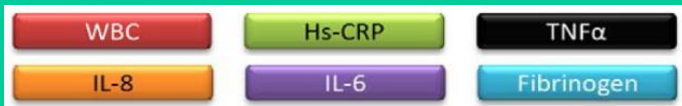
Diabetes metabolic syndrome

Normocytic anemia

Depression







16% of COPD patients have persistent systemic inflammation

# Phenotype: COPD with comorbidities

- **diabetes** → patients with COPD have a 1.8 RR of developing type II diabetes
- **atherosclerosis** → increased risk of vascular events in patients with COPD, perhaps through elevated CRP
- **osteoporosis** → increased risk in patients with COPD, even in the absence of steroid use
- **peptic ulceration** → more frequent in patients with COPD, helicobacter seropositivity increased in COPD
- **Anaemia** = 10-20%

*Sevenoaks et al. Resp Research 2006; 7:70-9*

# COPD and Co-Morbidities

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COPD patients are at increased risk for:

- Myocardial infarction, angina
- Osteoporosis
- Respiratory infection
- Depression
- Diabetes
- Lung cancer

# COPD and Co-Morbidities

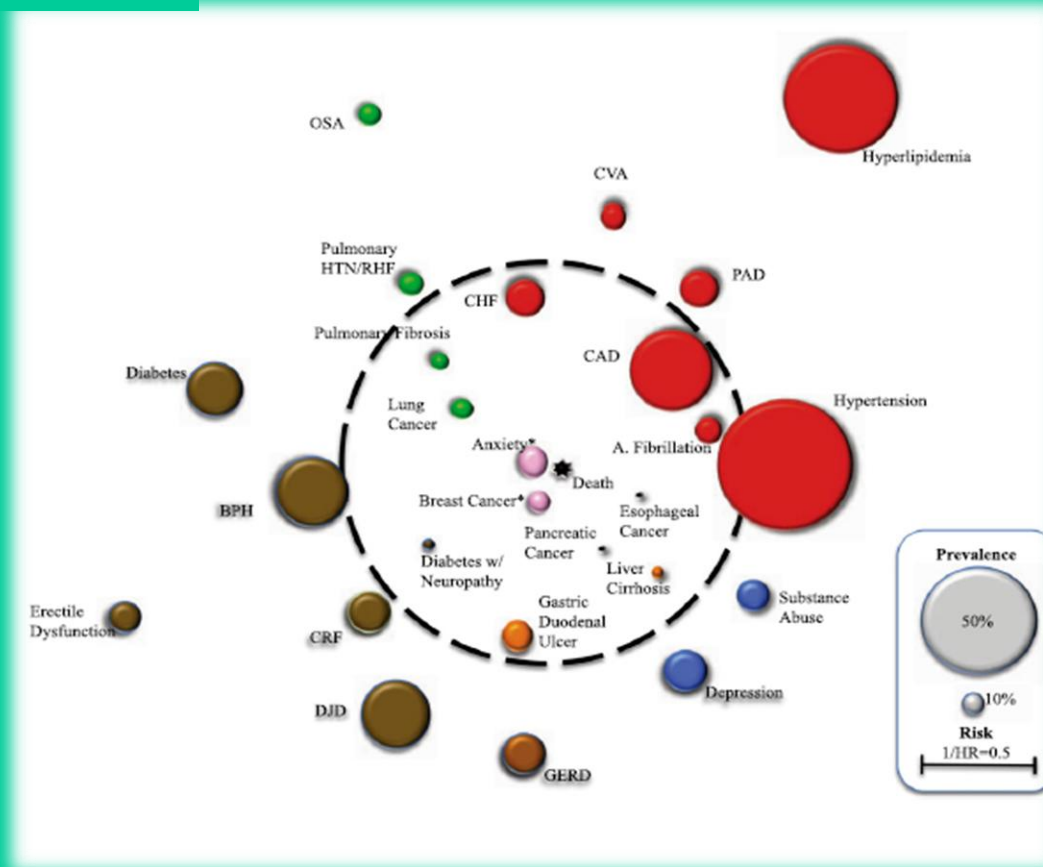
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COPD has significant extrapulmonary (systemic) effects including:

- Weight loss
- Nutritional abnormalities
- Skeletal muscle dysfunction



# Αυξημένος επιπολασμός της υπέρτασης & της καρδιαγγειακής νόσου στη ΧΑΠ



52% υπέρταση

44% υπερλιπιδαιμία

30% στεφανιαία νόσος

22% διαβήτης

16% καρδιακή ανεπάρκεια

## Το άγχος και η κατάθλιψη είναι συχνά νοσήματα συνοσηρότητας στη ΧΑΠ

(Anxiety and depression are major comorbidities in COPD)

n Σε μια συστηματική ανασκόπηση που επικεντρώθηκε σε ασθενείς με ΧΑΠ, η επίπτωση της κατάθλιψης κυμαινόταν από 37 έως 71%, και του άγχους από 50 σε 75%, στοιχεία που είναι συγκρίσιμα ή και μεγαλύτερα από τα ποσοστά επικράτησης σε άλλες σοβαρές ασθένειες όπως καρκίνος, AIDS, καρδιακές παθήσεις και νεφρική νόσο.

n Σε εξωτερικούς ασθενείς με ΧΑΠ μελέτες δείχνουν ποσοστά κατάθλιψης που κυμαίνονται από 7% έως 80% και άγχους που κυμαίνονται από 2% έως 80%. Η επικράτηση της γενικευμένης αγχώδους διαταραχής κυμαίνεται από 10% έως 33% και της διαταραχής πανικού από 8% έως 67% .

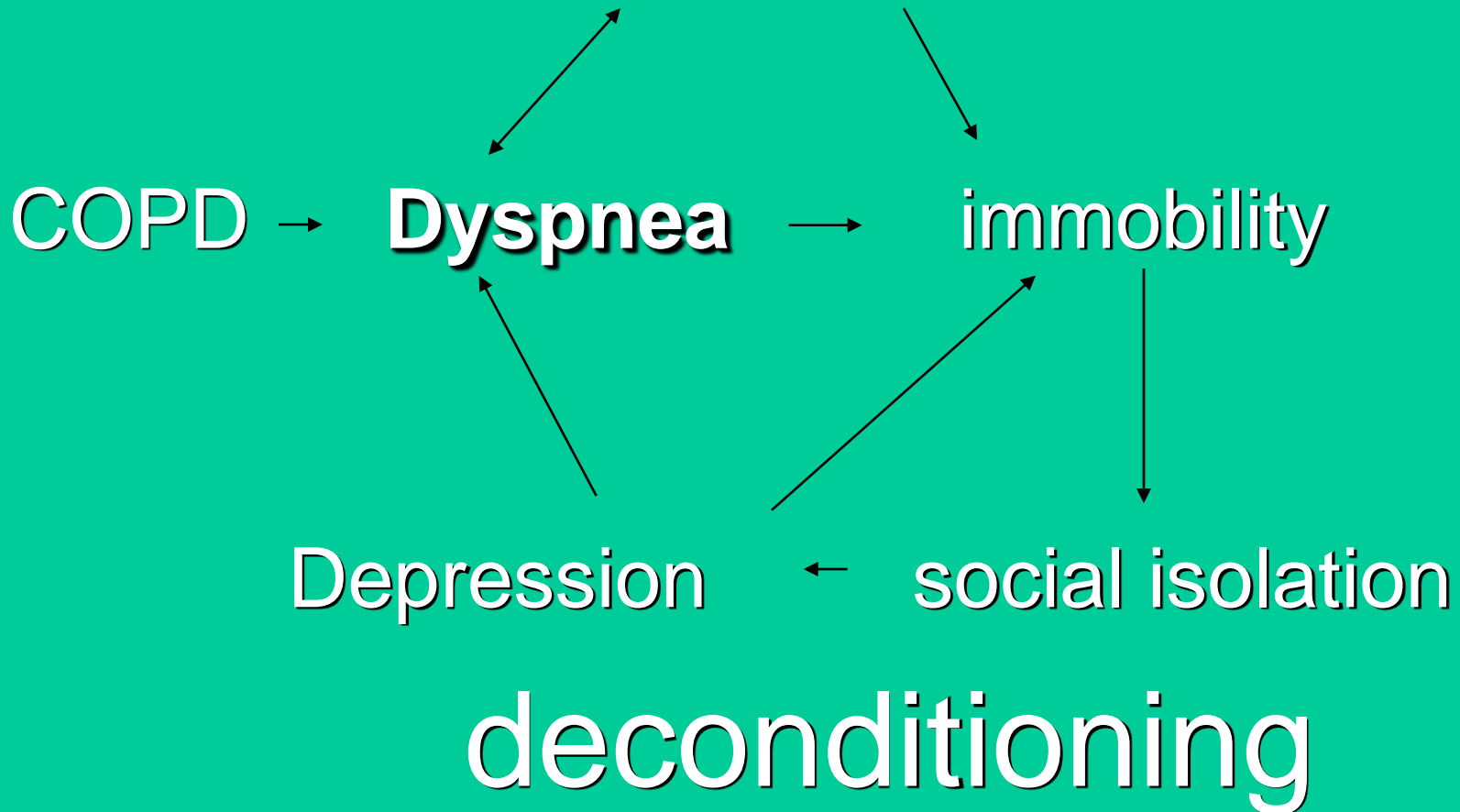
### Prevalence in Advanced Disease: Systematic Review (64 studies)

	Depression (%)	Anxiety (%)
<b>COPD</b>	<b>37-71</b>	<b>51-75</b>
<b>Cancer</b>	<b>3-77</b>	<b>13-79</b>
<b>AIDS</b>	<b>10-82</b>	<b>8-34</b>
<b>Heart Disease</b>	<b>9-36</b>	<b>49</b>
Renal Disease	5-60	39-70

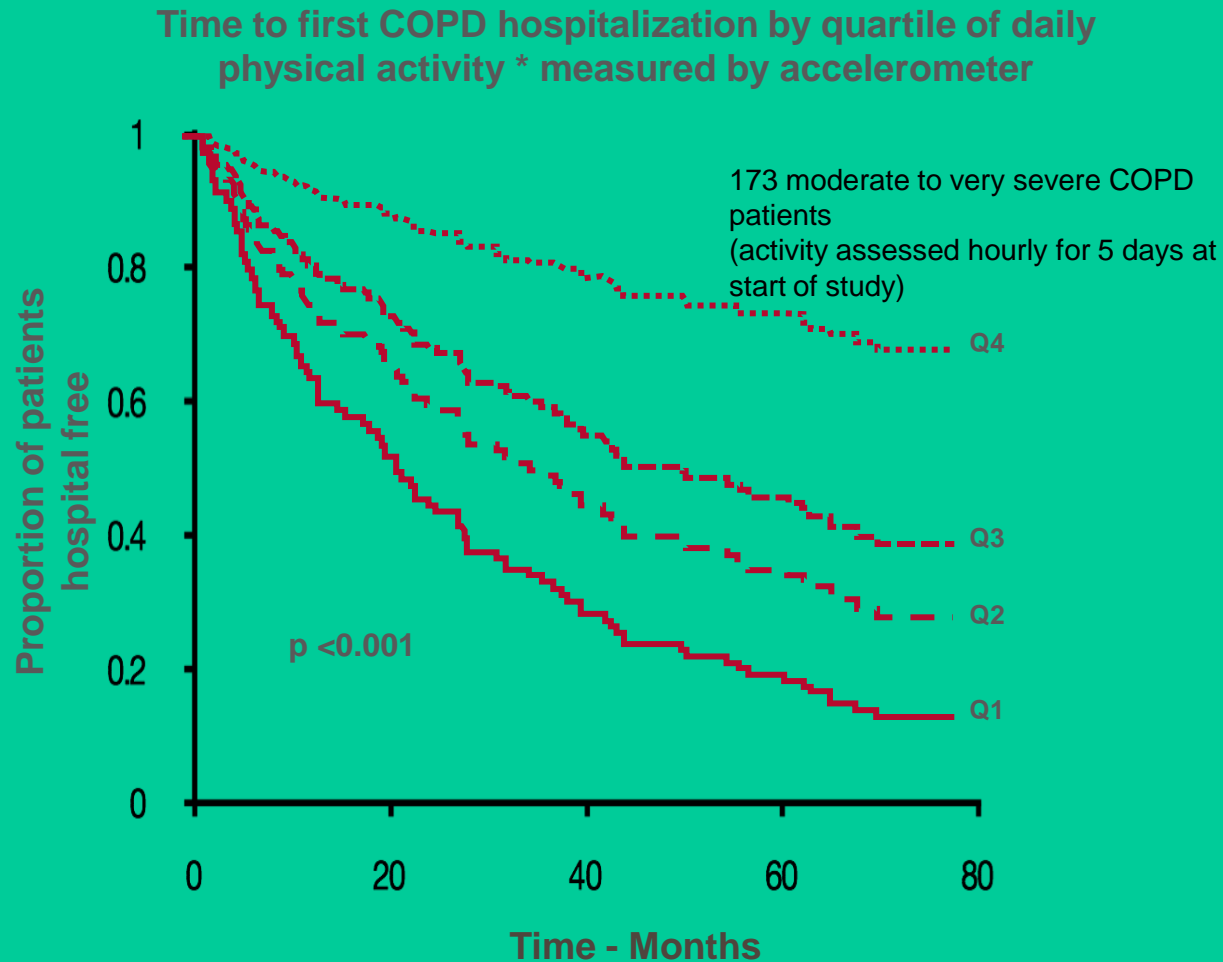
(Solano, J Pain sympt Manage 2006 31:58)

# Vicious circle of COPD

lack of exercise



# Reduced physical activity in COPD is associated with increased hospitalization rates



\* Q1= least active to Q4 = most active quartile

\* Q1 = Lowest physical activity by quartile

Adapted from Garcia-Rio et al. Chest 2012; 142(2): 338-46

# Management COPD Exacerbations

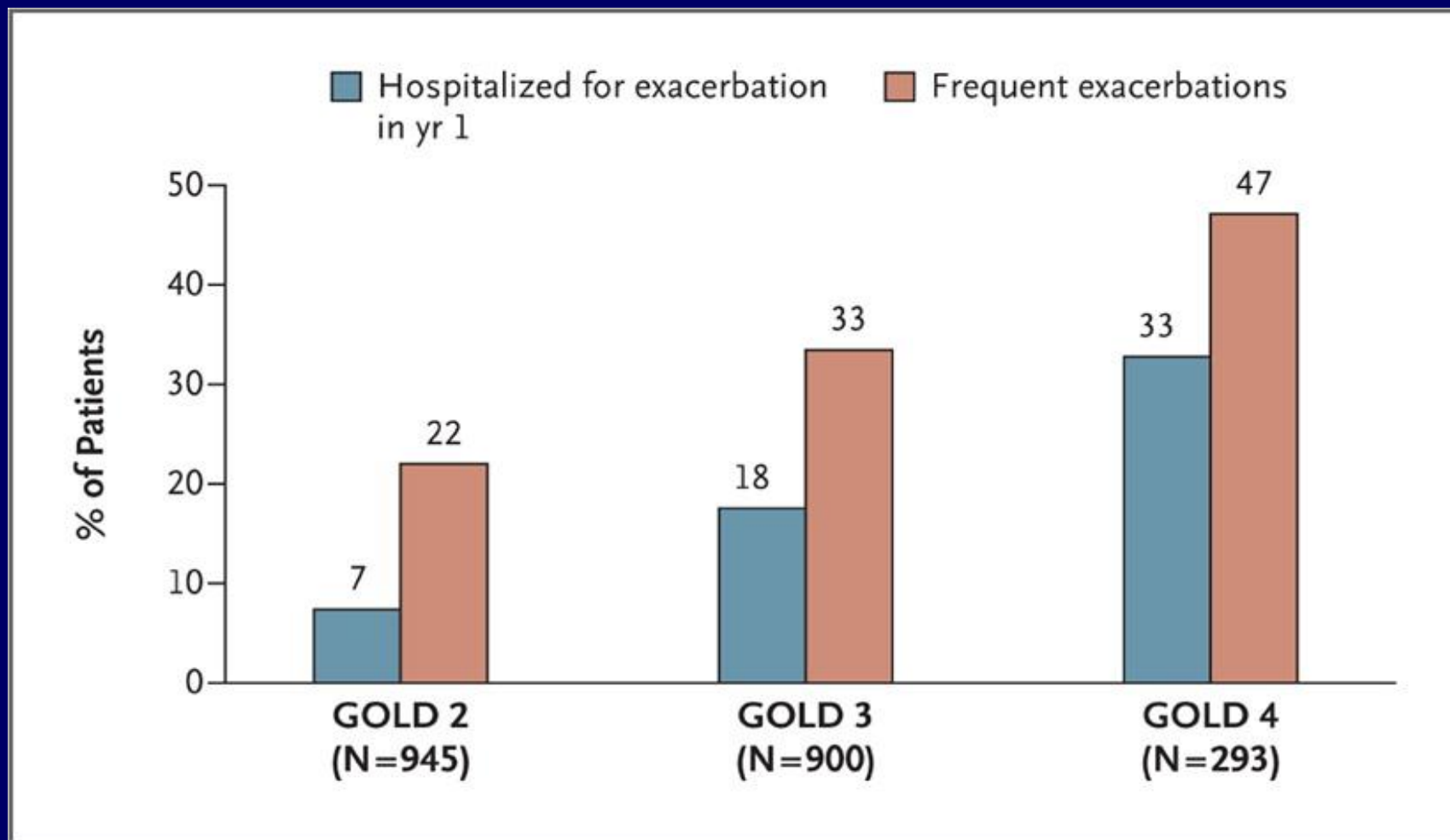
## Key Points

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An exacerbation of COPD is defined as:

“An event in the natural course of the disease characterized by a change in the patient’s baseline dyspnea, 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.”

## Association of Disease Severity with the Frequency and Severity of Exacerbations during the First Year of Follow-up in Patients with Chronic Obstructive Pulmonary Disease.

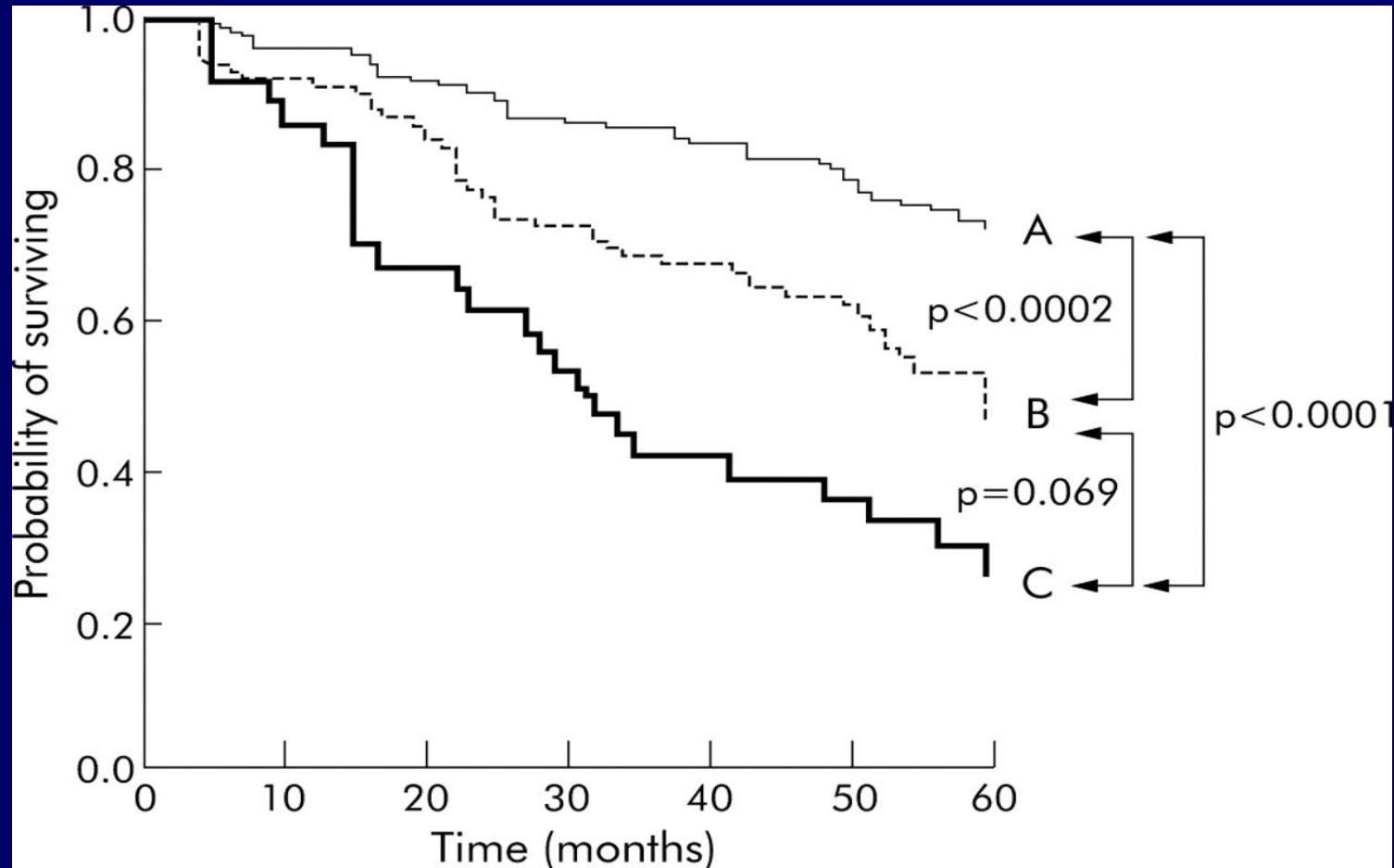


Hurst JR et al. N Engl J Med 2010;363:1128-1138.



The NEW ENGLAND  
JOURNAL of MEDICINE

**Kaplan-Meier survival curves by frequency of exacerbations in patients with COPD: group A, patients with no acute exacerbations of COPD; group B, patients with 1–2 acute exacerbations of COPD requiring hospital management; group C, patients with  $\geq 3$  acute exacerbations of COPD.**



Soler-Cataluña J J et al. *Thorax* 2005;60:925-931

# Management COPD Exacerbations

## Key Points

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- The most common causes of an exacerbation are infection of the tracheobronchial tree and air pollution, but the cause of about one-third of severe exacerbations cannot be identified (**Evidence B**).
- Patients experiencing COPD exacerbations with clinical signs of airway infection (e.g., increased sputum purulence) may benefit from antibiotic treatment (**Evidence B**).



## Management of Stable COPD

# All Stages of Disease Severity

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### □ Avoidance of risk factors

- smoking cessation

- reduction of indoor pollution

- reduction of occupational exposure

### □ Influenza vaccination

# Therapy at Each Stage of COPD

I: Mild

II: Moderate

III: Severe

IV: Very Severe

- $FEV_1/FVC < 70\%$
- $FEV_1 \geq 80\%$

- $FEV_1/FVC < 70\%$
- $50\% \leq FEV_1 < 80\%$  predicted

- $FEV_1/FVC < 70\%$
- $30\% \leq FEV_1 < 50\%$  predicted

- $FEV_1/FVC < 70\%$
- $FEV_1 < 30\%$  predicted  
or  $FEV_1 < 50\%$  predicted plus chronic respiratory failure

Active reduction of risk factor(s); influenza vaccination

**Add** short-acting bronchodilator (when needed)

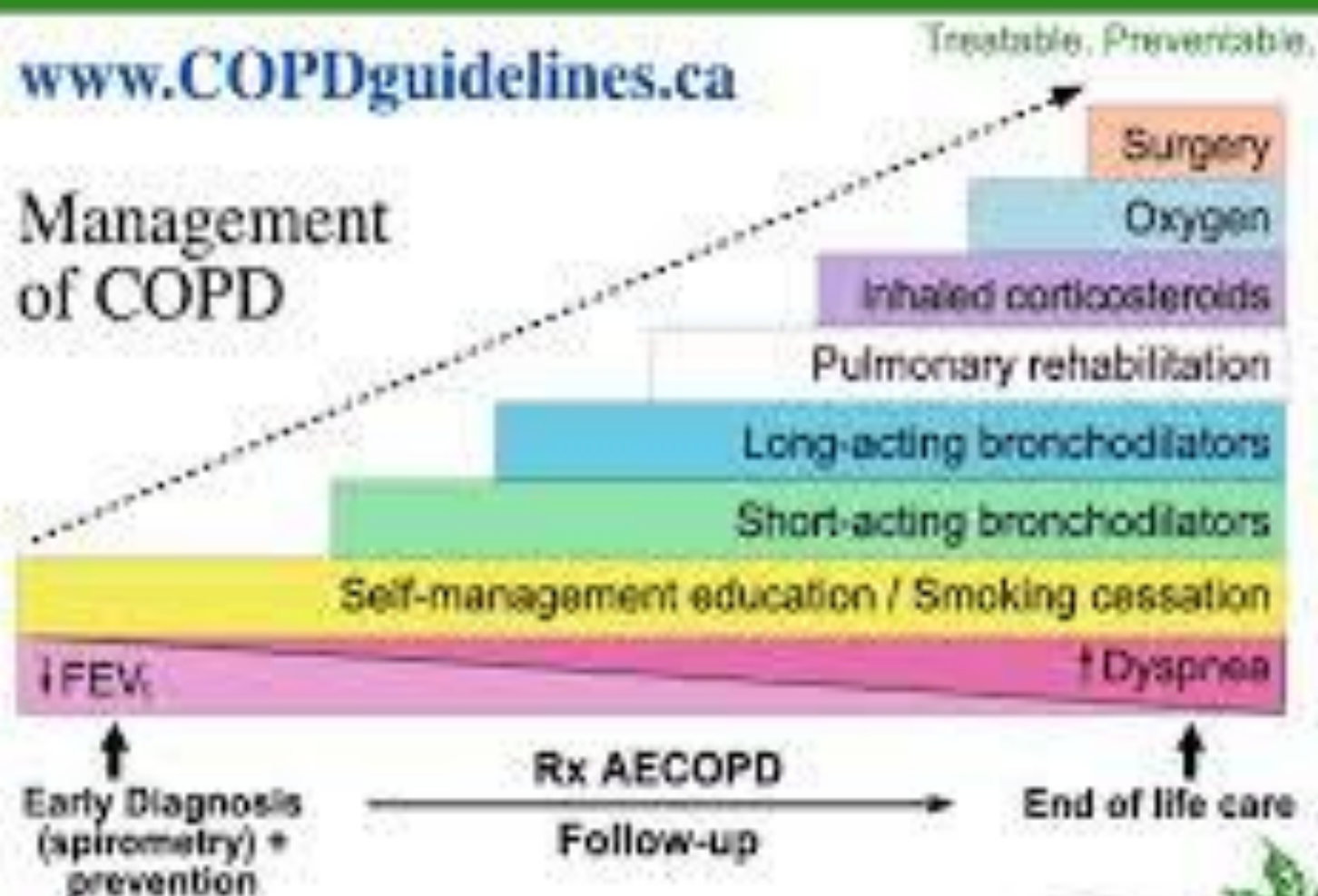
**Add** regular treatment with one or more long-acting bronchodilators (when needed); **Add** rehabilitation

**Add** inhaled glucocorticosteroids if repeated exacerbations


**Add** long term oxygen if chronic respiratory failure.  
**Consider** surgical treatments

[www.COPDguidelines.ca](http://www.COPDguidelines.ca)

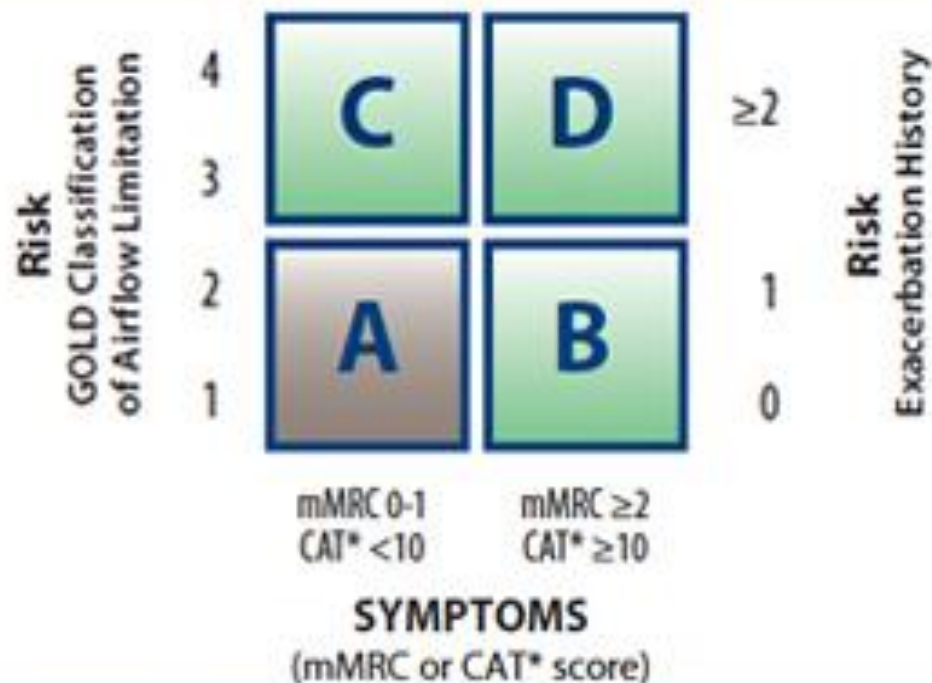
## Management of COPD



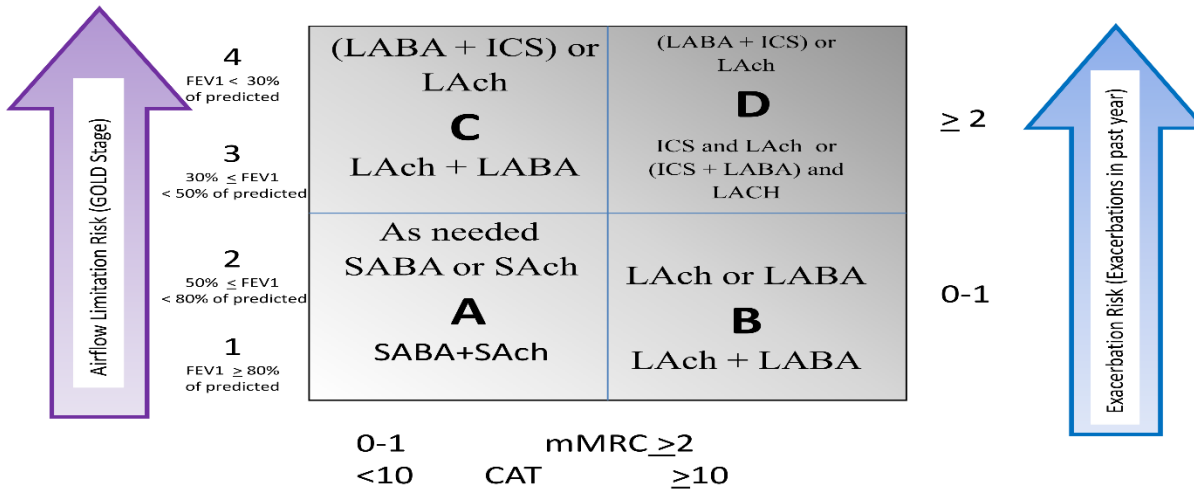
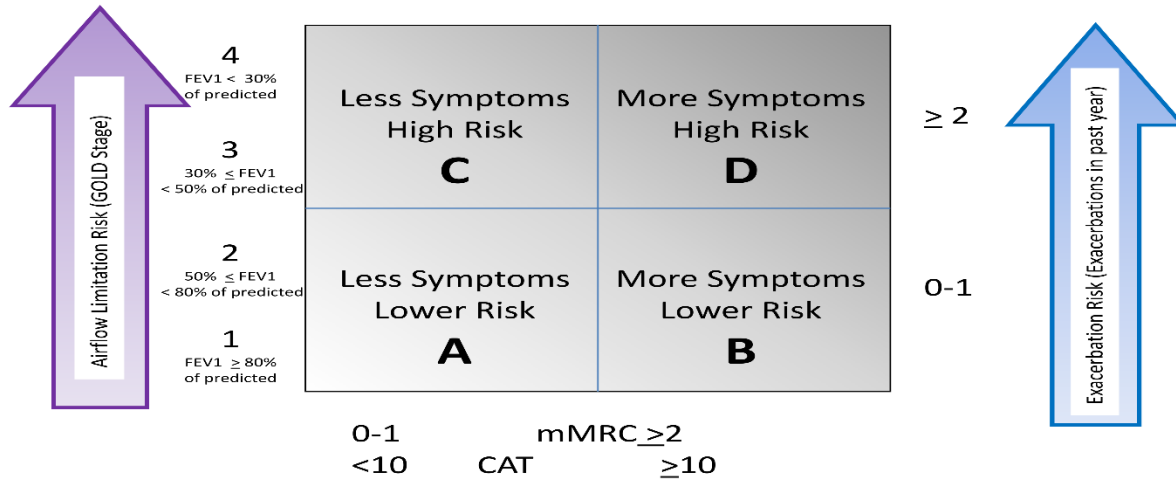
THE  LUNG ASSOCIATION\*  
L'ASSOCIATION PULMONAIRE

  
Canadian Thoracic Society  
Société canadienne de pneumologie  
1-877-467-4672 [www.cst.ca](http://www.cst.ca)

## Patient classification<sup>1</sup>



	Spirometric classification	Exacerbations per year	mMRC	CAT*
GROUP A: low risk, less symptoms	GOLD 1-2	≤1	0-1	<10
GROUP B: low risk, more symptoms	GOLD 1-2	≤1	≥2	≥10
GROUP C: high risk, less symptoms	GOLD 3-4	≥2	0-1	<10
GROUP D: high risk, more symptoms	GOLD 3-4	≥2	≥2	≥10



# Manage Stable COPD: Pharmacologic Therapy

Patient	First choice	Second choice	Alternative Choices
A	SAMA prn <i>or</i> SABA prn	LAMA <i>or</i> LABA <i>or</i> SABA and SAMA	Theophylline
B	LAMA <i>or</i> LABA	LAMA and LABA	SABA <i>and/or</i> SAMA Theophylline
C	ICS +LABA <i>or</i> LAMA	LAMA and LABA	PDE4-inh. SABA <i>and/or</i> SAMA Theophylline
D	ICS + LABA <i>or</i> LAMA	ICS and LAMA <i>or</i> ICS + LABA and LAMA <i>or</i> ICS+LABA and PDE4-inh. <i>or</i> LAMA and LABA <i>or</i> LAMA and PDE4-inh.	Carbocysteine SABA <i>and/or</i> SAMA Theophylline

# Βασικοί συνδιασμοί φαινοτύπων της ΧΑΠ

# ΒΑΣΙΚΟΙ ΣΥΝΔΙΑΣΜΟΙ ΦΑΙΝΟΤΥΠΩΝ ΤΗΣ ΧΑΠ

**ΟΜΑΔΑ Α= ΧΡΟΝΙΑ ΒΡΟΓΧΙΤΙΔΑ,  
ΦΛΕΓΜΟΝΩΔΗΣ  
ΣΥΧΝΕΣ ΠΑΡΟΞΥΝΣΕΙΣ  
ΣΥΣΤΗΜΑΤΙΚΕΣ ΕΚΔΗΛΩΔΕΙΣ/ ΣΥΝ ΝΟΣΗΡΟΤΗΤΕΣ**

**ΟΜΑΔΑ Β= ΕΜΦΥΣΗΜΑ,  
ΤΑΧΕΙΑ ΜΕΙΩΣΗ FEV1  
ΣΗΜΑΝΤΙΚΗ ΥΠΕΡΔΙΑΤΑΣΗ  
+/- ΠΑΡΟΞΥΝΣΕΙΣ**





# ΘΕΡΑΠΕΙΑ ΒΑΣΗ ΤΩΝ ΦΑΙΝΟΤΥΠΩΝ

**ΟΜΑΔΑ Α = ICS, LAMA, LABA ,  
PDE4 INHIBITORS**

**ΟΜΑΔΑ Β = LABA + LAMA**

# Management of Stable COPD

## Other Pharmacologic Treatments

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- **Antibiotics:** Only used to treat infectious exacerbations of COPD
- **Antioxidant agents:** No effect of n-acetylcysteine on frequency of exacerbations, except in patients *not* treated with inhaled glucocorticosteroids
- **Mucolytic agents, Antitussives, Vasodilators:** Not recommended in stable COPD

## KEY POINTS

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- Spirometric confirmation is a key component of the diagnosis of COPD and primary care practitioners should have access to high quality spirometry.
- Σπιρομερτηση απαραίτητη για τη διάγνωση
- Θα πρέπει να επαναλαμβάνεται τουλάχιστον μια φορά το χρόνο



Η ΧΑΠ ΔΕΝ ΕΊΝΑΙ ΠΟΤΕ  
ΜΟΝΗ



**ΣΕ ΑΡΡΩΣΤΟΥΣ**

**ΜΕ ΥΠΕΡΤΑΣΗ, ΔΙΑΒΗΤΗ, ΣΤΗΘΑΓΧΗ**

**ΟΣΤΕΟΠΟΡΩΣΗ, ΚΑΤΑΘΛΙΨΗ,**

**ΑΝΩ ΤΩΝ 40 ΕΤΩΝ ΚΑΠΝΙΣΤΕΣ**

**ΠΡΕΠΕΙ ΝΑ ΥΠΟΨΙΑΣΤΟΥΜΕ Κ ΧΑΠ Κ**

**ΝΑ ΤΟΥΣ**

**ΣΤΕΙΛΟΥΜΕ ΓΙΑ ΣΠΙΡΟΜΕΤΡΗΣΗ**

# ΣΥΜΠΕΡΑΣΜΑΤΑ

- Η ΧΑΠ είναι μια πολύ συχνή ΧΡΟΝΙΑ νόσος με μεγάλη θνητότητα κ μεγάλο οικονομικό κόστος
- Μπορεί να προληφθεί κ να θεραπευτεί
- Παρουσιάζει σημαντικές συννοσηρότητες
- Οι παροξύνσεις βάζουν σε κίνδυνο τη ζωή των ασθενών
- Η θεραπεία της είναι μακροχρόνια



# GOLD Website Address

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<http://www.goldcopd.org>







# Ο ρόλος του παθολόγου στην ανίχνευση της ΧΑΠ

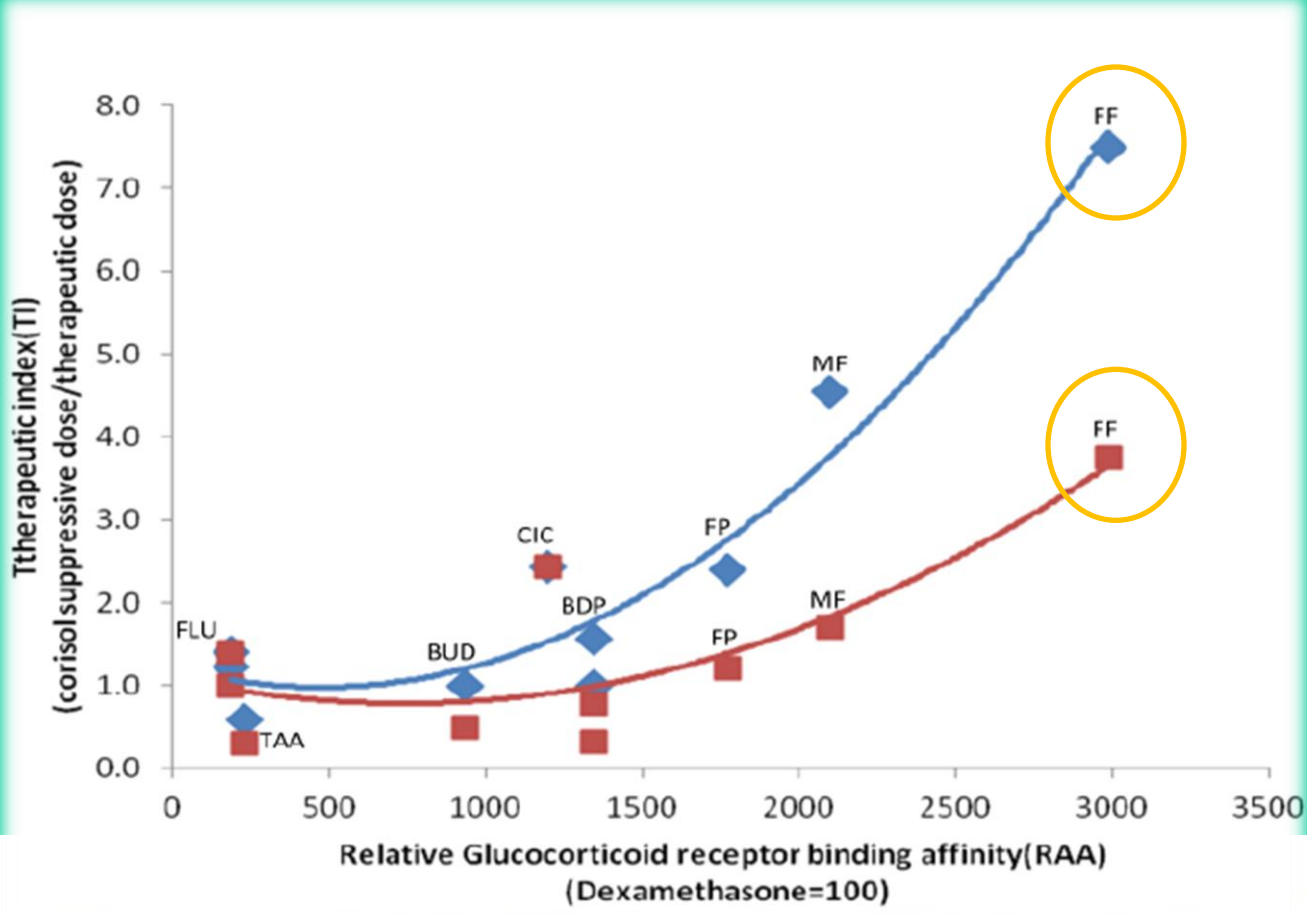
**ΣΕ ΑΡΡΩΣΤΟΥΣ ΜΕ ΥΠΕΡΤΑΣΗ,  
ΣΑΚ.ΔΙΑΒΗΤΗ, ΟΣΤΕΟΠΩΡΩΣΗ, ΣΤΗΘΑΓΧΗ  
,ΚΑΡΔΙΑΚΗ ΑΝΕΠΑΡΚΕΙΑ, ΑΡΡΥΘΜΙΕΣ Κ.  
ΙΣΤΟΡΙΚΟ ΚΑΠΝΙΣΜΑΤΟΣ ΣΚΕΨΟΥ ΤΗΝ ΧΑΠ  
Κ ΖΗΤΗΣΕ ΜΙΑ ΣΠΙΡΟΜΕΤΡΗΣΗ.**





# Φουροϊκή Φλουτικαζόνη: Υψηλός θεραπευτικός δείκτης

Η **FF** συνδυάζει και στην μικρή και στη μεγάλη δόση τον υψηλότερο θεραπευτικό δείκτη και τη μεγαλύτερη συνγένεια με τον GR υποδοχέα





- FF: fluticasone furoate
- MF: mometasone furoate
- FP: fluticasone propionate
- CIC: ciclesonide
- BUD: budesonide
- BDP: beclomethasone dipropionate
- TAA: triamcinolone acetonide
- FLU: flunisolide



# Σύγκριση του Relvar με το Τιοτρόπιο για την ασφάλεια και αποτελεσματικότητα σε ασθενείς με μέτρια και σοβαρή ΧΑΠ και υψηλό καρδιαγγειακό κίνδυνο\*

Table 4 Adverse events<sup>a</sup>

	 <b>FF/VI</b> (n=310)	 <b>TIO</b> (n=313)
<b>AEs during treatment, n (%)</b>		
Any AE during treatment	113 (36)	99 (32)
Drug-related AE	21 (7)	12 (4)
AE leading to withdrawal <sup>b</sup>		14 (4)
Serious AEs		10 (3)
Fatal AEs		2 (<1)
<b>Most frequent AEs, n (%)</b>		
Headache	18 (6)	23 (7)
Nasopharyngitis	16 (5)	13 (4)
Back pain	9 (3)	9 (3)
Oral candidiasis	9 (3)	5 (2)
<b>AEs of special interest, n (%)</b>		
Cardiovascular effects	13 (4)	15 (5)
Local steroid effects/candidiasis	17 (5)	11 (4)
Hypersensitivity	5 (2)	4 (1)
LRTI excluding pneumonia	3 (<1)	4 (1)
Bone disorders/fractures	3 (<1)	1 (<1)
Pneumonia	3 (<1)	0
Ocular effects/glaucoma	0	1 (<1)

**no apparent effects of FF/VI or TIO treatment on the CV safety profile**

...safety measures were similar between groups, and cardiovascular monitoring did not reveal increased CVD risk.

...More TIO-treated than FF/VI-treated subjects were withdrawn from the study due to AEs. Two TIO-treated subjects died (one due to cardiopulmonary arrest and the other due to cardiorespiratory arrest and cardiac failure).

**Notes:** <sup>a</sup>Number of subjects reporting an event (not number of events); <sup>b</sup>any AE leading to permanent withdrawal from the study or withdrawal of study drug; <sup>c</sup>AEs reported in  $\geq 3\%$  of subjects in either treatment group; <sup>d</sup>prespecified AEs of special interest with corticosteroid and LABA treatment.

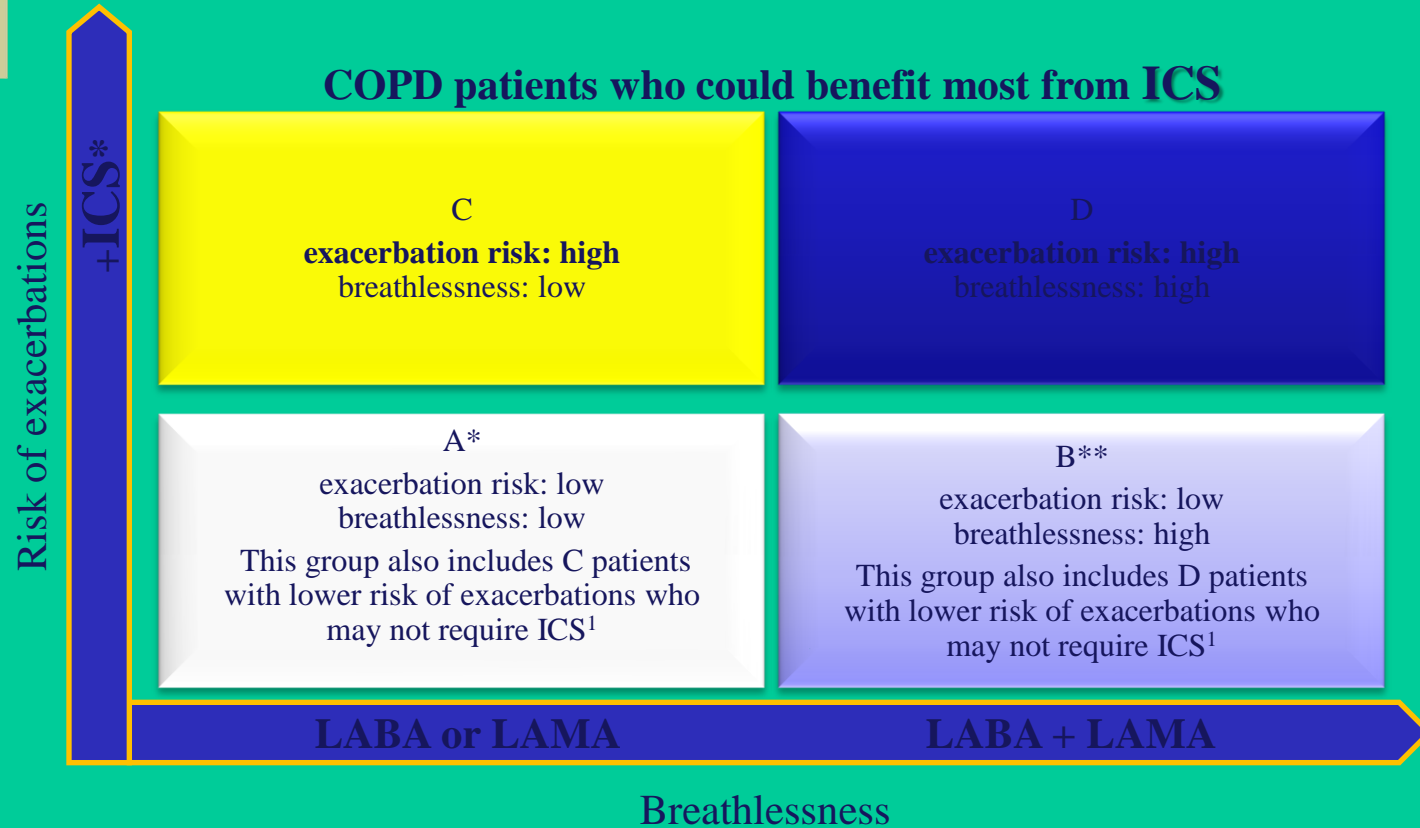
**Abbreviations:** AE, adverse event; FF/VI, fluticasone furoate/vilanterol (100/25 mcg); LRTI, lower respiratory tract infection; TIO, tiotropium (18 mcg).

A randomized, blinded, double-dummy, parallel-group study compared a once-daily morning dose of FF/VI 100/25 mcg delivered via ELLIPTA™ with TIO 18 mcg via HandiHaler® for 12 weeks in subjects with diagnosed COPD, forced expiratory volume in 1 second (FEV1) 30%–70% predicted, and CVD or CVD risk. The primary endpoint was change from baseline in 24-hour weighted mean FEV1 on Day 84.

\*This study included an off-label population



# Εξατομικευμένη διαχείριση των ασθενών με ΧΑΠ



Adapted from Agusti A & Fabbri L. *Lancet Resp Med*. 2014 based on GOLD patient categories.

- \*Consider adding roflumilast, azithromycin, theophylline, or antioxidants if COPD is uncontrolled with ICS<sup>1</sup>.
- 1. Agusti A & Fabbri L. *Lancet Resp Med*. 2014;2:869-871. 2. Global Initiative for Chronic Obstructive Lung Disease. Global Strategy for the Diagnosis, Management and Prevention of Chronic Obstructive Pulmonary Disease (Updated 2015). [http://www.goldcopd.org/uploads/users/files/GOLD\\_Report\\_2015\\_Sept2.pdf](http://www.goldcopd.org/uploads/users/files/GOLD_Report_2015_Sept2.pdf) (Accessed 03/12/2015).



# Phenotype: Males/Females

**FEMALES** → younger

less smoking history

less comorbidity scores

less responsive to long-term exercise therapy

lower scores in quality of life questionnaires

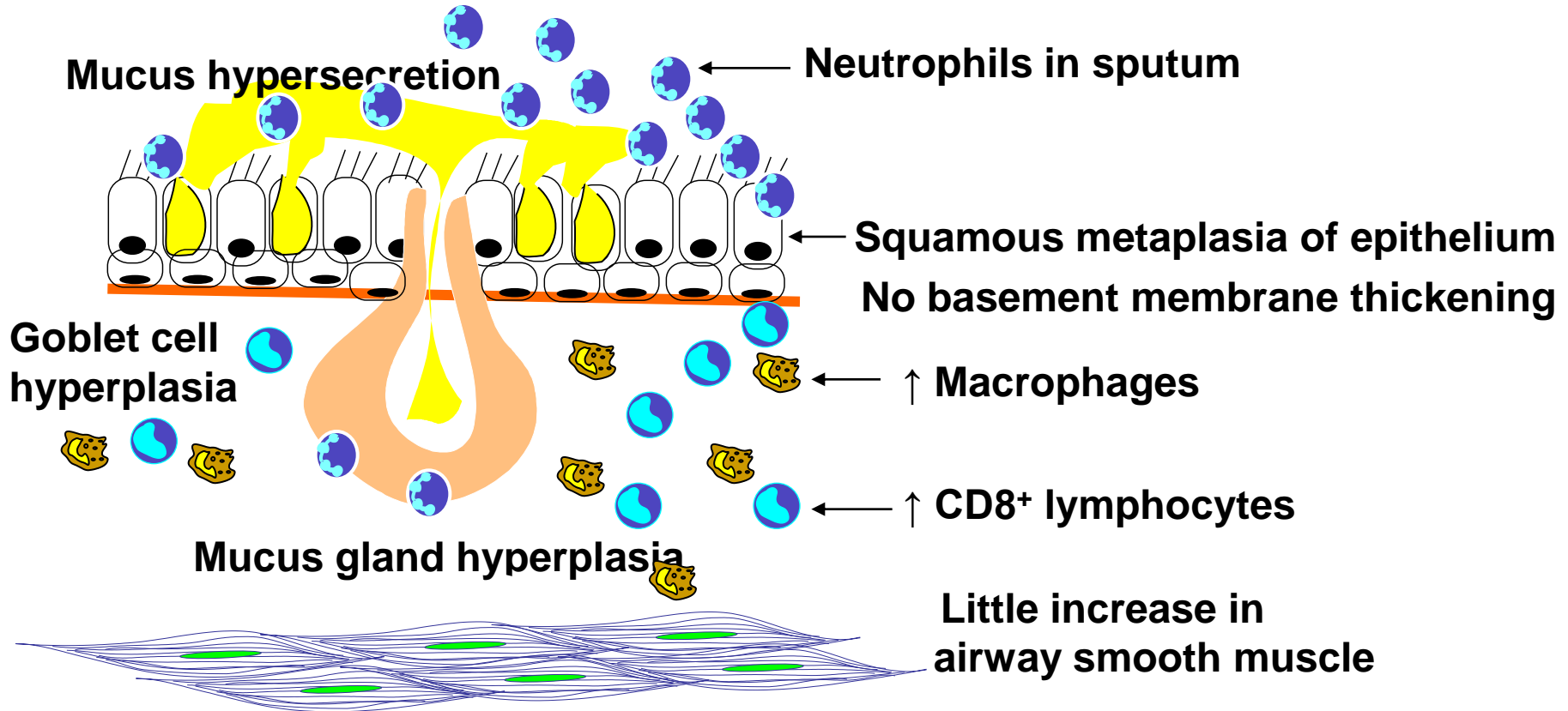
more reactive airways, more exacerbations

more dyspnea for the same degree of airflow

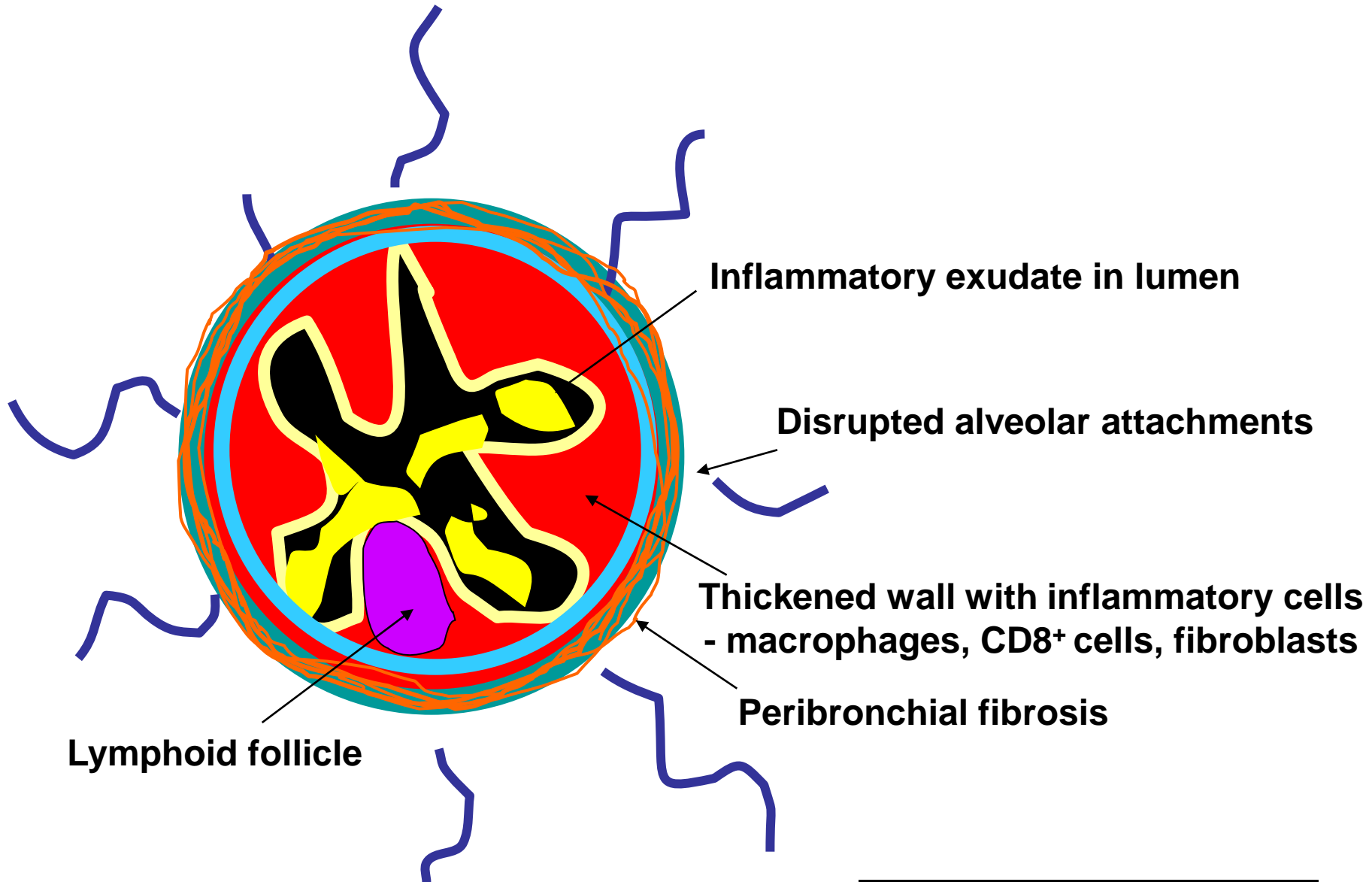
limitation

*de Torres et al. Chest 2005; 128:20012-6*

# Changes in Large Airways of COPD Patients



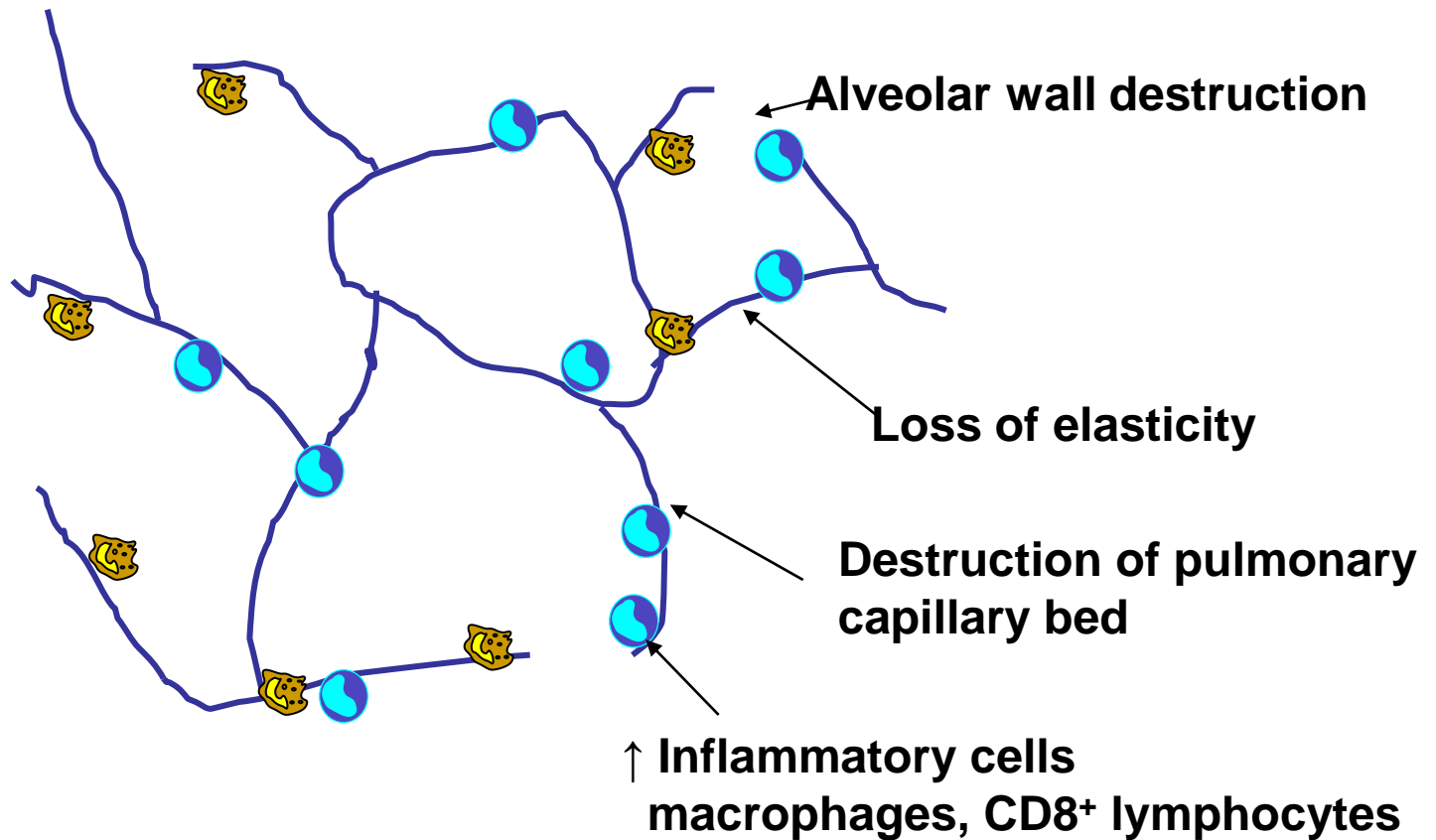
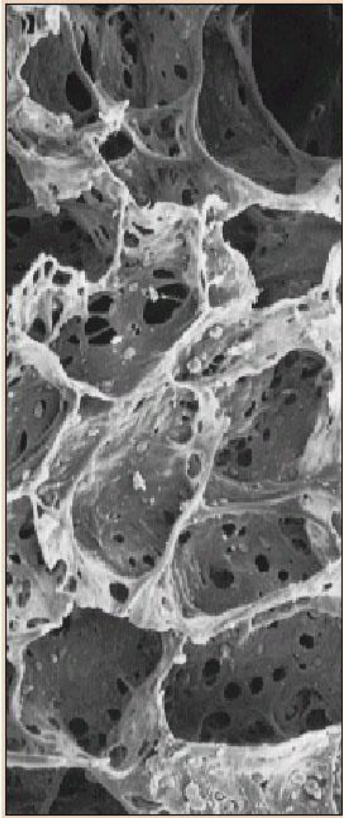
# Changes in Small Airways in COPD Patients



**Source:** Peter J. Barnes, MD



# Changes in the Lung Parenchyma in COPD Patients

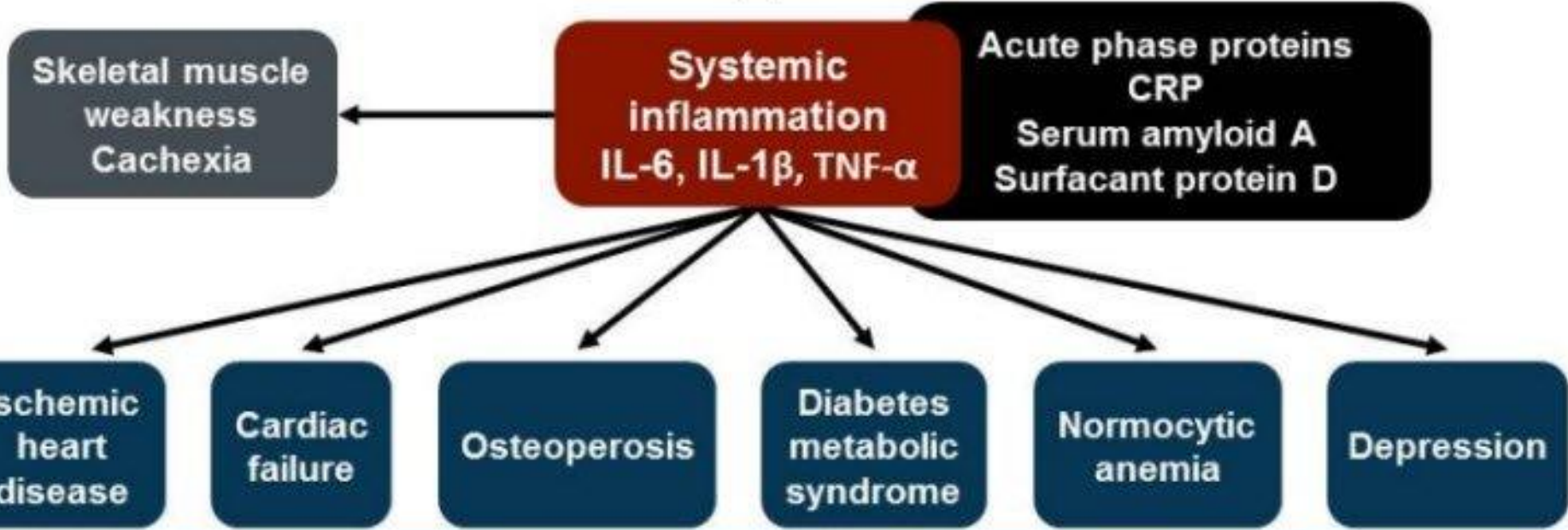
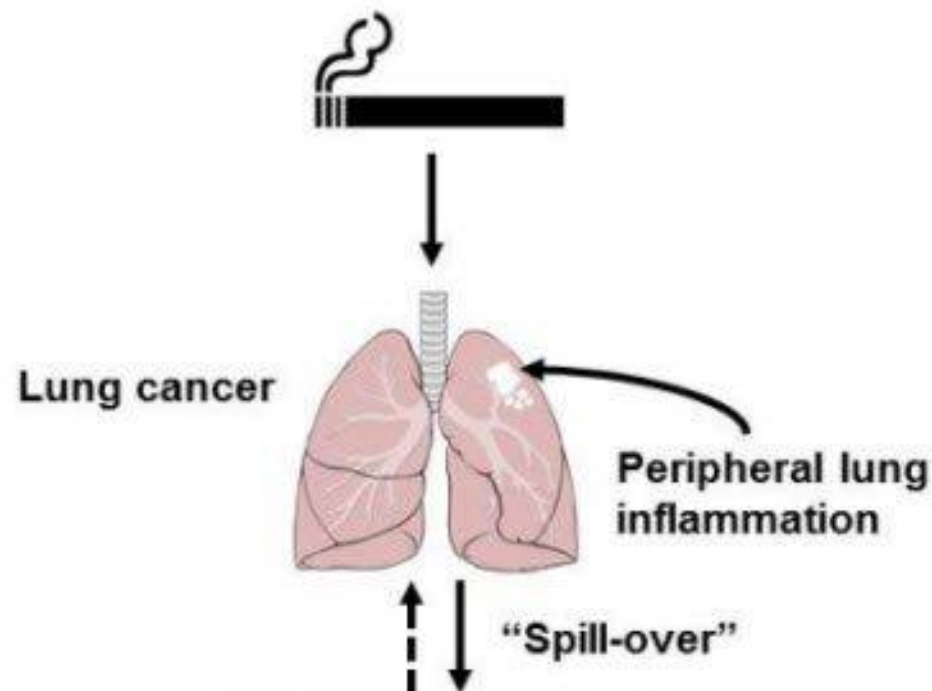


**Source: Peter J. Barnes, MD**

# Increased Oxidative stress in COPD

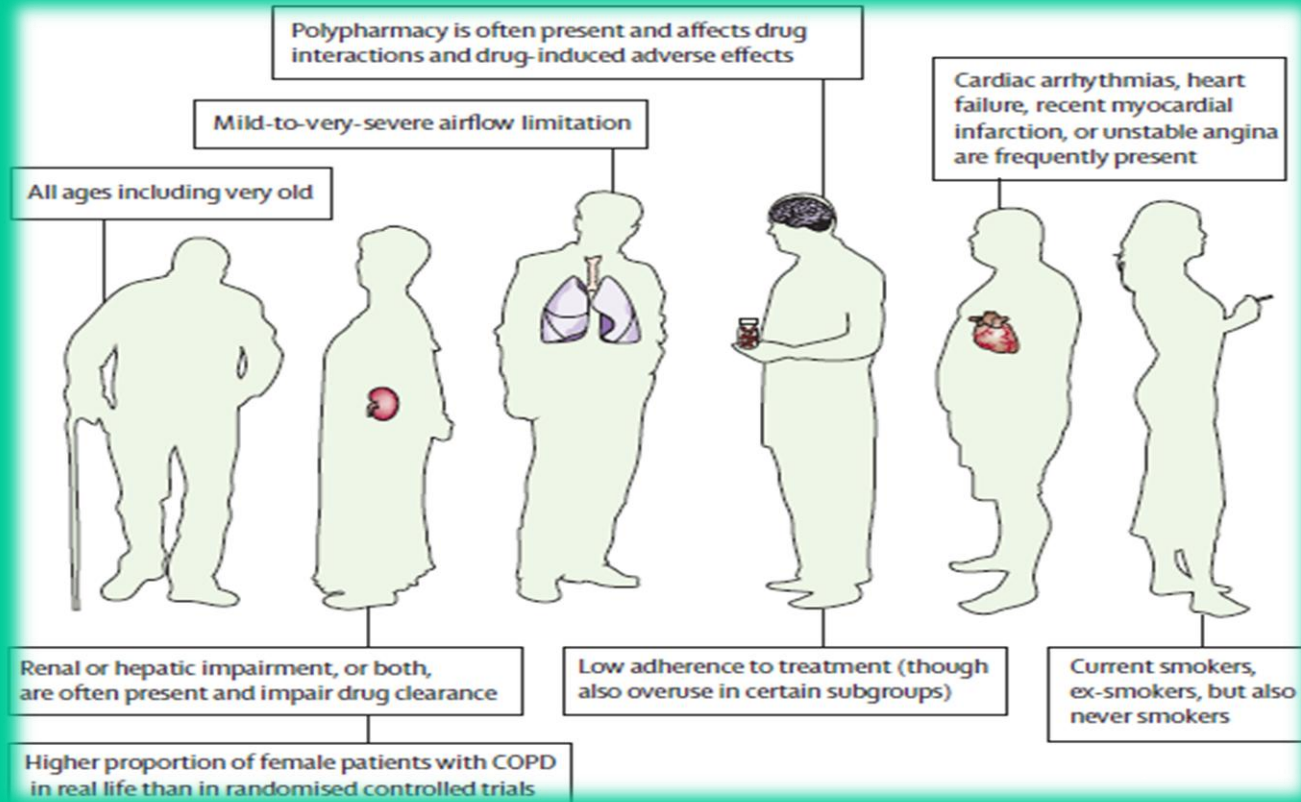
- Cigarette smoke contains an estimated 1017 oxidants/free radicals and 4,700 chemical compounds, including that can generate hydroxyl radicals (-OH) and hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>).
- Cigarette smoke also recruits immune and inflammatory cells to the lungs, which on activation release more oxidants causing an oxidant/antioxidant imbalance .







# Οι θέσεις ομοφωνίας (GOLD) για τη σημασία των συνοδών νοσημάτων στη ΧΑΠ



*“COPD occurs together with concomitant chronic diseases (including cardiovascular diseases), which contribute to the severity and prognosis of COPD.”*

GOLD 2015





# Classification of COPD Severity by Spirometry

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Stage I: Mild

$FEV_1/FVC < 0.70$

$FEV_1 \geq 80\%$  predicted

Stage II: Moderate

$FEV_1/FVC < 0.70$

$50\% \leq FEV_1 < 80\%$  predicted

Stage III: Severe

$FEV_1/FVC < 0.70$

$30\% \leq FEV_1 < 50\%$  predicted

Stage IV: Very Severe

$FEV_1/FVC < 0.70$

$FEV_1 < 30\%$  predicted *or*

$FEV_1 < 50\%$  predicted *plus*

chronic respiratory failure

EDITORIALS



## Preventing Exacerbations of COPD — Advice from Hippocrates

Nikolaos M. Siafakas, M.D., Ph.D.

Severe acute exacerbations of chronic obstructive pulmonary disease (COPD) are devastating, life-threatening events; the 30-day mortality is greater than that with acute myocardial infarction (26% vs. 7.8%).<sup>1,2</sup> Acute exacerbations of COPD dramatically change the course of the disease, since they are associated with a rapid decline in lung function and worsening quality of life.<sup>3</sup> They also represent a substantial economic burden to society.<sup>3</sup> Prevention of exacerbations remains a primary goal of management<sup>3</sup> but is difficult because the cause of acute exacerbations of COPD remains largely unknown.<sup>4</sup>

Recent studies have shown that, when used

proximately 5% in the patients receiving azithromycin. More important, there was an increased prevalence of macrolide-resistant bacteria colonizing the airway, although this was not associated with an increased incidence of pneumonia, a finding that is in agreement with previous reports involving fewer patients.<sup>7,8</sup>

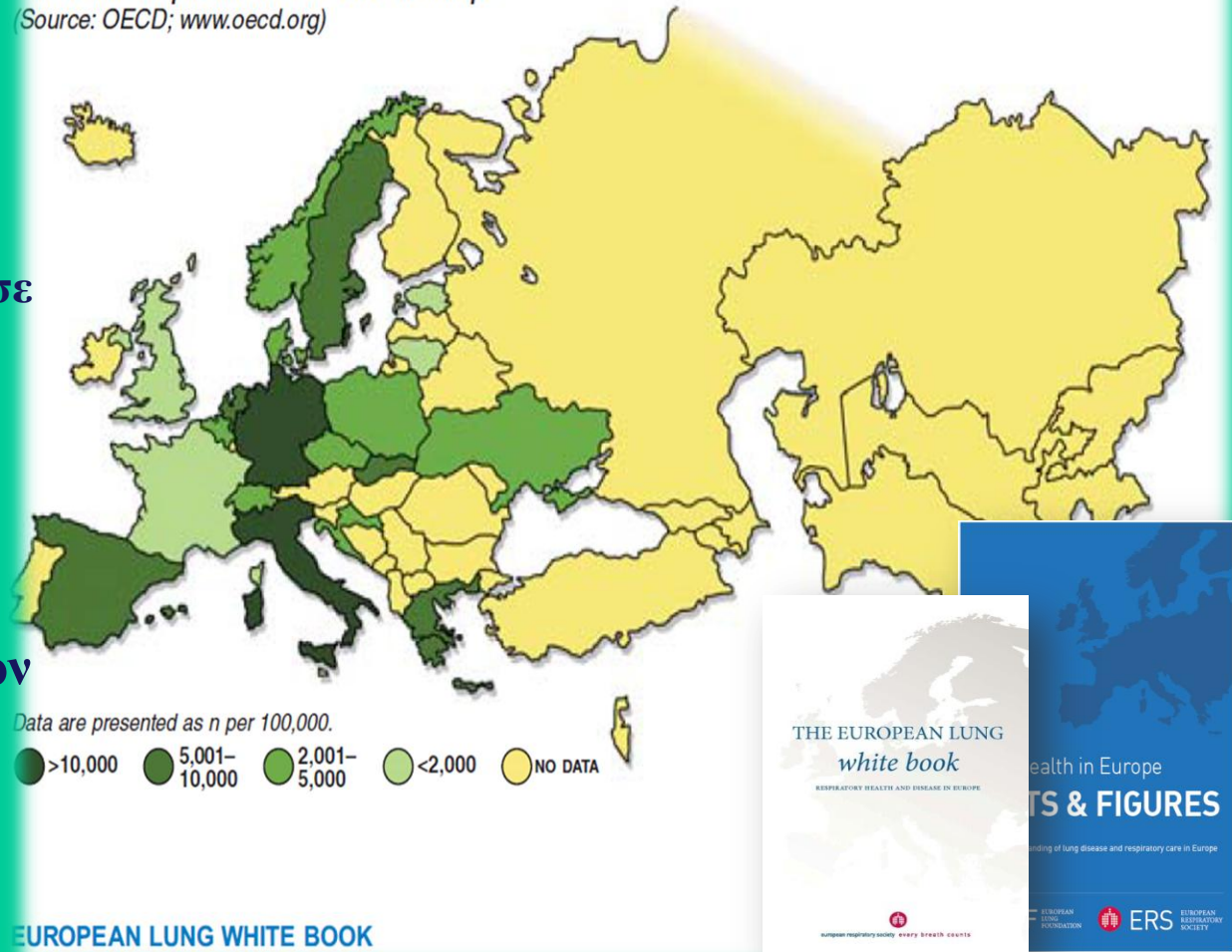
However, the risk of microbial resistance associated with the long-term use of azithromycin in patients with COPD must be considered as part of the risk-benefit ratio of this treatment. Although the effect on microbial resistance in the community is still unknown, the study by Albert et al. showed that among patients who



# Ο επιπολασμός στη ΧΑΠ

- ✓ **5–10%**  
των ενηλίκων **40 ετών**  
παρουσιάζει  
**ΧΑΠ.**
- ✓ **Υψηλότερο επιπολασμό**  
παρουσιάζουν οι **άνδρες σε**  
**σχέση**  
με τις γυναίκες.  
♂ ♀
- ✓ **Το 40-50%**  
των δια βίου καπνιστών  
θα παρουσιάσουν  
**ΧΑΠ**  
στη **ζωή τους.**

Latest data on prevalence of COPD in Europe  
(Source: OECD; www.oecd.org)





# COPD Phenotypes

- **Chronic Bronchitis (Blue bloater)**
- **Emphysema (Pink puffer)**
- **A1-antitrypsin deficiency**
- **Frequent exacerbators**
- **Patients with or without systemic involvement**
- **COPD with or without comorbidities**
- **Significant hyperinflation**
- **Fast decliner (FEV1)**
- **ACOS**
- **Current smoker**



