Institut Català de la Salut

Generalitat de Catalunya
Departament de Salut

Vall d'Hebron
Hospital

Què causa les bronquièctasis a la MPOC?

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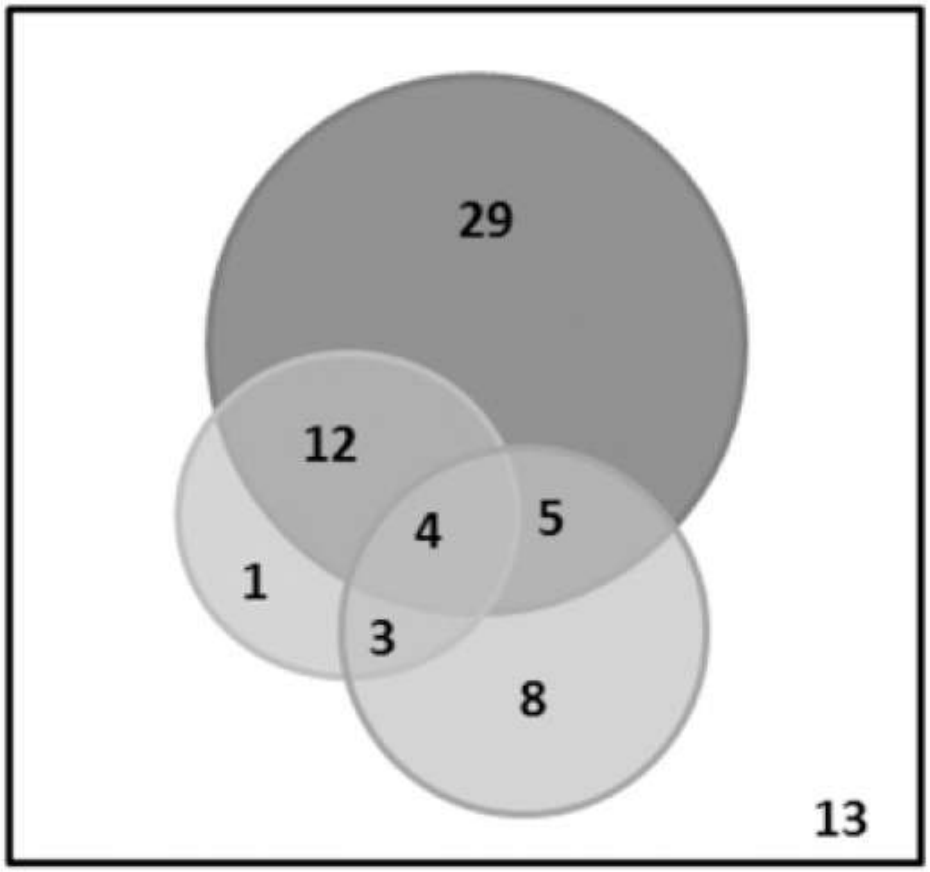
Bronquiectasias en EPOC

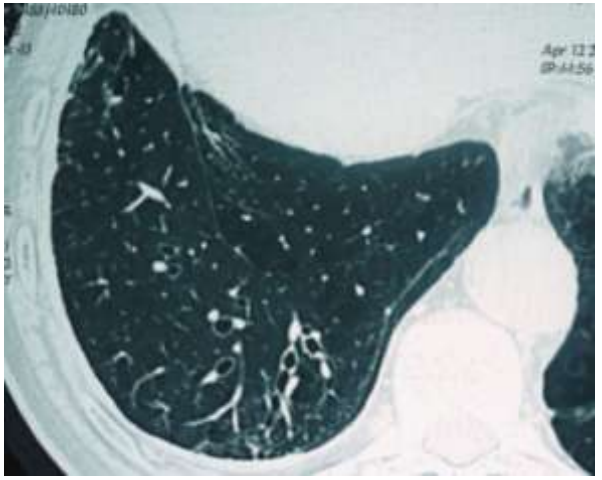


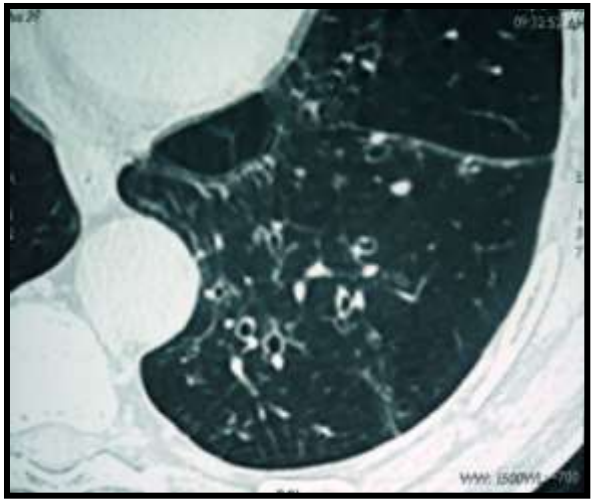
EM	Emphysema
BE	Bronchiectasis
BWT	Bronchial wall thickening

Bafadhel et al. Chest 2011;140:634-642

COPD-bronchiectasis

Patients with bronchiectasis n (%)	53 (57.6%)
Type, n (%) [+]	
-Cilindrical	48 (90.6%)
-Cystic	10 (18.9%)
Location, n (%)	
-Only upper lobes	6 (11.3%)
-Only lower lobes	32 (60.4%)
-Only lingula or middle lobule	15 (28.3%)
-Only right	7 (13.2%)
-Only left	5 (9.4%)
-Bilateral	41 (77.4%)
-Central bronchiectasis	2 (3.8%)
Extension, n (%)	
-Localized (only 1 lobule)	8 (15.1%)
-Disseminated (4 or more lobules)	10 (18.9%)
-Nº affected lobules, mean (SD)	2.1 (2.2)
-Nº affected segments, mean (SD)	3.8 (4.6)





Martínez-García et al. Chest 2011;140:1130-37

Bronchiectasis in COPD in Primary Care

Table 4 HRCT appearances in 108 patients separated by degree of impairment of FEV_1

	Impairment of FEV_1			
	None (n=32)	*Mild (n=19)*	*Moderate (n=36)*	*Severe (n=21)*
Normal	15	9	10	5
Emphysema				
Limited*	11	7	16	6
Extensive*	1	1	7	5
Bronchiectasis				
Tubular*	9	4	7	2
Cystic/varicose	2	0	1	6
Emphysema and bronchiectasis	6	2	5	3

40%

*Lung function not available for one patient.

O'Brien et al. Thorax 2000; 55: 635-642

Bronchiectasis in COPD

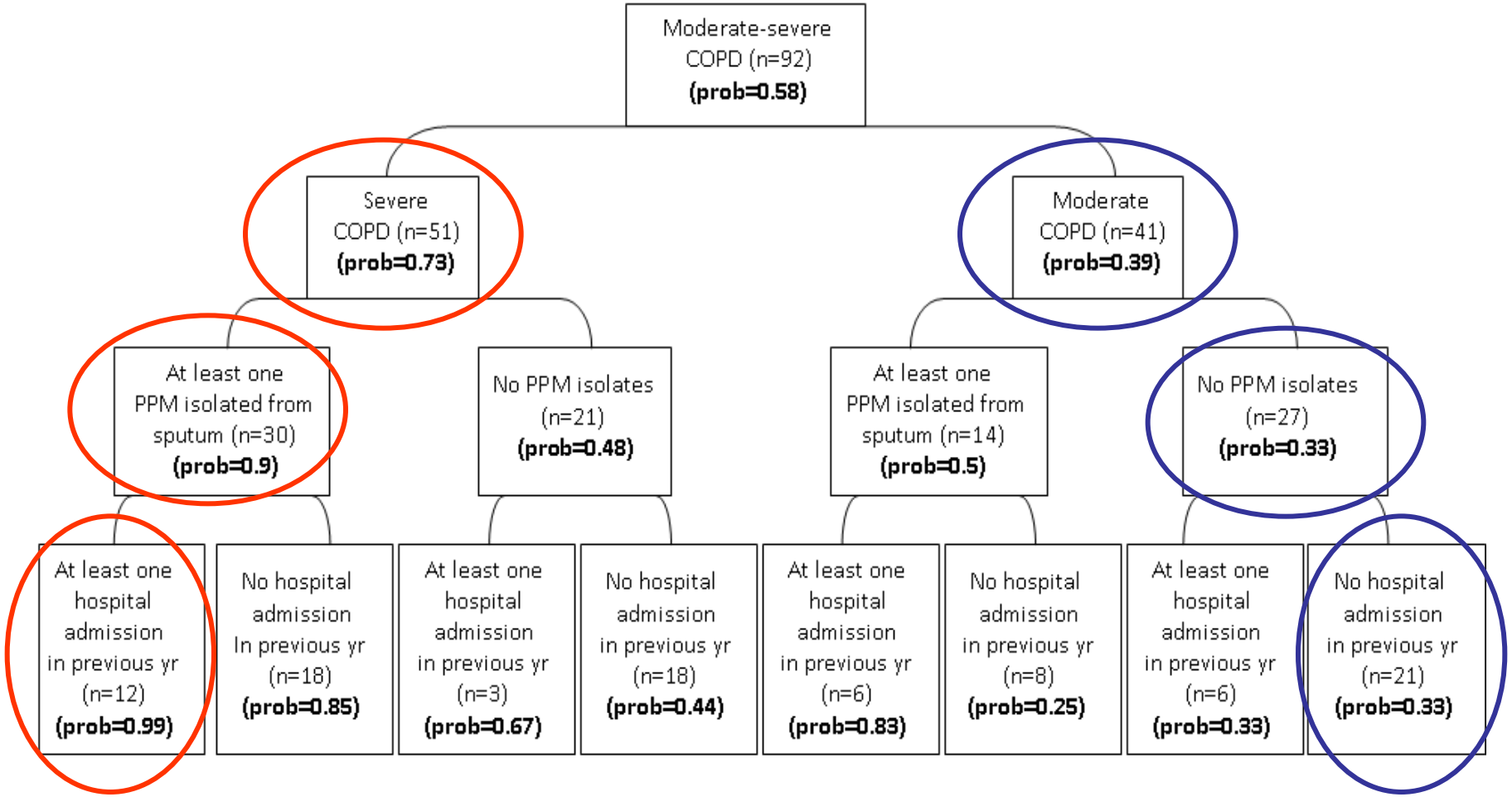
Parameter	LL BC No	LL BC Yes	p
Sputum IL-8 stable state	3.6 (1.9-4.6)	4.6 (3.2-5.8)	0.001
Sputum IL-6 stable state	62.6 (13-178)	96.2 (19-219)	0.03
Time to recovery after exacerbation, days	10	12	0.001

COPD (n=54), mean FEV1= 0.97 l.
Frequency of bronchiectasis 50% in LL 33%

Patel et al. AJRCCM 2004; 170: 400-407

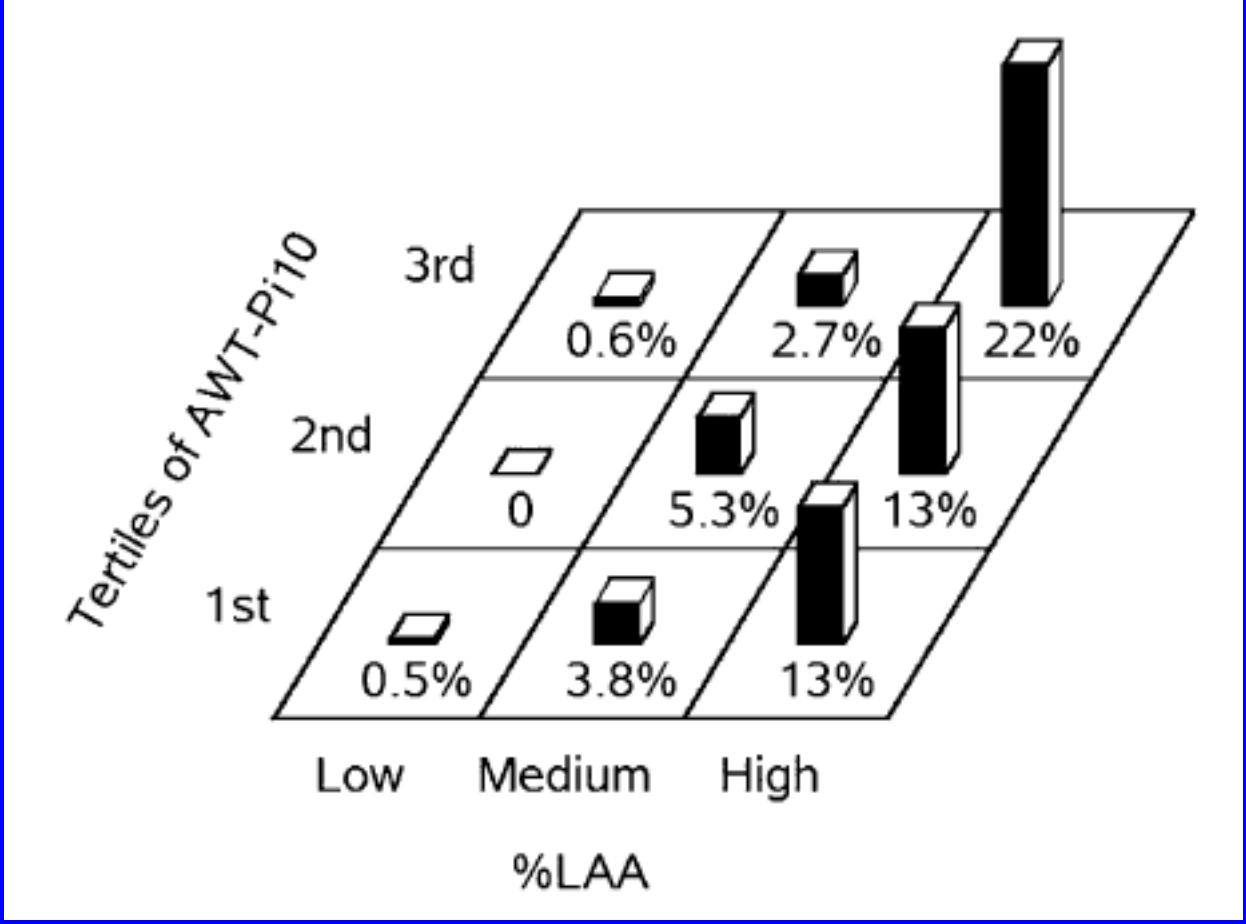
COPD-bronchiectasis

Prevalence (pretest probability) of having bronchiectasis according to the characteristics of COPD



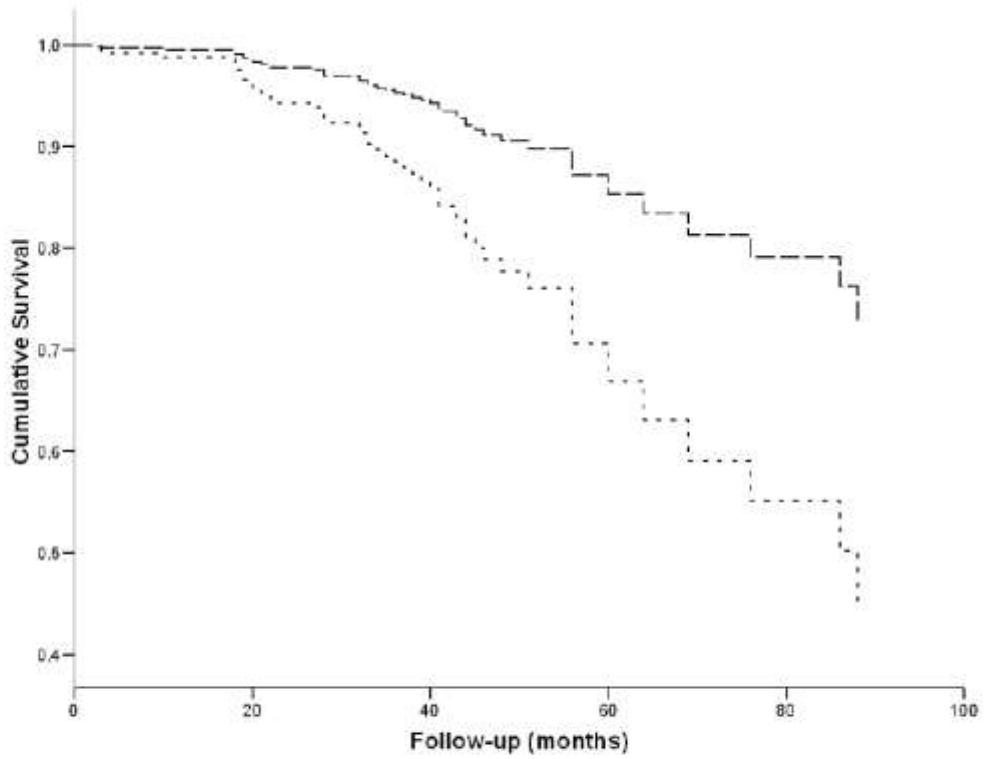
Martínez-García et al. Chest 2011;140:1130-37

Mortalidad respiratoria



Johannessen et al. AJRCCM 2013;187:602-608

Bronquiectasias y EPOC



------ COPD without bronchiectasis (n=86; 8 deaths)

- - - - COPD with bronchiectasis (n=115; 43 deaths)

Martinez-Garcia et al. AJRCCM 2013;187:823-831

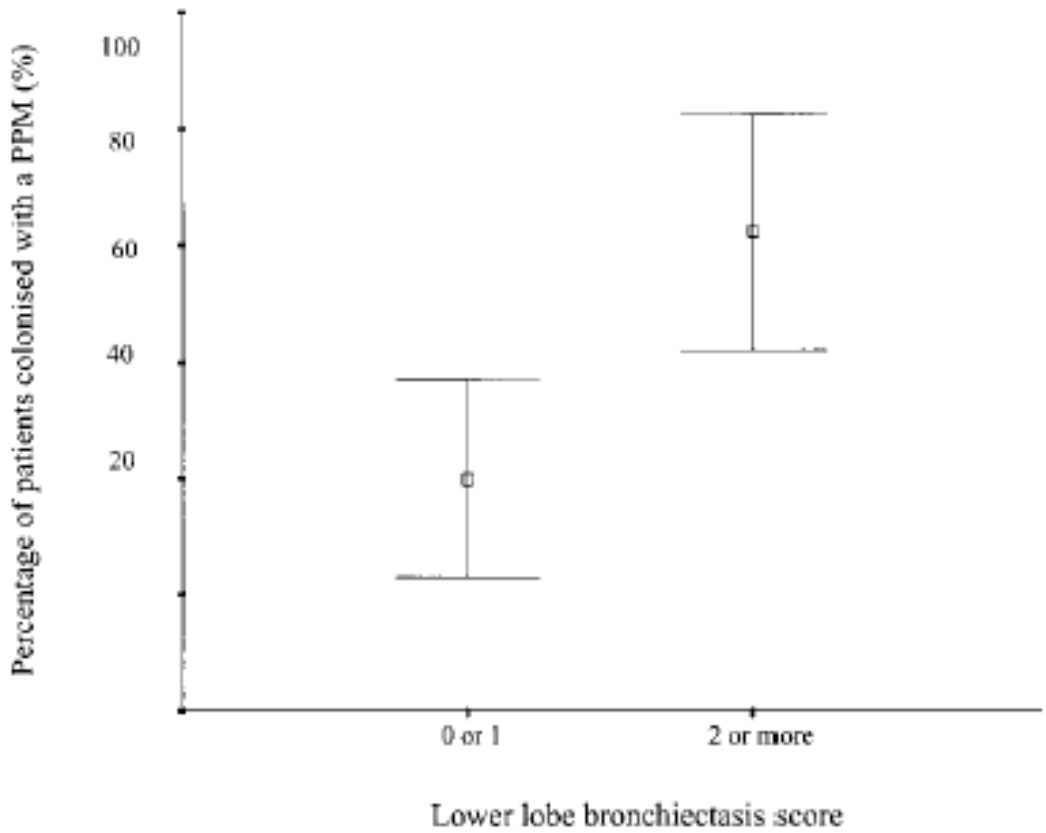
Bronquiectasias y EPOC

TABLE 5. VARIABLES ASSOCIATED WITH DEATH IN MODERATE-TO-SEVERE COPD, USING THE PRESENCE OF BRONCHIECTASIS AS A DICHOTOMIC VARIABLE

	Unadjusted		Fully Adjusted	
Variables	HR (95% CI)	*P*	HR (95% CI)	*P*
Age	1.13 (1.08–1.18)	0.0001	1.10 (1.05–1.15)	0.0001
FEV_1 ppb %	0.97 (0.95–0.99)	0.002	0.97 (0.95–0.99)	0.023
Charlson Index	1.31 (1.11–1.56)	0.002	1.22 (1.02–1.46)	0.033
Bronchiectasis	4.07 (1.91–8.67)	0.0001	2.54 (1.16–5.56)	0.02

Martinez-Garcia et al. AJRCCM 2013;187:823-831

Bronchiectasis and colonization in COPD

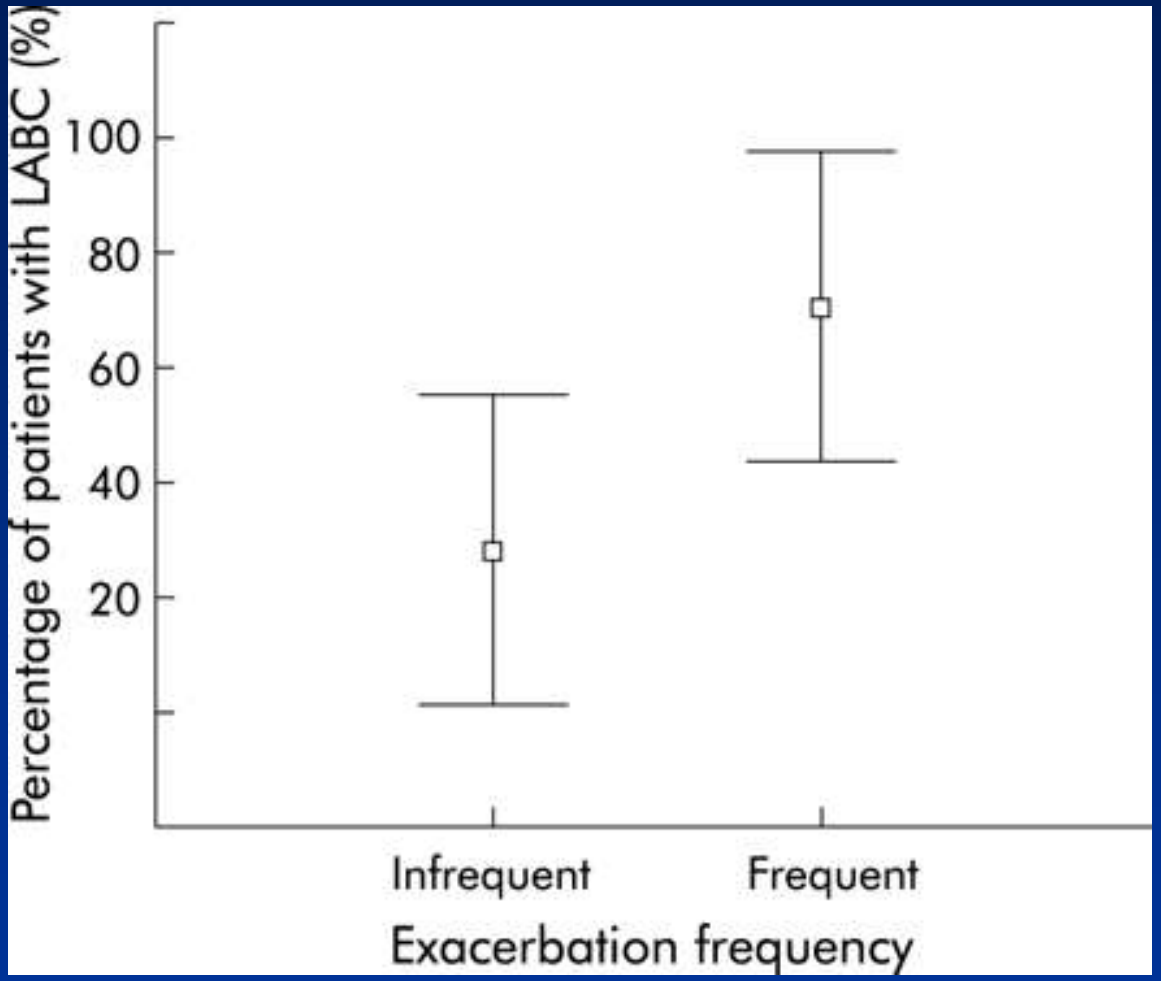


Relationship between the extend of bronchiectasis and colonization by PPMs.

Time to recovery of symptoms:
BQ+ 12 days
BQ- 10 days
P=0.001

Patel *et al.* AJRCCM 2004;170:400-407

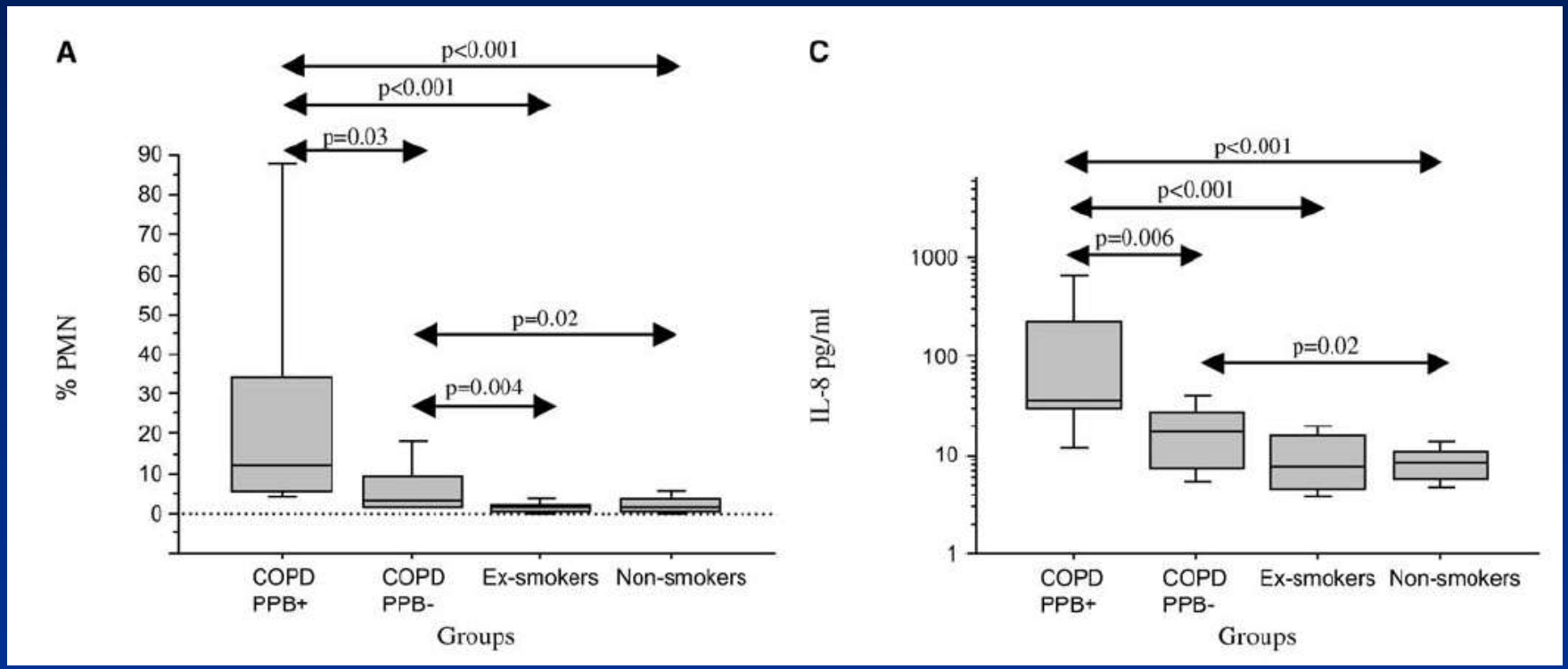
Colonización e infección



Relación entre colonización bacteriana y frecuencia de las agudizaciones.

Patel et al. Thorax 2002;57:759-764

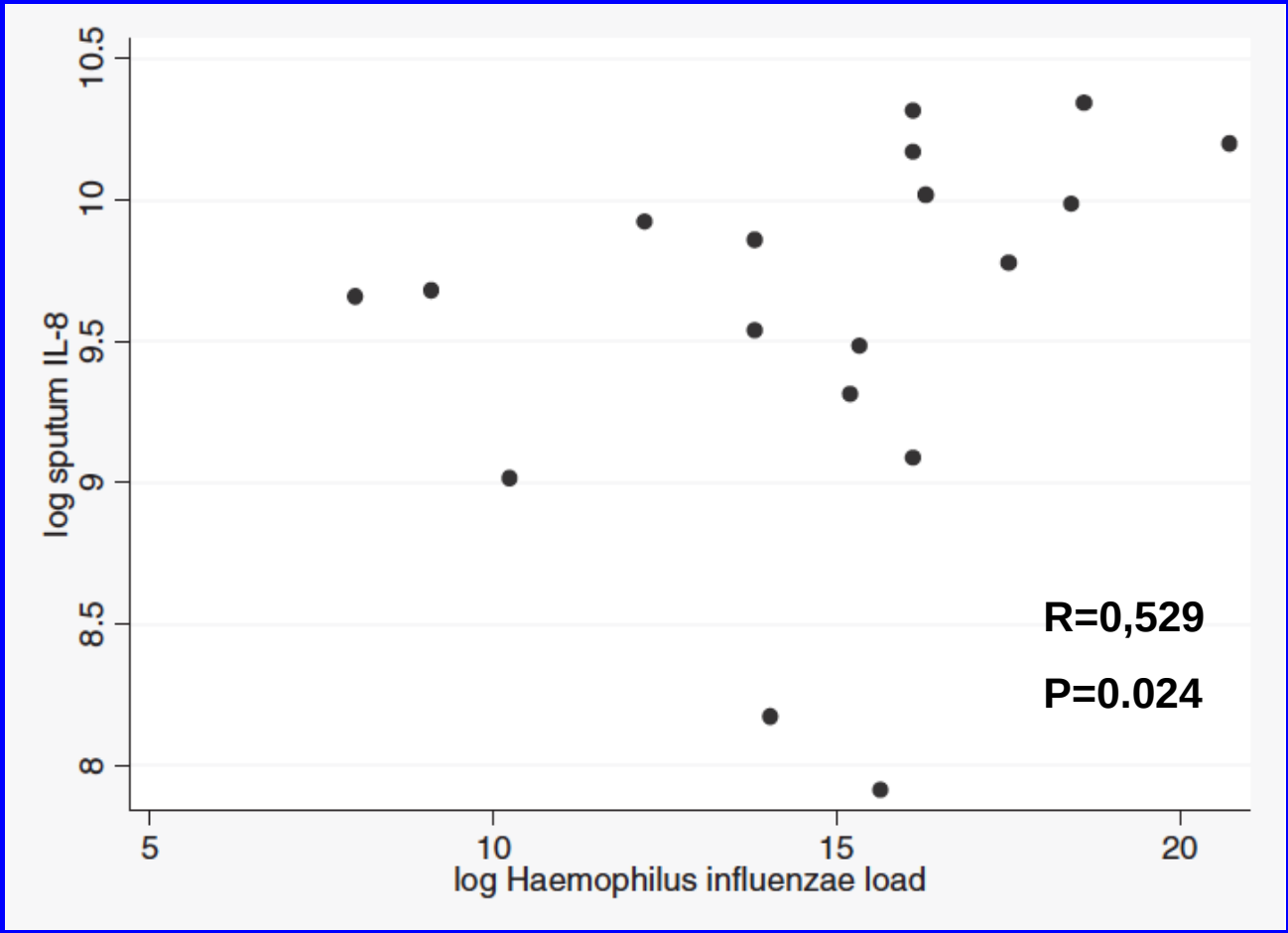
Impacto de la colonización



Determinaciones en BAL en pacientes exfumadores con EPOC con o sin colonización bronquial

Sethi et al. AJRCCM 2006;173: 991-998

IBC e inflamación



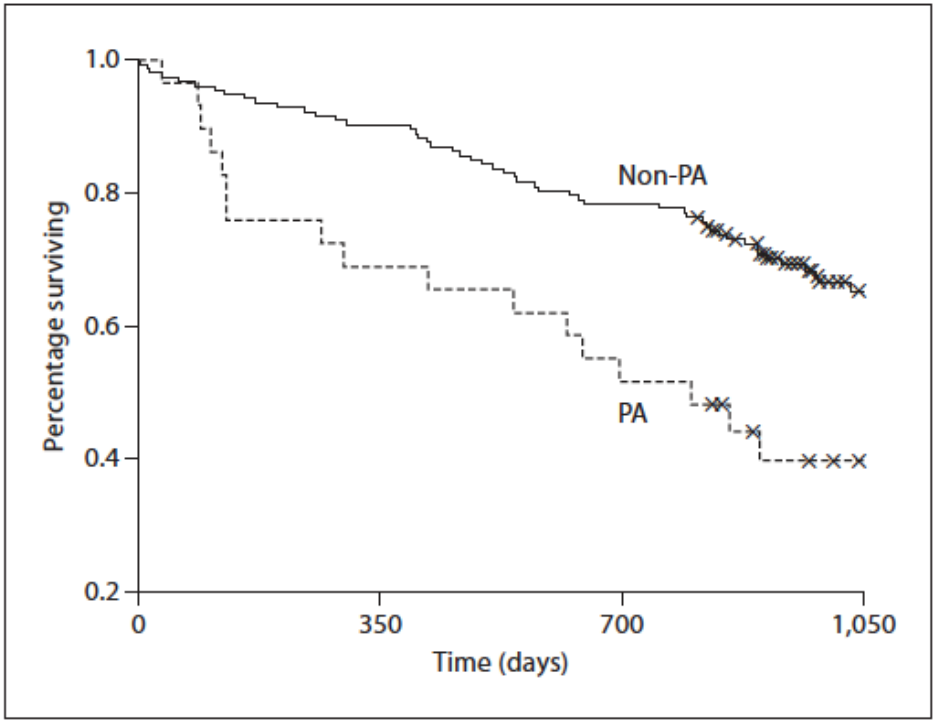
Marin et al. COPD 2012;9:121-130

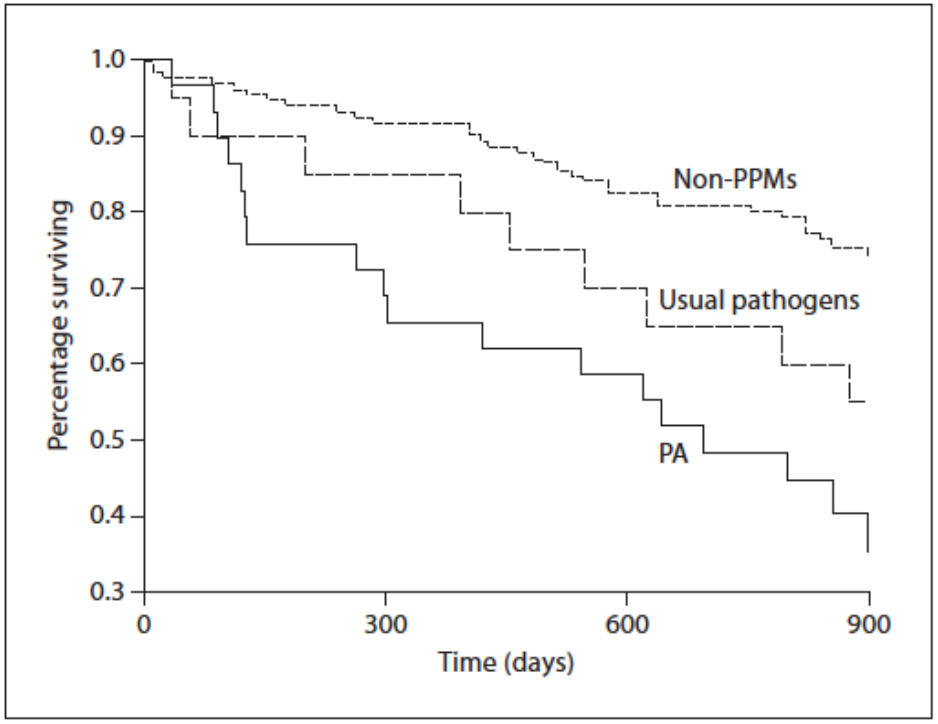
Colonización y función pulmonar

This neutrophilic inflammatory response, mainly found in patients colonised by *H. influenzae*, *P. aeruginosa* or enterobacteria (27 out of 40 neutrophilic samples, 67.5%), showed a statistically significant relationship with FEV_1 declines over the median decline during follow-up in our sample of moderate COPD patients (OR 2.67, 95% CI 1.07–6.62; p=0.03).

Marin et al. Eur Respir J 2010; 35: 295-302

Pseudomonas en EPOC

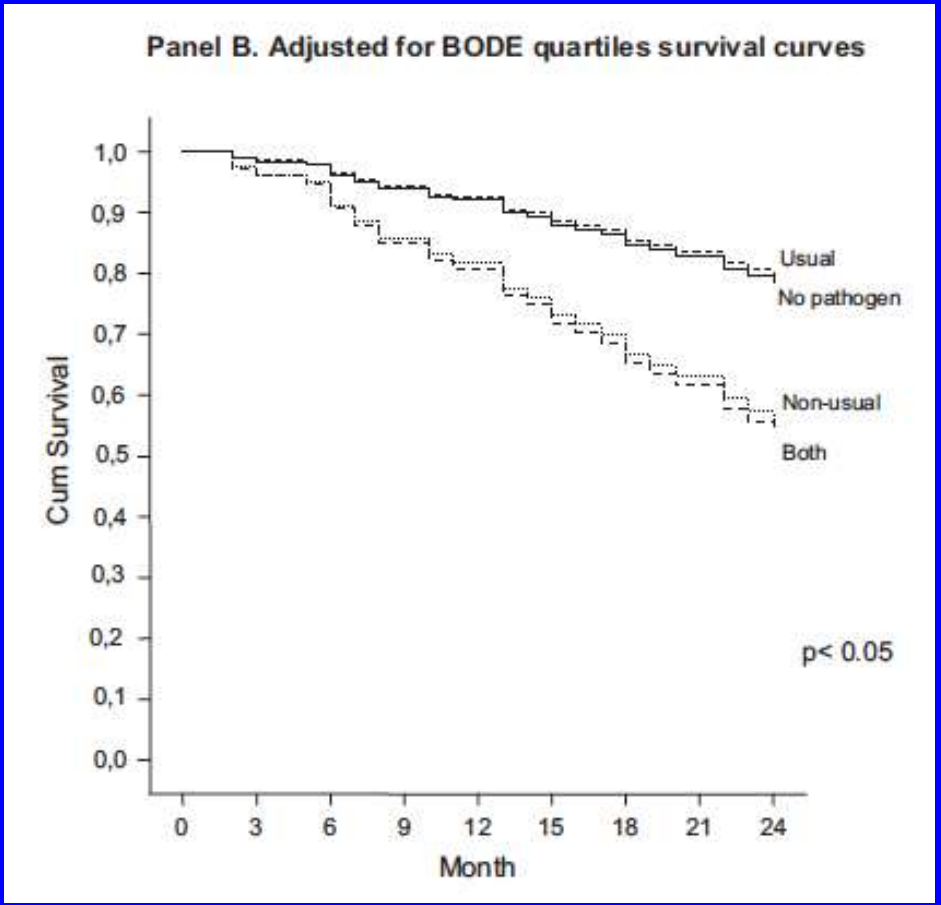




Almagro et al. Respiration 2012; 84: 36-43

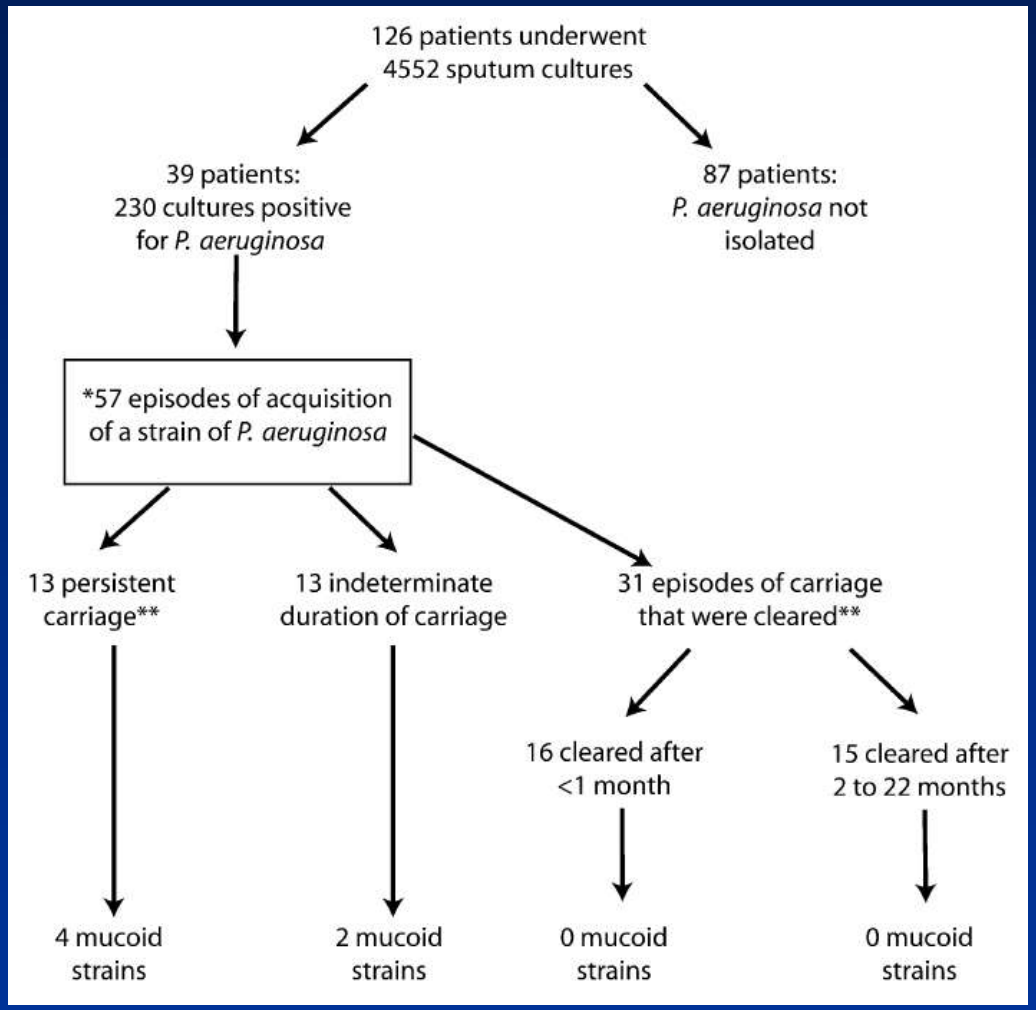
Infección y mortalidad en EPOC

Supervivencia a los 2 años en pacientes con EPOC y al menos 2 ingreso al año previo.



Renom et al. Respir Med 2010; 104: 840-848

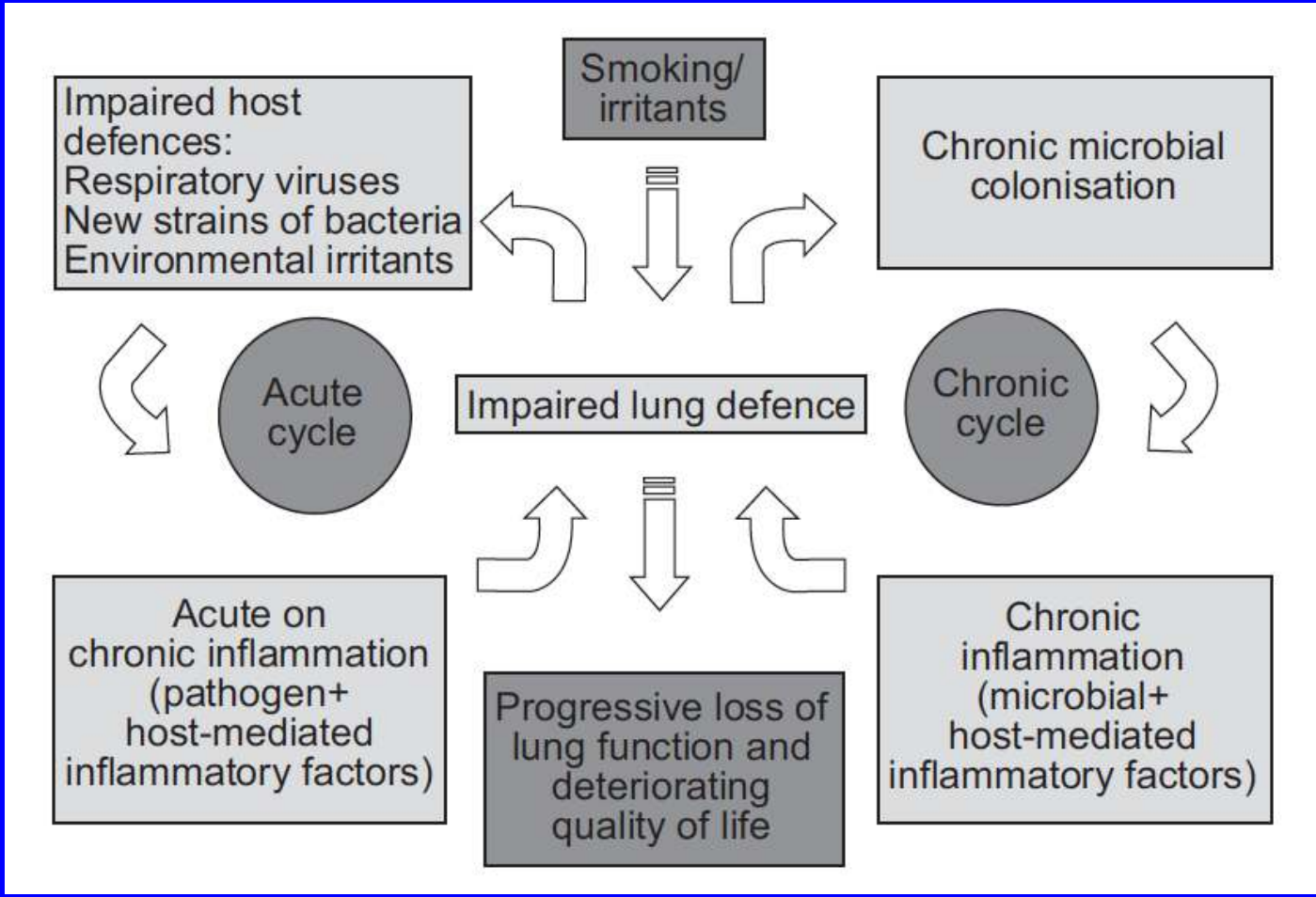
Pseudomonas aeruginosa in COPD



Flow chart of the distribution of sputum culture results among patients and the carriage pattern with regard to duration of carriage of strains of *P.aeruginosa* in adults with COPD

Murphy et al. AJRCCM 2008; 177: 853-860

Two infectious cycles in COPD



Sethi S. ERJ 2010; 35: 1209-1215

Eur Respir J 2011; 37: 39–43
DOI: 10.1183/09031936.00173009

Association of COPD candidate genes with computed tomography emphysema and airway phenotypes in severe COPD

W.J. Kim*,#, E. Hoffman¶, J. Reilly+, C. Hersh*,§, D. DeMeo*,§, G. Washko§ and E.K. Silverman*,§

Eur Respir J 2009; 34: 598–604
DOI: 10.1183/09031936.00141808

CTLA4 gene polymorphisms are associated with chronic bronchitis

G. Zhu*, A. Agusti#,¶,+, A. Gulsvik§, P. Bakke§, H. Coxson^, D.A. Lomas, E.K. Silverman##, S.G. Pillai* and ICGN investigators¶¶**

Hombre de 79 años

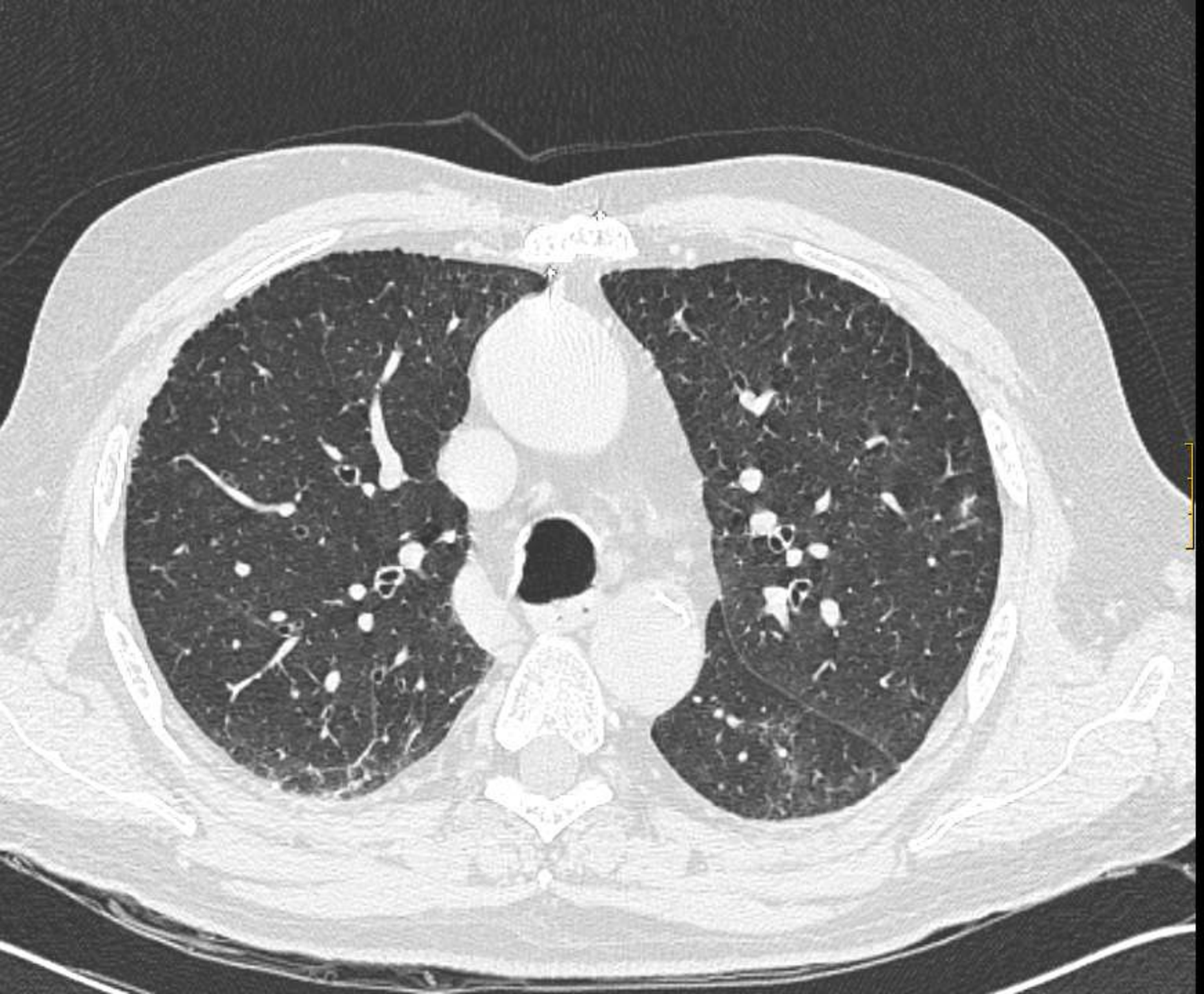
Ex fumador de 60 paquetes-año

Cardiopatía isquémica: Recambio valvular aórtico y by-pass coronario en 2006.

Tos + expectoración + disnea de esfuerzo. Ingresado por primera vez en 2003 por una agudización.

FVC= 2,41 (56%); FEV1= 1,37 (44%); FEV1/FVC= 57%; KCO= 90%.


266058
: 19310608



Hombre de 79 años

Desde 2003 múltiples ingresos hospitalarios por agudizaciones o neumonías

Aislamientos en esputo:

M. catharralis

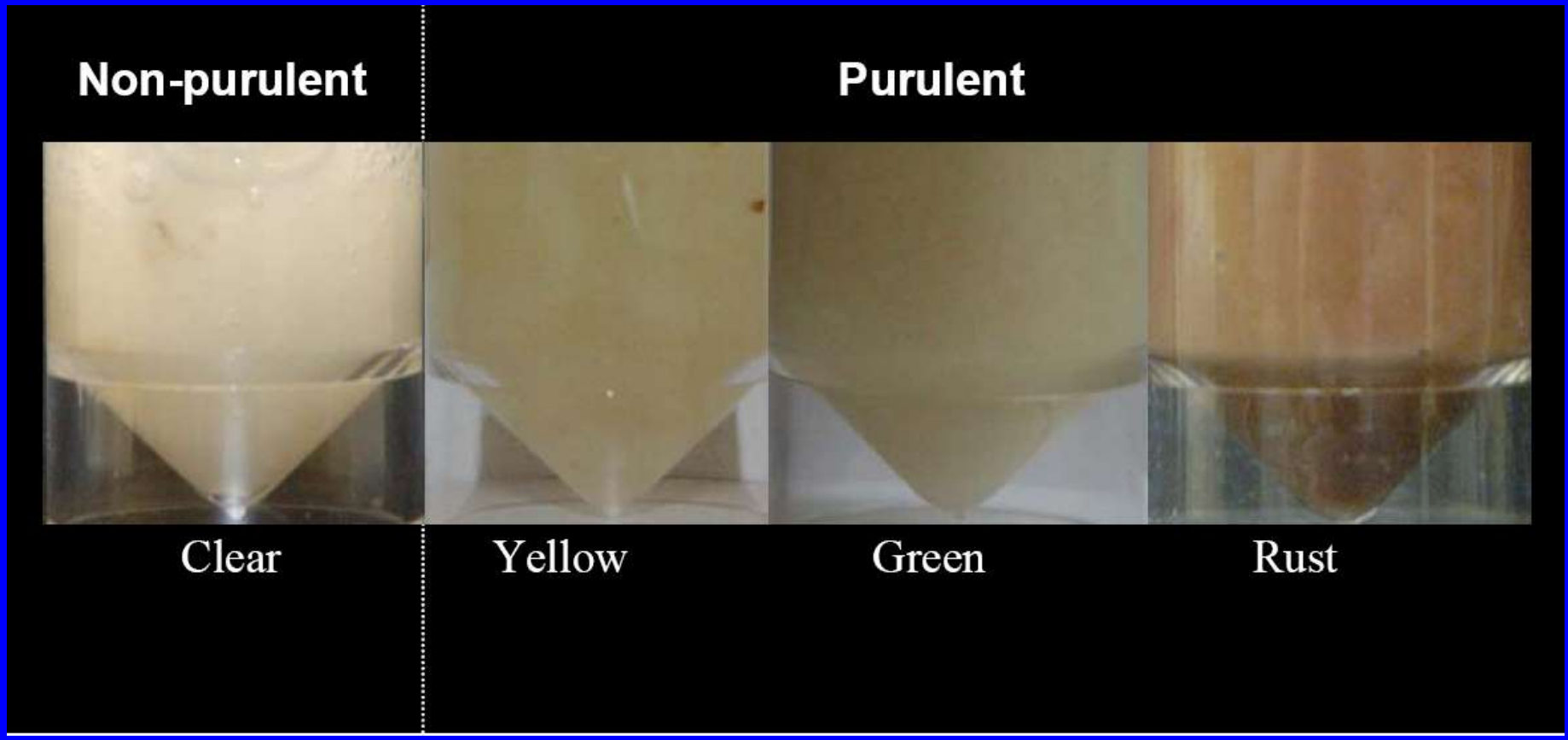
S. pneumoniae (pen R)

H. influenzae

Aspergillus niger

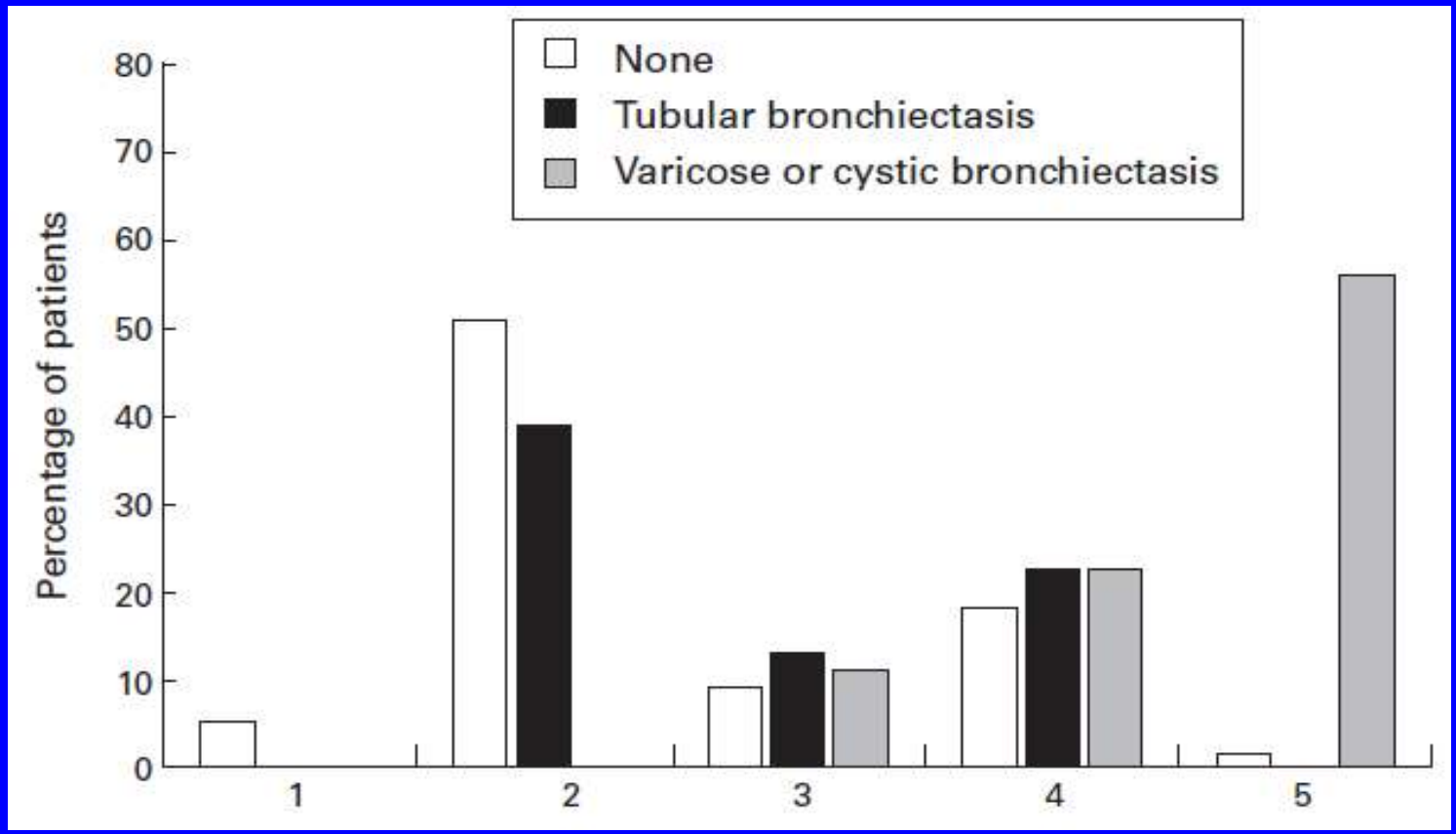
Pseudomonas stutzeri

Pseudomonas aeruginosa



Courtesy of R. Wilson. Host Defence Unit. Royal Brompton Hospital London, UK

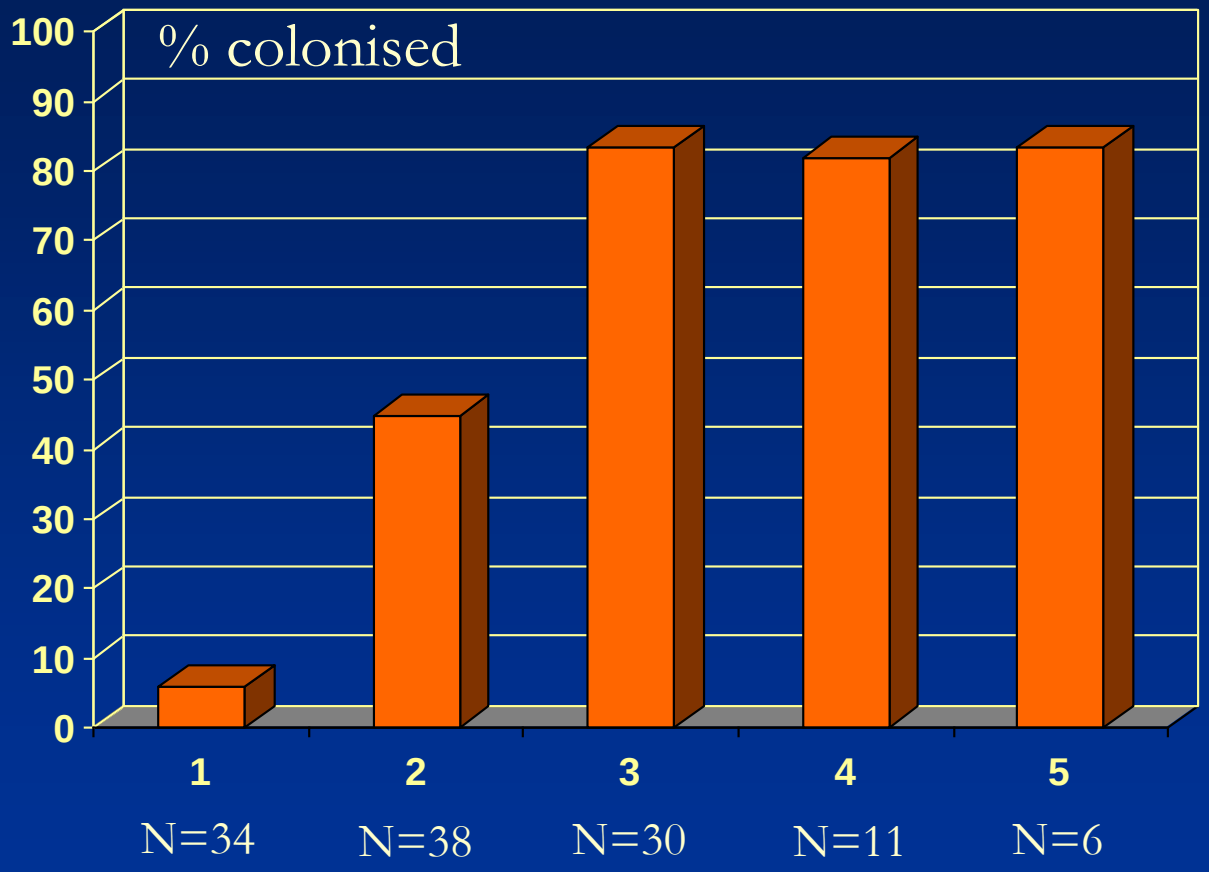
Bronchiectasis in COPD in Primary Care



Sputum colour: from 1 to 5

O'Brien et al. Thorax 2000; 55: 635-642

Colonisation and purulence



Mucoid= 61.4% **Purulent/mucopurulent= 38.6%**

Miravitlles et al. Respir Res 2010; 11: 58

Respiratory Medicine (2013) 107, 10–22

Available online at www.sciencedirect.com

SciVerse ScienceDirect

journal homepage: www.elsevier.com/locate/rmed

REVIEW

Chronic bronchial infection in COPD. Is there an infective phenotype?

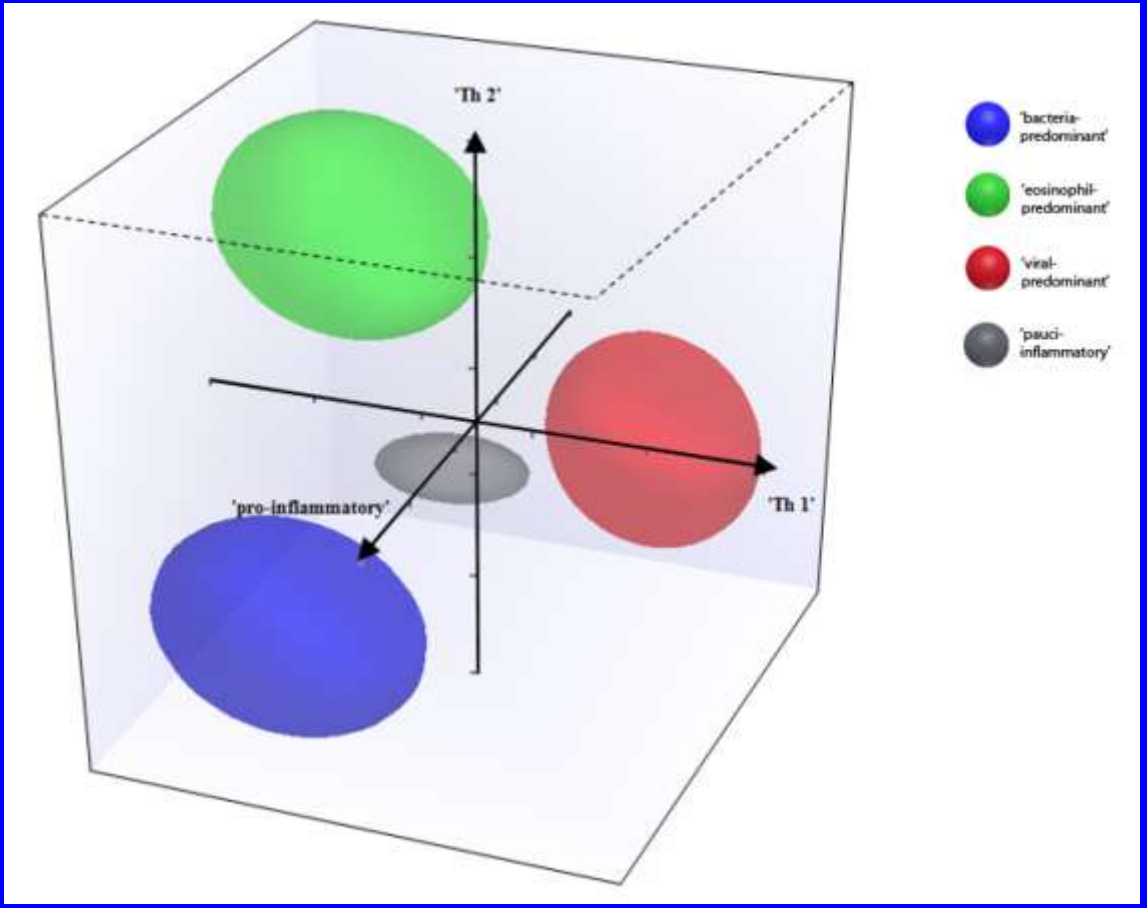
Zinka Matkovic [a,b], Marc Miravitlles [a,*]

[a] *Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS), Ciber de Enfermedades Respiratorias (CIBERES), Hospital Clínic, Barcelona, Spain*
[b] *University Hospital Dubrava, Zagreb, Croatia*

Phenotypes of exacerbations

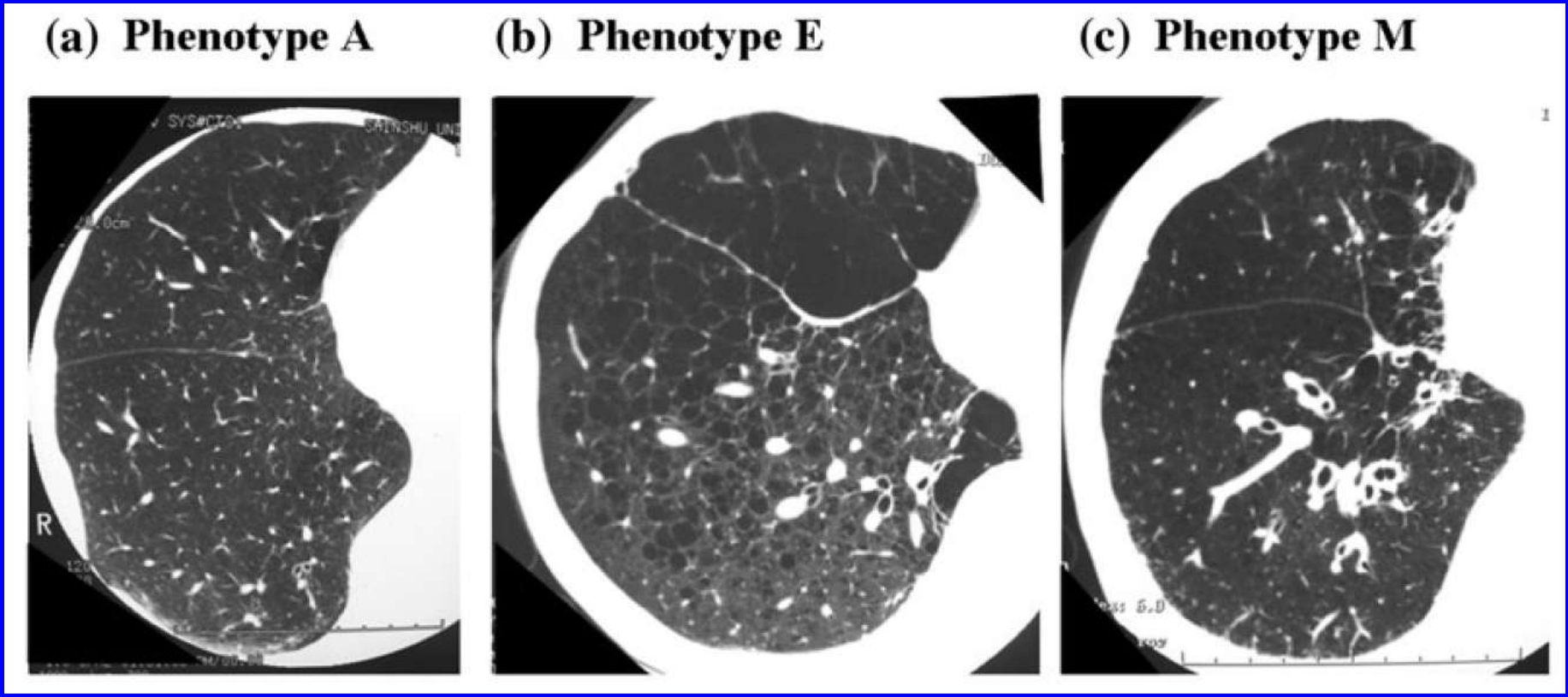
Study on 182 exacerbations from 86 patients:

Atopic 20%.
Colonised 28%.
Eosinophilic airway infl. 27%



Bafadhel et al AJRCCM 2011; 184: 662-671

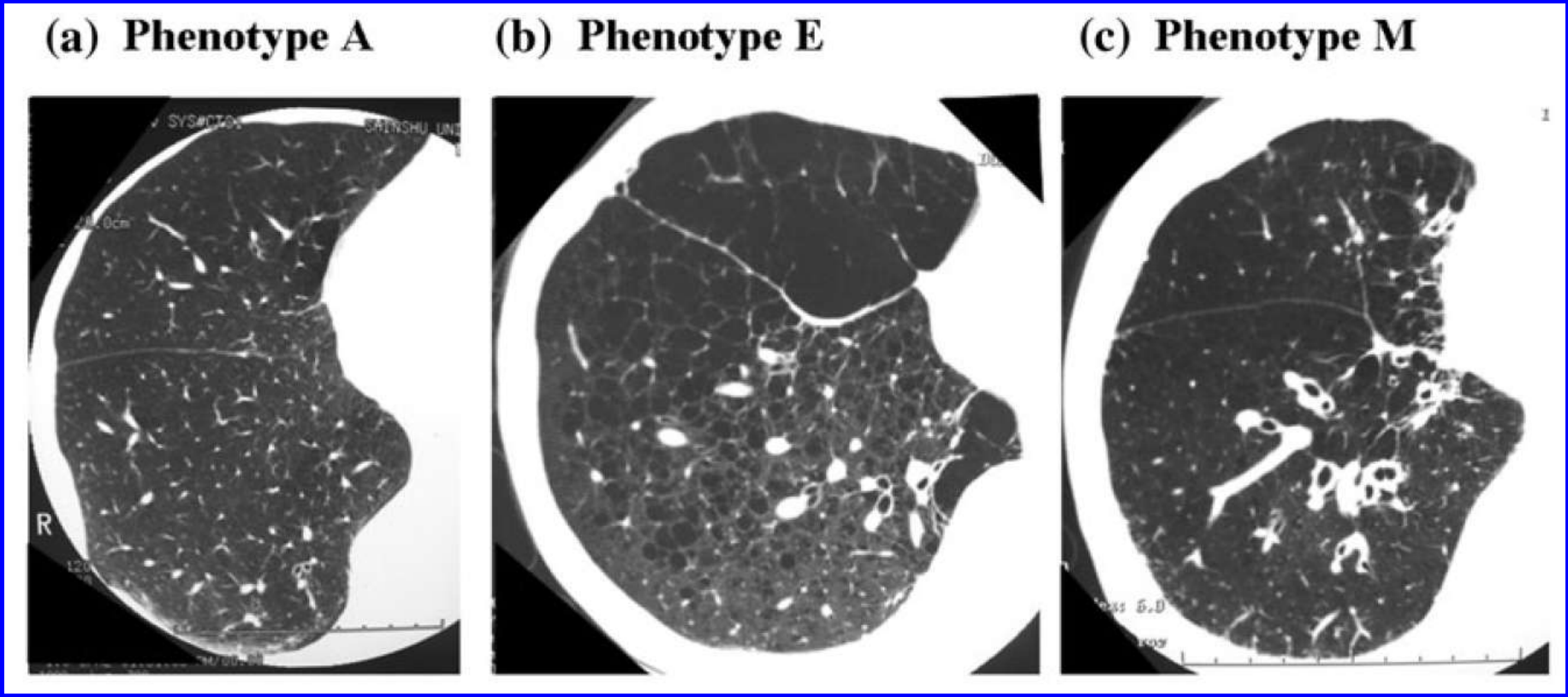
Fenotipos de la EPOC



(a) Phenotype A	(b) Phenotype E	(c) Phenotype M
Age= 68.3	Age= 68.1	Age= 68.4
P-yr= 41.8	P-yr= 54.7	P-yr= 46.6
P. Eos= 167	P. Eos= 213	P. Eos= 265

Fujimoto et al. Respirology 2006;11:731-740

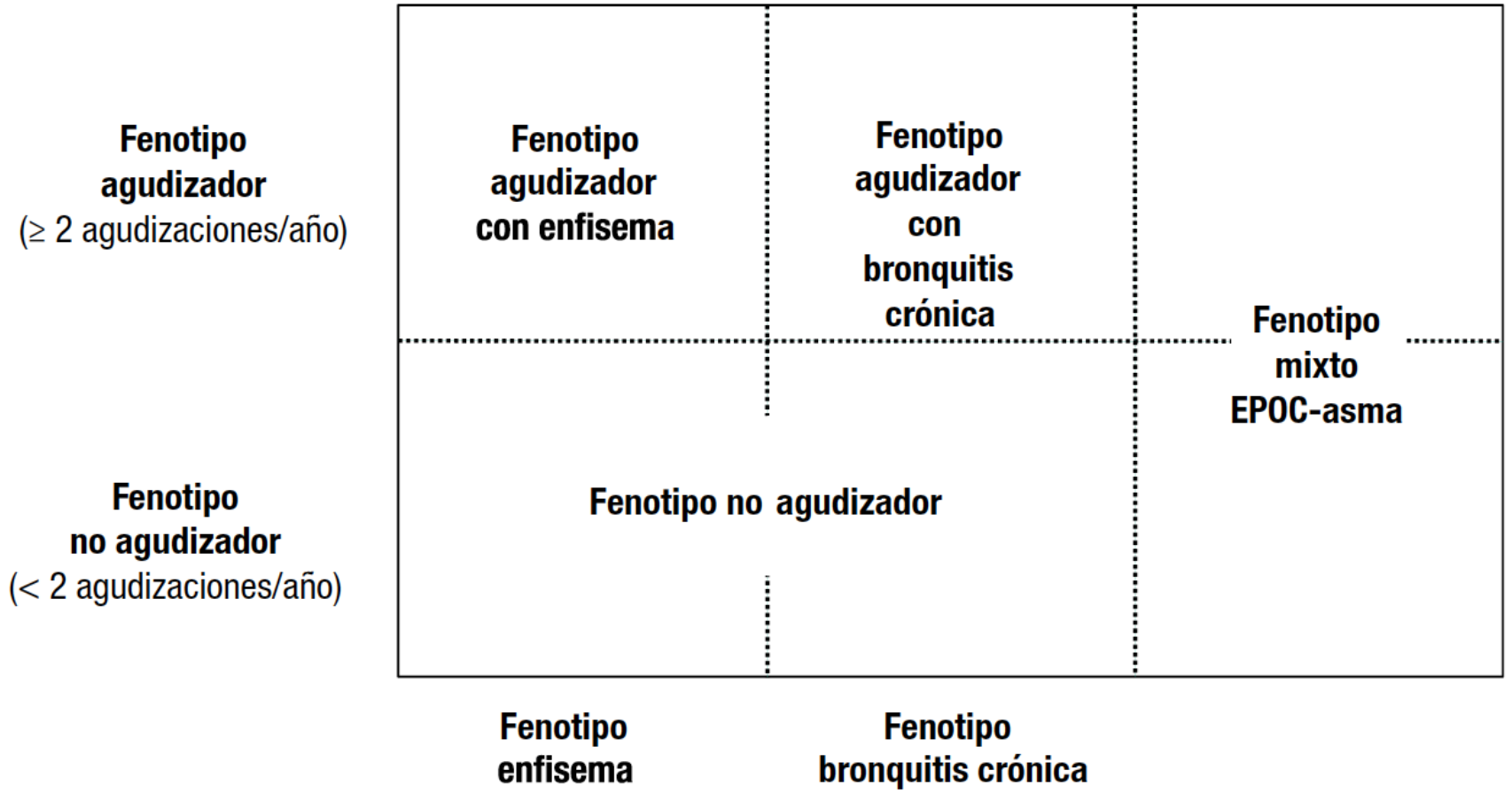
Fenotipos de la EPOC



(a) Phenotype A	(b) Phenotype E	(c) Phenotype M
FEV1= 47.5%	FEV1= 46.4%	FEV1= 42.0%
Dlco= 78.2%	Dlco= 49.3%	Dlco= 61.6%
Ex/yr= 0.70	Ex/yr= 0.59	Ex/yr= 1.36

Fujimoto et al. Respirology 2006;11:731-740

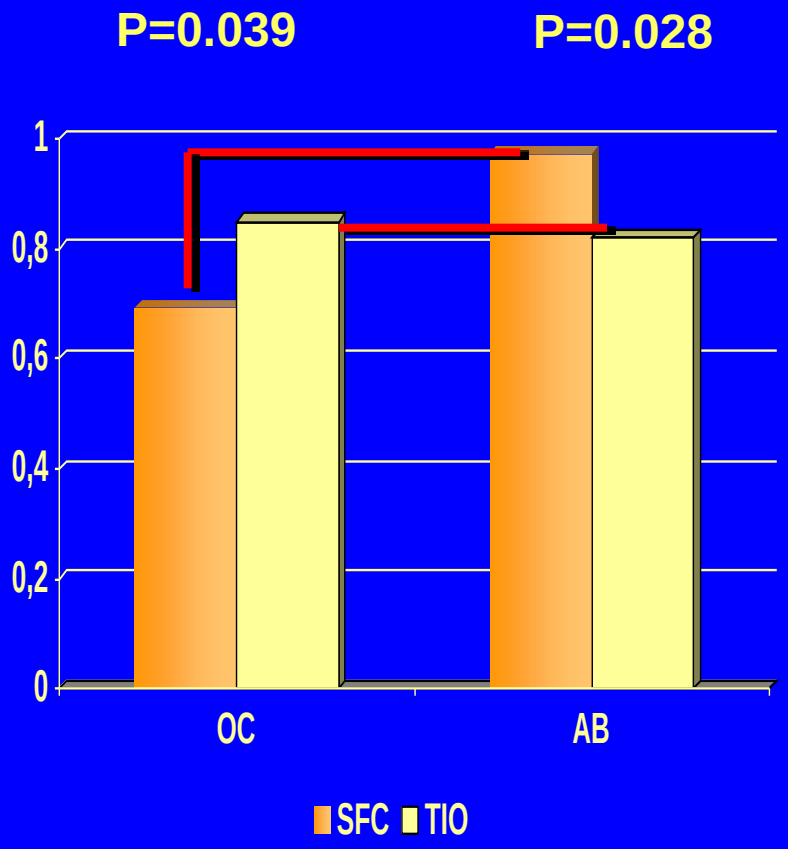
GesEPOC 2014



Arch Bronconeumol 2014;50 (Supl 1):1-16

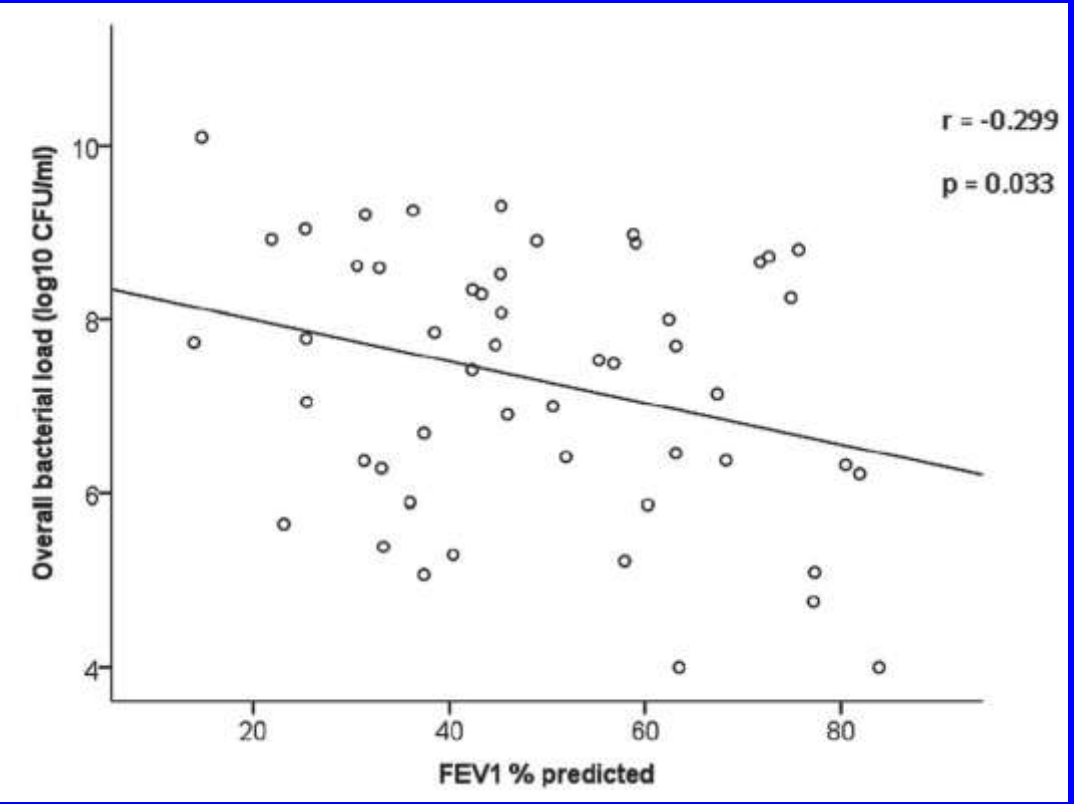
Prevención de agudizaciones

Prevención de agudizaciones con Salmeterol/Fluticasona (SFC) o Tiotropio (TIO).
OC: agudizaciones que requieren corticosteroides orales
AB: que requieren antibióticos



Wedzicha et al. AJRCCM 2008;177:19-26

Bacterial load in COPD

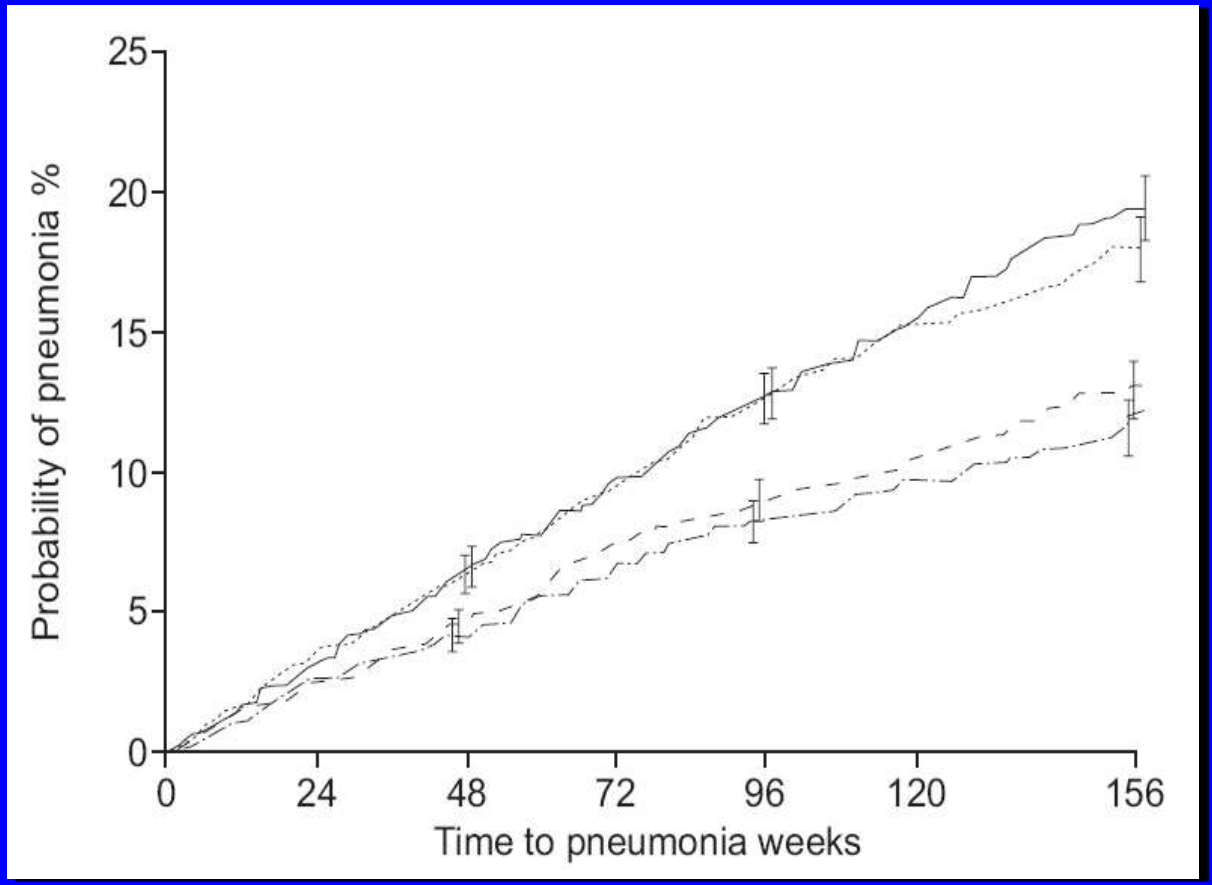


Higher airway bacterial load was significantly correlated to higher ICS dosage (r=0.382; p=0.008) and corrected by age, smoking and FEV1 (p=0.02)

Garcha et al. Thorax 2012; 67: 1075-1080

Fluticasone and CAP

Estimate of time to first pneumonia for patients taken placebo, FP, SAL and FP/SAL



Crim et al. Eur Respir J 2009; 34: 641-647

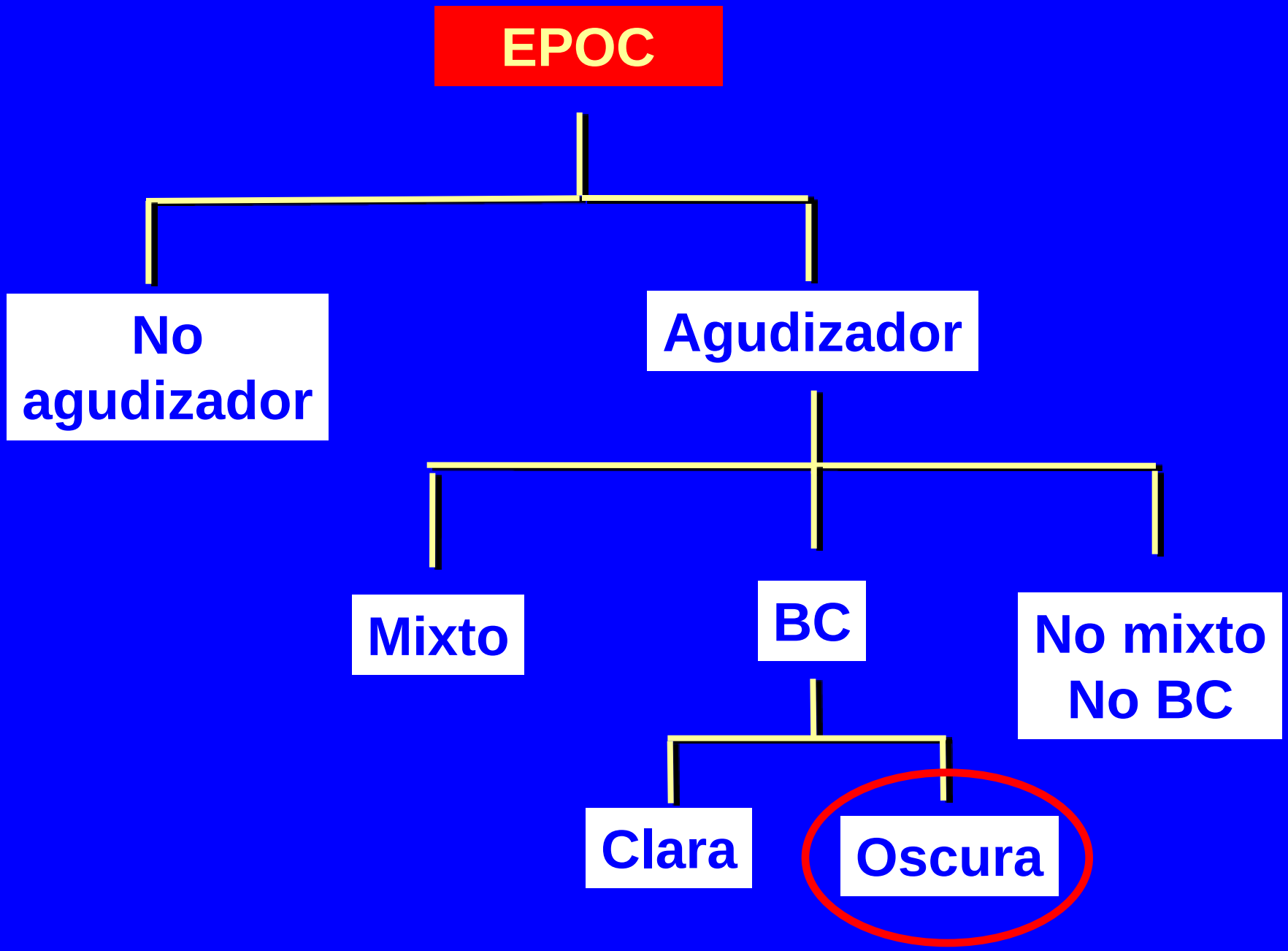
Eur Respir J 2012; 40: 1545–1554
DOI: 10.1183/09031936.00048912

REVIEW

The role of bronchodilator treatment in the prevention of exacerbations of COPD

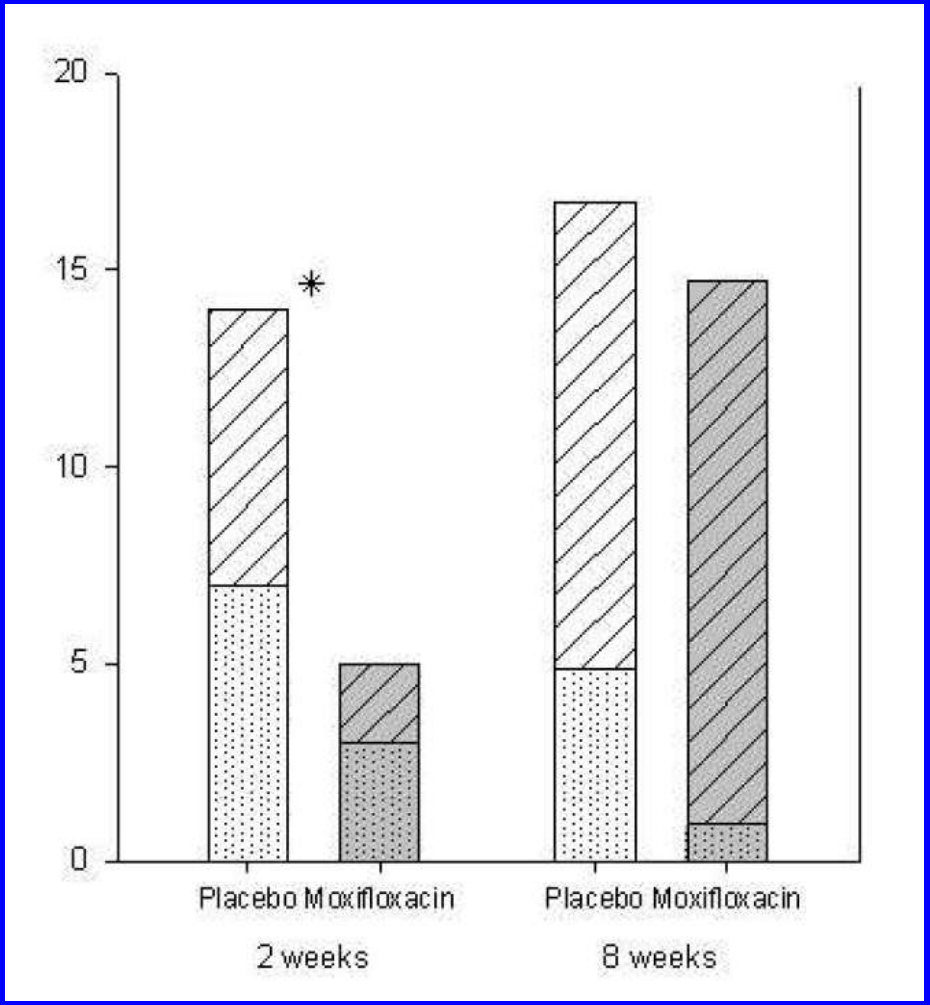
Jadwiga A. Wedzicha*, Marc Decramer# and Terence A.R. Seemungal¶

Bacteria-associated and sputum eosinophil-associated exacerbations rarely coexist and, because they are repeatable in patients with multiple exacerbations, they can be predicted from the stable state [38]; thus, it may be possible, and appropriate, to provide targeted tiotropium monotherapy in patients with bacteria-associated exacerbations, and combined bronchodilator/ICS therapy in patients with sputum eosinophil-dependent exacerbations.


EPOC
No agudizador
Agudizador
Mixto
BC
No mixto
No BC
Clara
Oscura

Treatment of chronic bronchial infection

Colonisation at 2 and 8 weeks.
Bottom: persistence
Upper: acquired
*p<0.01



Miravitlles *et al*. ERJ 2009; 34: 1066-1071

Sethi *et al. Respiratory Research* 2010, **11**:10
http://respiratory-research.com/content/11/1/10

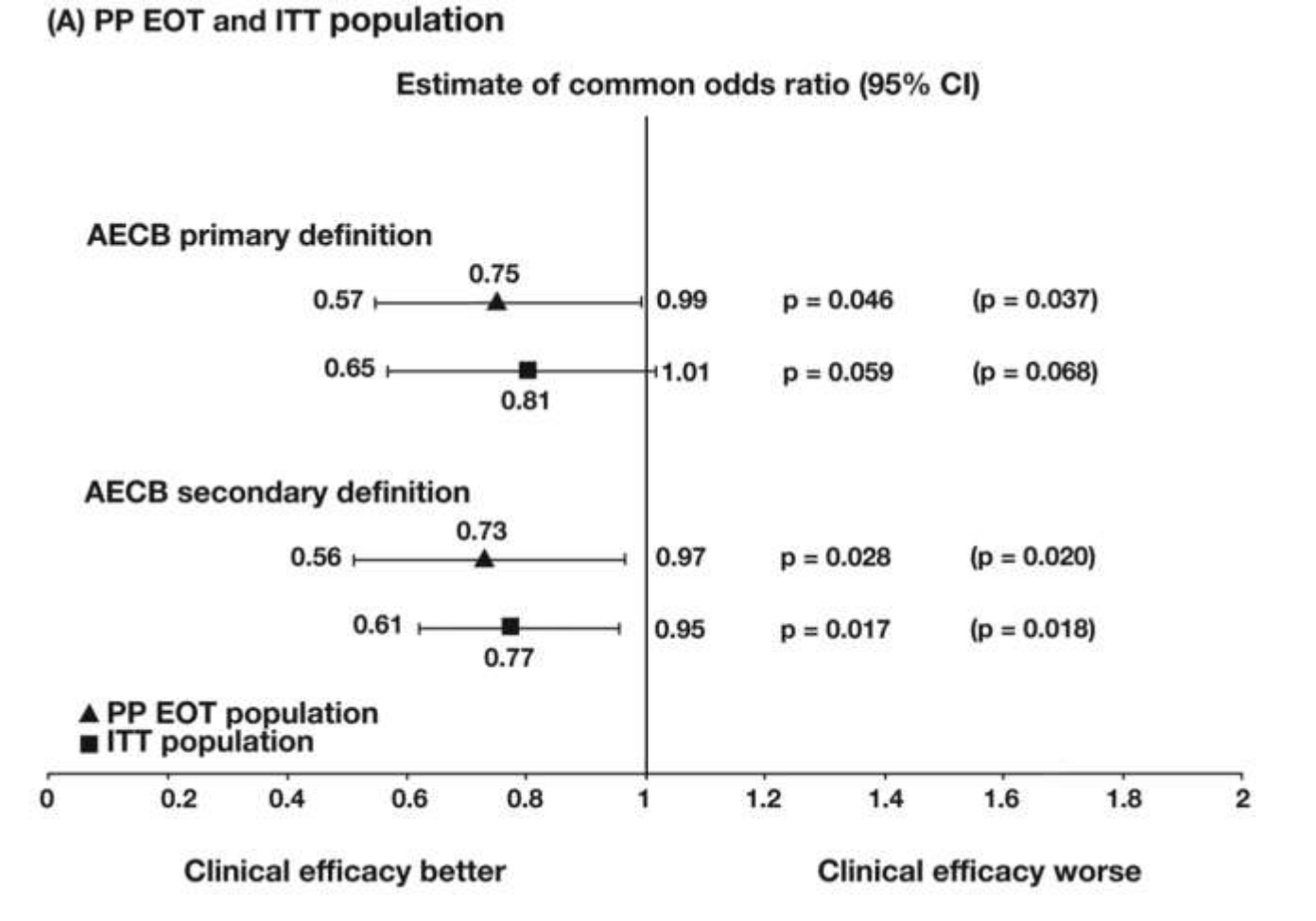
RESPIRATORY RESEARCH

RESEARCH Open Access

Pulsed moxifloxacin for the prevention of exacerbations of chronic obstructive pulmonary disease: a randomized controlled trial

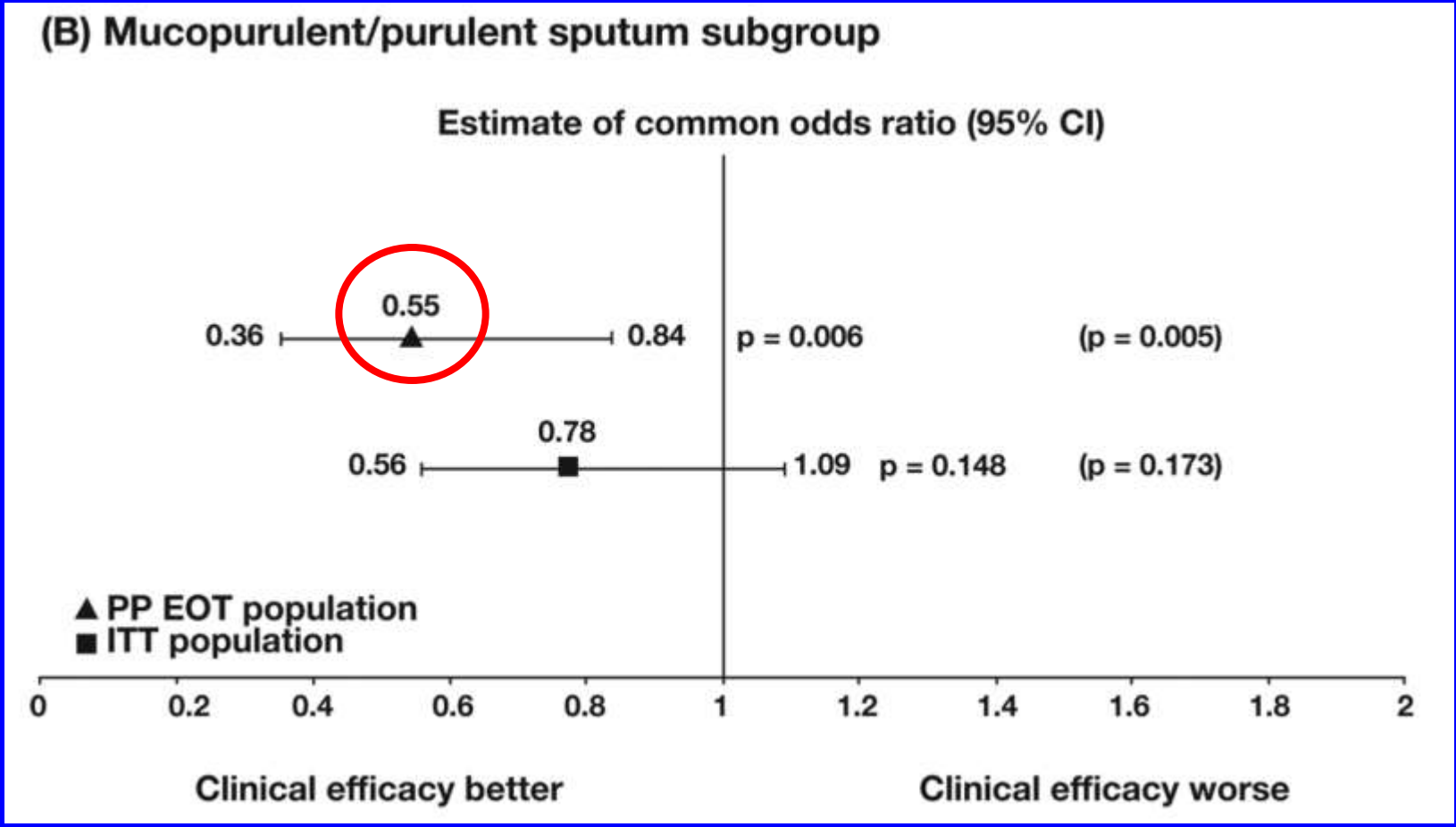
Sanjay Sethi[1*], Paul W Jones[2], Marlize Schmitt Theron[3], Marc Miravitlles[4], Ethan Rubinstein[5], Jadwiga A Wedzicha[6], Robert Wilson[7], the PULSE Study group

Clinical efficacy - Per protocol



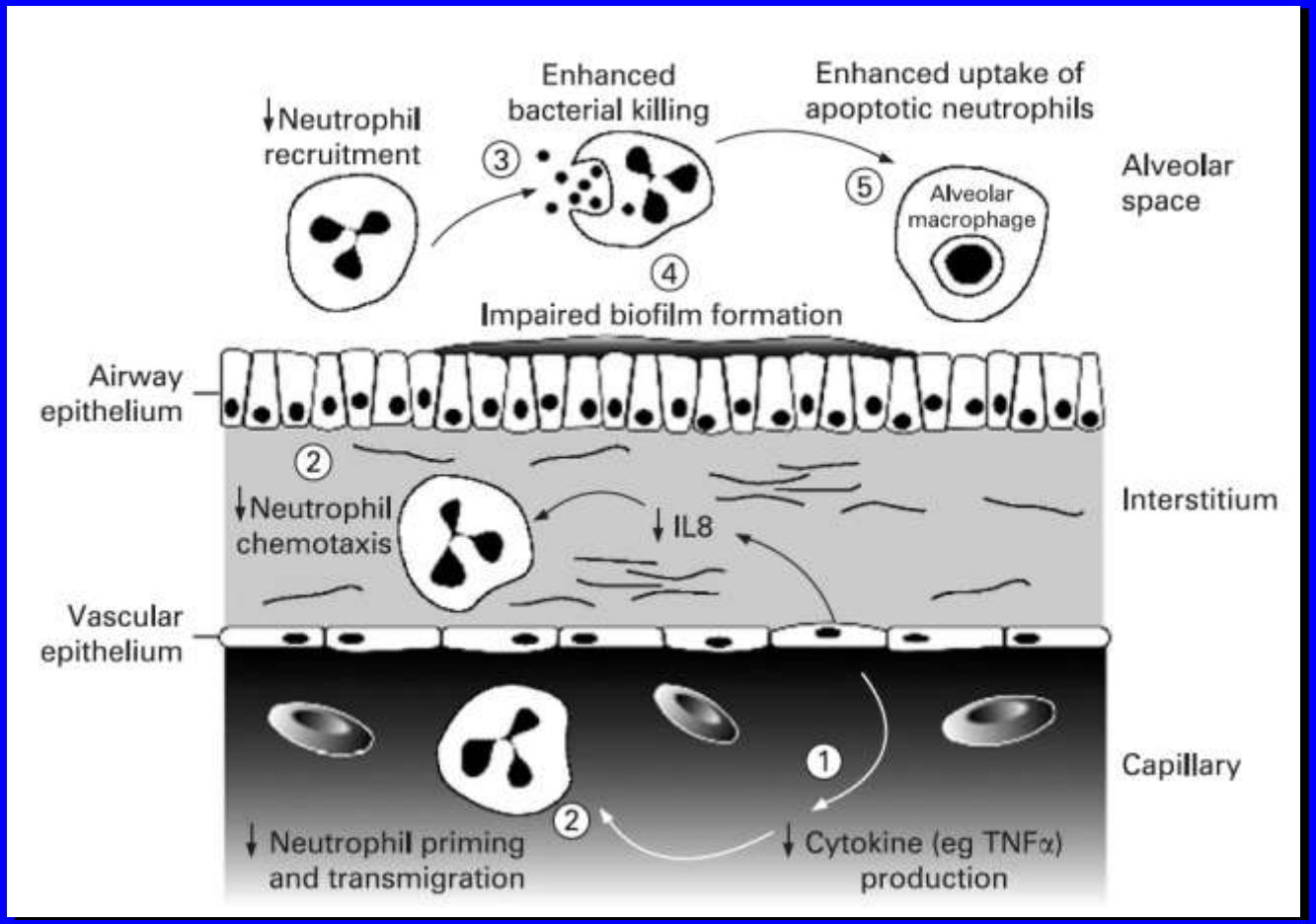
Sethi et al. Respir Res 2010; 11:10

Clinical efficacy
Purulent/muco-purulent sputum



Sethi et al. Respir Res 2010; 11:10

Azithromycin and COPD



Idris et al. Thorax 2009; 64: 186-189

Azithromycin and COPD

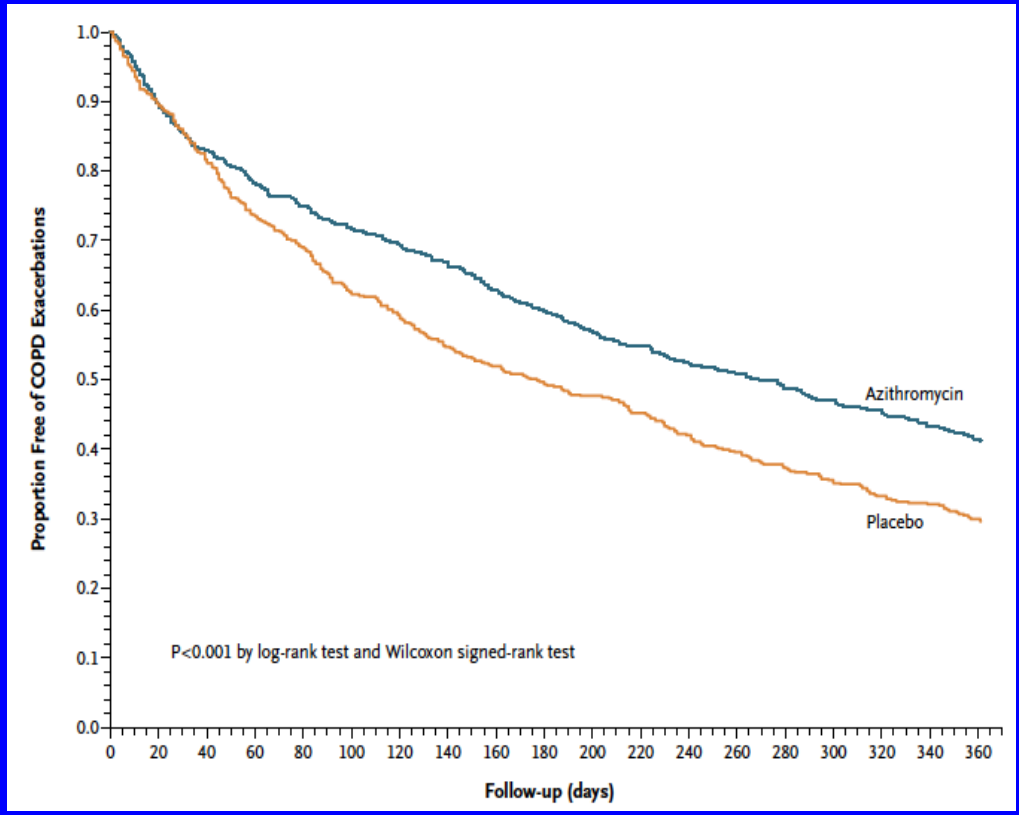
Variable Overall (n = 20)	0–12 months without azithromycin		12–24 months with azithromycin		% Red	*P*
	Total	Mean ± SD	Total	Mean ± SD		
Exacerbations (n)	136	6.8 ± 2.8	57	2.8 ± 2.5	58.9	0.000
Hospitalizations (n)	72	3.6 ± 1.9	28	1.4 ± 1.5	61.2	0.001
Hospital stay (days)	874	43.7 ± 21.4	500	25.0 ± 32.2	42.8	0.013
Common PPM group (n = 7)						
Exacerbations (n)	63	9.0 ± 2.3	19	2.7 ± 2.2	70	0.00
Hospitalizations (n)	29	4.1 ± 2.6	9	1.2 ± 1.4	70.8	0.04
Hospital stay (days)	309	44.1 ± 17.5	133	19 ± 25	57	0.05
Pseudomonas aeruginosa group (n = 9)						
Exacerbations (n)	42	4.6 ± 2.2	24	2.6 ± 2.0	43.5	0.04
Hospitalizations (n)	31	3.4 ± 1.6	17	1.8 ± 1.7	47.1	0.08
Hospital stay (days)	454	50.4 ± 23.9	306	34.0 ± 38.5	32.5	0.23

Abbreviations: AECOPD, acute exacerbation of chronic obstructive pulmonary disease; PPM, potentially pathogenic microorganisms; SD, standard deviation; % Red, percentage reduction.

Pomares et al. Int J COPD 2011; 6: 449-456.

Azithromycin and COPD

RCT of AZT vs placebo in 1142 patients with COPD for one year in addition to their usual care.
Mean FEV1=40%.
Time to 1st 266 vs 174 days.
Reduction of 27% in exacerbations



Albert et al. NEJM 2011; 365: 689-698.

Utilización de antibióticos en fase estable: macrólidos

- Candidatos: Nivel de gravedad IV, agudizaciones frecuentes que precisaron múltiples tratamientos antibióticos o ingreso hospitalario en el año previo a pesar de tratamiento broncodilatador y antiinflamatorio óptimos.
- Especialmente si se detecta infección bronquial crónica por *P.aeruginosa*.
- Este tratamiento debe reservarse a centros de referencia con seguimiento clínico auditivo, de bioquímica hepática y microbiológico con estudio de sensibilidad a los antibióticos.

GesEPOC guía española de la EPOC

GesEPOC

Pharmacological treatment of COPD phenotypes according to severity levels (for severity stages I to IV)

Phenotype	Severity level			
	I	II	III	IV
Non-exacerbator	LAMA or LABA	LAMA or LABA	LAMA + LABA	LAMA + LABA + theophylline
	SABA or SAMA*	LAMA + LABA		
Mixed COPD-asthma	LABA + ICS	LABA + ICS	LAMA + LABA + ICS	LAMA + LABA + ICS (consider addition of theophylline or PDI4 if there are exacerbations and sputum)
Exacerbator with emphysema	LAMA or LABA	LABA+ ICS	LAMA + LABA + ICS	LAMA + LABA + ICS (consider addition of theophylline)
		LAMA + LABA		
		LAMA or LABA		
Exacerbator with CB	LAMA or LABA	LABA + ICS	LAMA + LABA + (ICS or PDI4)	LAMA + LABA + (ICS or PDI4)
		LAMA + LABA	(LAMA or LABA) + ICS + PDI4 (consider addition of carbocysteine)	LAMA + LABA + ICS + PDI4 (consider addition of carbocysteine)
		LAMA or LABA		Consider addition of theophylline
		(LAMA or LABA) + PDI4		Consider addition of antibiotic

Arch Bronconeumol 2014;50 (Supl 1):1-16

Hombre de 79 años

Tratamiento al alta TIO + SAL/FLU 500/50

Cambio a:

TIO + INDA + Roflumilast + NAC +

Azitromicina 500 3 días/semana

14EPOC2014

Symposium Enfermedad Pulmonar Obstructiva Crónica

Barcelona, 24 y 25 de Abril de 2014
Hotel Barceló Sants

Dirección
Josep Morera
Marc Miravitlles

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