SALA VIOLANTE/GINEVRA

URGENZE RESPIRATORIE

Moderatori: **Salvatore Maggiore – Giorgio Carbone**

Giovanna Guiotto

Le polmoniti in Pronto Soccorso: quale antibiotico?

XII congresso nazionale
simeu
RICCIONE 13-15 MAGGIO 2022

OUTLINE

1 **Diagnosis**

- CAP
- HCCAP
- MRSA-MDR CAP

2 **Where to treat**

- Home
- Ward
- Em Med
- ICU

3 **How to treat**

- 1-2-3 AB
- O_2/NIV/MV

Outcome

CAP: epidemiology vs etiology

Tipycal:

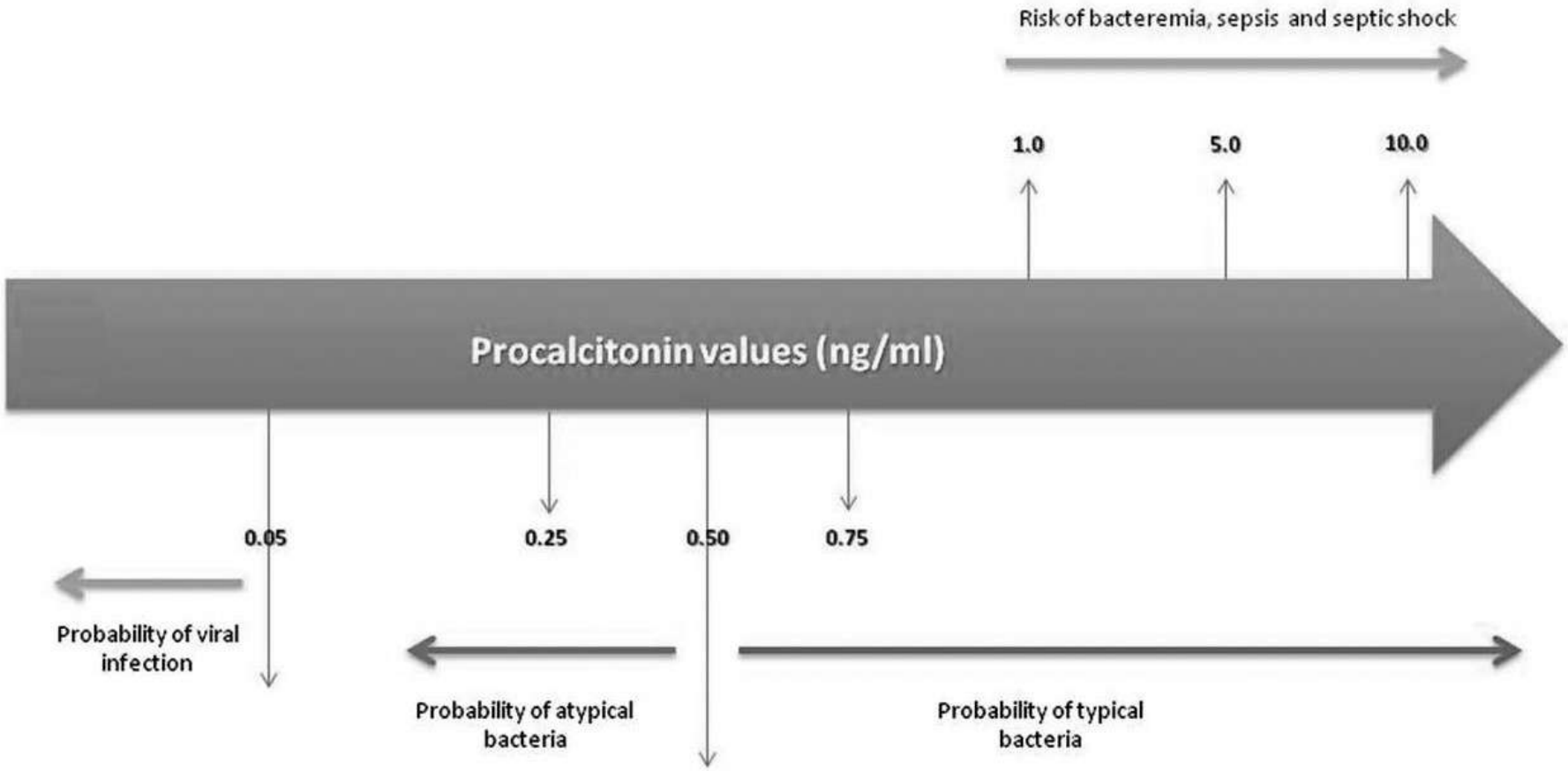
- *Streptococcus pneumoniae* (vaccination?)
- **COPD:** *Haemophilus influenzae* and *Moraxella catarrhalis*
- **Recent influenza**: *Staphylococcus aureus* or *Streptococcus pneumoniae*
- **Alcoholism:** *Klebsiella pneumoniae*

Atypical:

- *Mycoplasma pneumoniae*
- *Chlamydia pneumoniae*
- *Legionella*

RESPIRATORY VIRUSES

SARS-CoV-2 and more....



Reference (36) Self et al. Clin Infect Dis. 2017 Jul 15;65(2):183-190; R
Reference (32) Julian-Jimenez et al. *Med Clin (Barc)* 2017; 148: 501–510

Criteria for Health Care–Associated Pneumonia

- Residence in a nursing home
- Hospitalization for ≥2 days (previous 90 days)
- Antibiotic use (previous 90 days)
- Hemodialysis (previous 30 days)
- Home wound care
- Nonambulatory status
- Tube feedings
- Immunocompromised status
- Use of gastric acid suppressive agents

N Engl J Med 2014;370:543-51

Healthcare-Associated Pneumonia Does Not Accurately Identify Potentially Resistant Pathogens: A Systematic Review and Meta-Analysis

James D. Chalmers,[1] Catriona Rother,[1] Waleed Salih,[1] and Santiago Ewig[2]

Conclusions: The HCAP concept is based on predominantly low-quality evidence and does not accurately identify resistant pathogens. Mortality in HCAP does not appear to be due to a higher frequency of resistant pathogens.

'local' prevalence and guidelines to avoid overtreatment

Clin Infect Dis **2014; 58: 330–39.**

REVIEW

Community-acquired pneumonia as an emergency condition

Catia Cillóniz[a], Cristina Dominedò[b], Carolina Garcia-Vidal[c], and Antoni Torres[a]

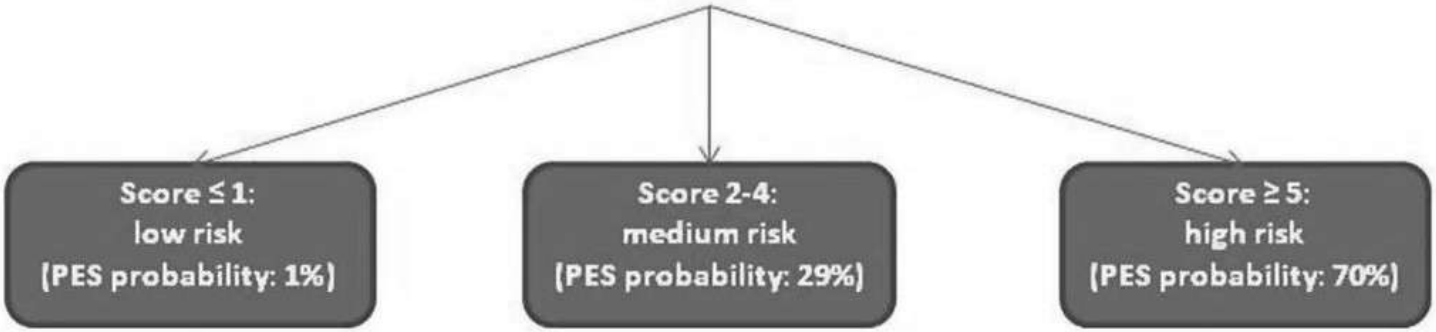
Curr Opin Crit Care 2018, 24:53

P: *Pseudomonas aeruginosa*

E: *Enterobacteriaceae extended spectrum b-lactamase-positive*

S: *Staphylococcus aureus* methicillin-resistant

PES SCORE	Points
Age > 65y	1 point
Male	2 points
Previous antibiotic use	2 points
Chronic respiratory disorder	2 points
Chronic renal disease	2 points
At Emergency	
Consciousness impairment or aspiration evidence	2 points
Fever or shivers	-1 points



Clinical Features Suggesting Community-Acquired MRSA Pneumonia

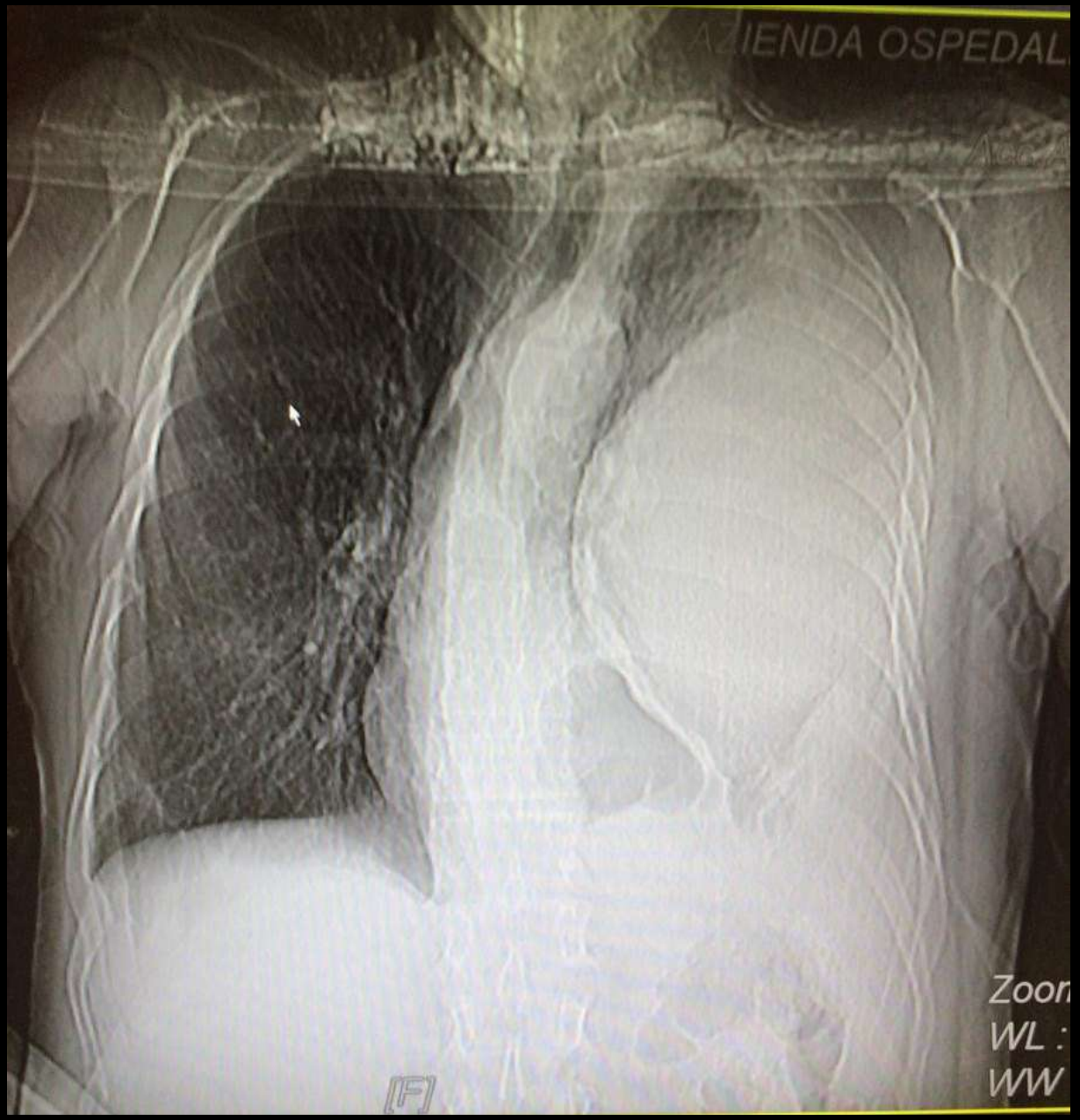
- Young, previously healthy patient
- Severe pneumonia during summer months
- Concurrent influenza
- Cavitary infiltrate or necrosis
- Rapidly increasing pleural effusion
- Gross hemoptysis (not just blood-streaked)
- Neutropenia
- Erythematous rash
- Skin pustules

N Engl J Med 2014;370:543-51

Clinical indications for more extensive diagnostic testing

Indication	Blood culture	Sputum culture	*Legionella* UAT	Pneumococcal UAT	Other
Intensive care unit admission	X	X	X	X	X[a]
Failure of outpatient antibiotic therapy		X	X	X	
Cavitary infiltrates	X	X			X[b]
Leukopenia	X			X	
Active alcohol abuse	X	X	X	X	
Chronic severe liver disease	X			X	
Severe obstructive/structural lung disease		X			
Asplenia (anatomic or functional)	X			X	
Recent travel (within past 2 weeks)			X		X[c]
Positive *Legionella* UAT result		X[d]	NA		
Positive pneumococcal UAT result	X	X		NA	
Pleural effusion	X	X	X	X	X[e]

Clinical Infectious Diseases 2007; 44:S27–72


IENDA OSPEDAL
[F]

AMERICAN THORACIC SOCIETY DOCUMENTS

Diagnosis and Treatment of Adults with Community-acquired Pneumonia

An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America

Joshua P. Metlay*, Grant W. Waterer*, Ann C. Long, Antonio Anzueto, Jan Brozek, Kristina Crothers, Laura A. Cooley, Nathan C. Dean, Michael J. Fine, Scott A. Flanders, Marie R. Griffin, Mark L. Metersky, Daniel M. Musher, Marcos I. Restrepo, and Cynthia G. Whitney; on behalf of the American Thoracic Society and Infectious Diseases Society of America

THIS OFFICIAL CLINICAL PRACTICE GUIDELINE WAS APPROVED BY THE AMERICAN THORACIC SOCIETY MAY 2019 AND THE INFECTIOUS DISEASES SOCIETY OF AMERICA AUGUST 2019

Am J Respir Crit Care Med 2019;200:45–67

Outpatient

- Previously **healthy** and no risk facors for MRSA/P. aeruginosa

Amoxicilline (1g/8h)

prior respiratory isolation of MRSA or P. aeruginosa or recent hospitalization **AND** parenteral antibiotics in the last 90 d.

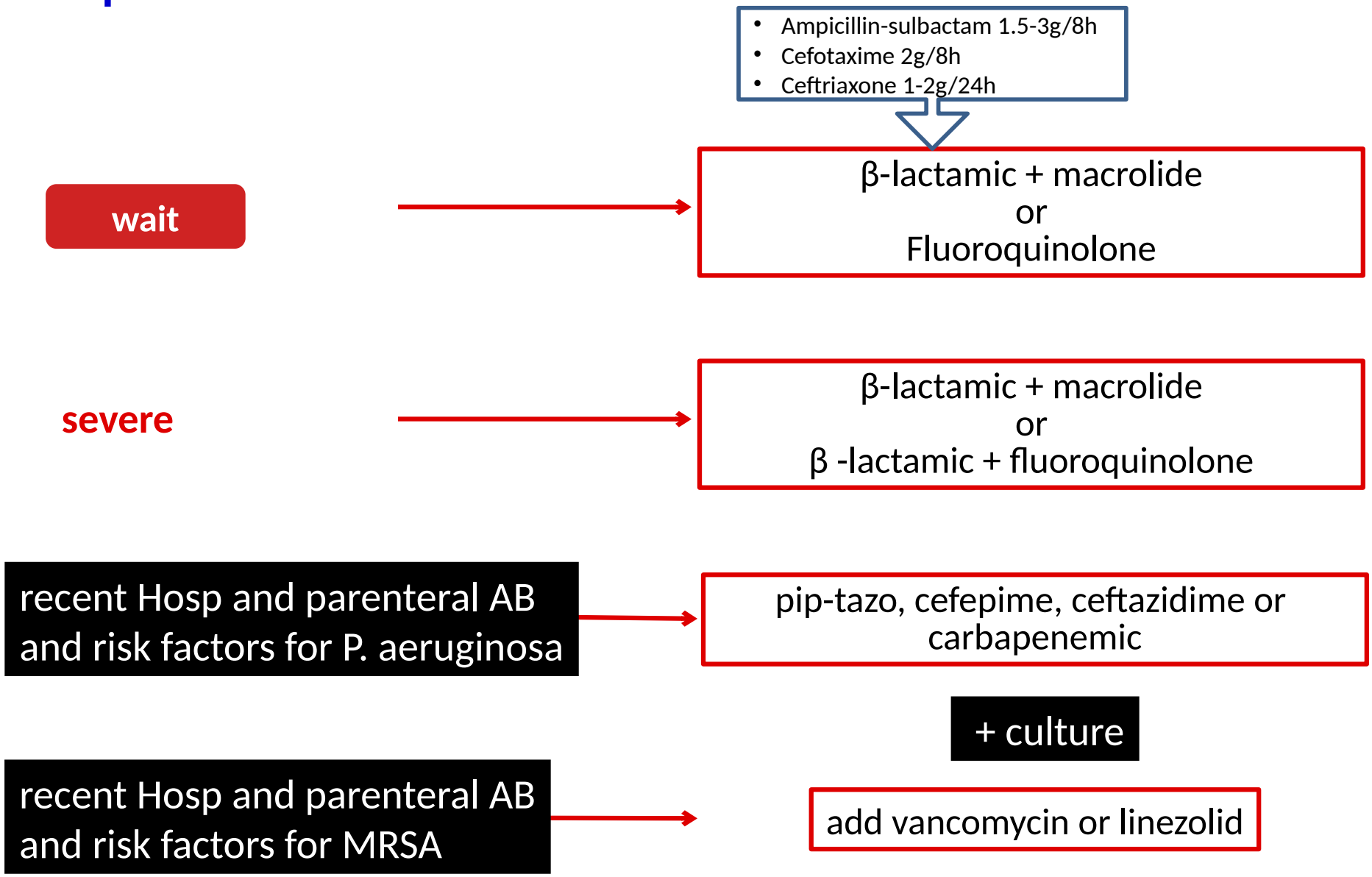
Macrolide*

- Presence of **comorbidities**

- chronic heart, lung, liver, or renal disease
- diabetes mellitus
- alcoholism
- malignancy
- asplenia

(Levo 750 mg, Moxi 400 mg)

Inpatient


• Ampicillin-sulbactam 1.5-3g/8h
• Cefotaxime 2g/8h
• Ceftriaxone 1-2g/24h
wait
β-lactamic + macrolide
or
Fluoroquinolone
severe
β-lactamic + macrolide
or
β -lactamic + fluoroquinolone
recent Hosp and parenteral AB and risk factors for P. aeruginosa
pip-tazo, cefepime, ceftazidime or carbapenemic
+ culture
recent Hosp and parenteral AB and risk factors for MRSA
add vancomycin or linezolid

AS TIME GOES BY.....

Recommendation	2007 ATS/IDSA Guideline	2019 ATS/IDSA Guideline
Sputum culture	Primarily recommended in patients with severe disease	Now recommended in patients with severe disease as well as in all inpatients empirically treated for MRSA or *Pseudomonas aeruginosa*
Blood culture	False positive ↑LOS	Now recommended in patients with severe disease as well as in all inpatients empirically treated for MRSA or *P. aeruginosa*
Macrolide monotherapy	Strong recommendation for outpatients	Conditional recommendation for outpatients based on resistance levels
Use of procalcitonin	Not covered	Not recommended to determine need for initial antibacterial therapy
Use of corticosteroids	Not covered	Recommended not to use. May be considered in patients with refractory septic shock
Use of healthcare-associated pneumonia category	Accepted as introduced in the 2005 ATS/IDSA hospital-acquired and ventilator-associated pneumonia guidelines	Recommend abandoning this categorization. Emphasis on local epidemiology and validated risk factors to determine need for MRSA or *P. aeruginosa* coverage. Increased emphasis on deescalation of treatment if cultures are negative
Standard empiric therapy for severe CAP	β-Lactam/macrolide and β-lactam/fluoroquinolone combinations given equal weighting	Both accepted but stronger evidence in favor of β-lactam/macrolide combination
Routine use of follow-up chest imaging	Not addressed	Recommended not to obtain. Patients may be eligible for lung cancer screening, which should be performed as clinically indicated

CAP severity = ICU addmission criteria

Major criteria:

- Invasive mechanical ventilation
- Septic shock with the need for vasopressors

Minor criteria:

- RR > 30 breaths/min
- P/F < 250
- Multilobar infiltrates
- Confusion/disorientation
- BUN > 20 mg/dL
- Lactate ≥ 4 mmol/L
- WBC < 4000 cells/mm^3
- PLT < 100,000 cells/mm^3
- CT < 36 C°
- Hypotension requiring aggressive fluid resuscitation

≥3 → MV/VS, ICU adm, 30 d mortality

IDSA-ATS 2007→2019

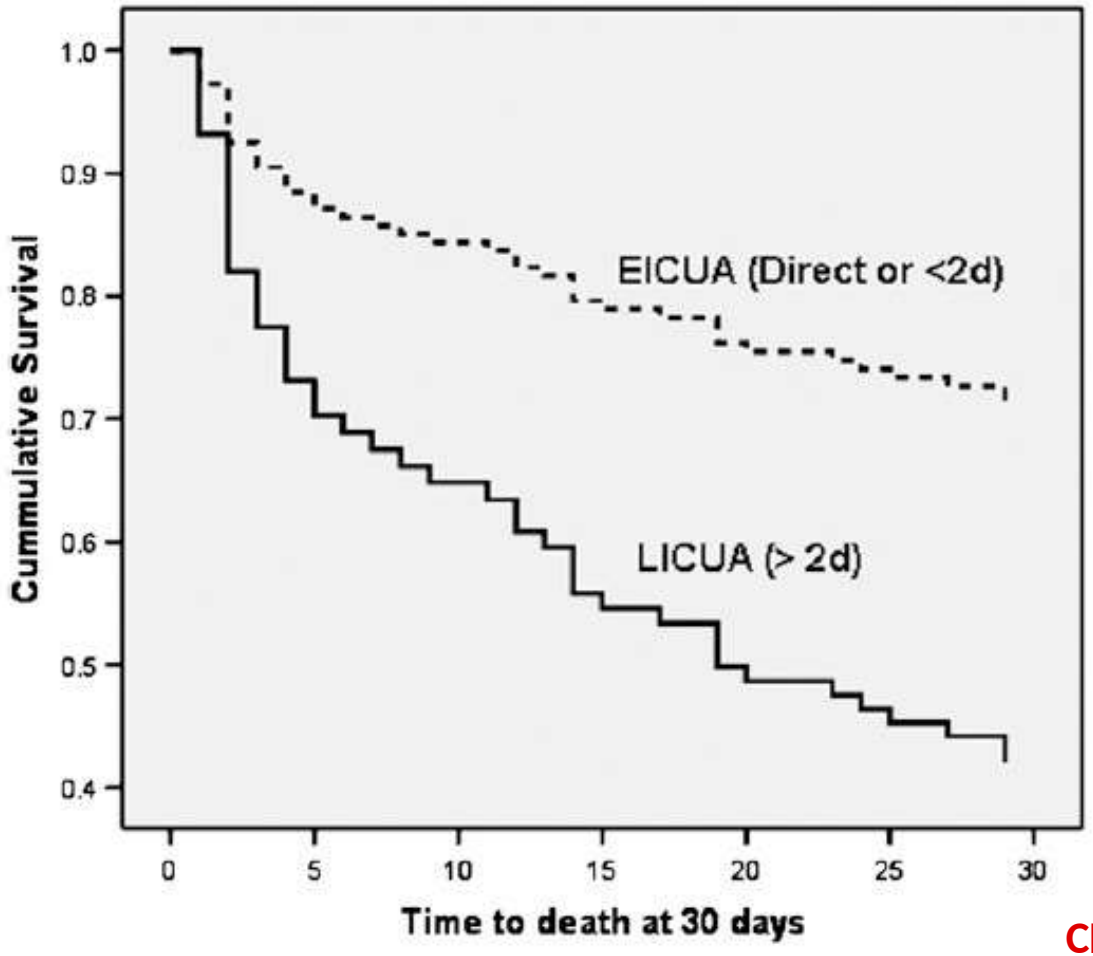
CHEST

Original Research

CRITICAL CARE MEDICINE

Late Admission to the ICU in Patients With Community-Acquired Pneumonia Is Associated With Higher Mortality

Marcos I. Restrepo, MD, MSc, FCCP; Eric M. Mortensen, MD, MSc; Jordi Rello, MD, PhD; Jennifer Brody, MD; and Antonio Anzueta, MD



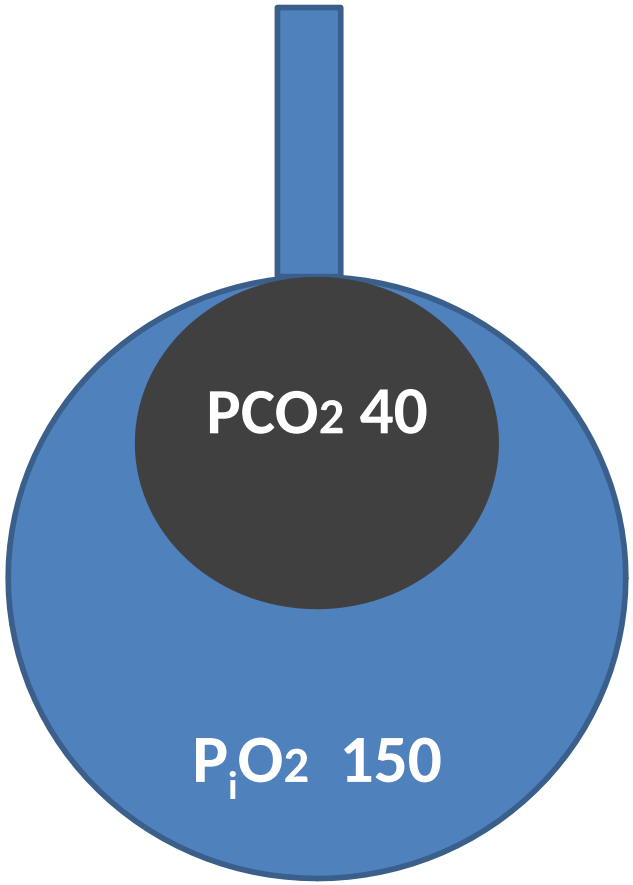
CHEST 2010; 137(3):552–557

ENZO, 25 y

ACIDO-BASE 37.0 °C		
pH	7.413	
pCO_2	39.3	mmHg
pO_2	47.6↓	mmHg
HCO_3^- act	24.5	mmol/L
HCO_3^- std	24.3	mmol/L
BE(B)	0.1	mmol/L
BE(ecf)	-0.1	mmol/L
$ctCO_2$	25.7	mmol/L
CO-OSSIMETRIA		
Hct	48	%
tHb	16.4	g/dL
sO_2	87.6	%
FO_2Hb	84.7↓	%
FCOHb	3.0↑	%
FMetHb	0.3	%
FHHb	12.0↑	%
OSSIGENAZIONE 37.0 °C		
BO_2	22.0	mL/dL
p50	23.9	mmHg
$ctO_2(a)$	19.5	mL/dL
ELETTROLITI		
Na^+	139.4	mmol/L
Ca^{++}	1.22	mmol/L
Cl^-	104	mmol/L
METABOLITI		
Glu	112↑	mg/dL
Lac	2.11↑	mmol/L

P/F 230

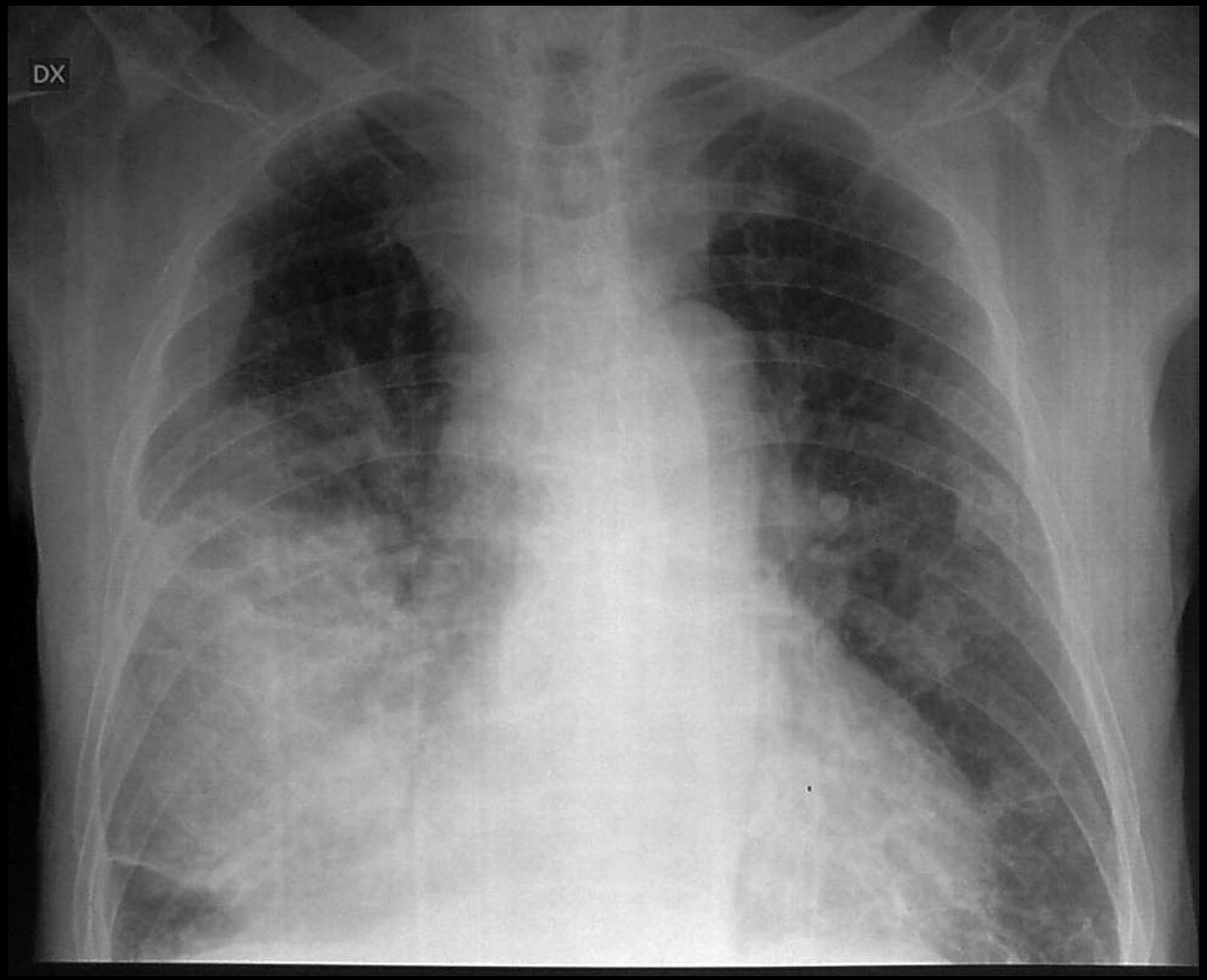
P_AO_2 100



Δ (A-a)O_2 = 52

Amoxicillin-Clav
+
Clarithromycin

inpatient



BAL: **Pneumocystis jirovecii**

trimethoprim/sulfamethoxazole (Bactrim 3 fl ev x 4)
+
corticosteroids

HIV

BAL: **A. baumani**

Feldman and Anderson *Pneumonia* (2021) 13:5
https://doi.org/10.1186/s41479-021-00083-w

Pneumonia

REVIEW Open Access

The role of co-infections and secondary infections in patients with COVID-19

Charles Feldman[1*†] and Ronald Anderson[2†]

- secondary SARS-CoV-2 infection following bacterial infection or colonisation
- combined viral/bacterial pneumonia
- secondary bacterial superinfection following SARSCoV-2

Maria 41 yo

NIDDM

Smoker

- 5 days fever and cough
- Amoxicillin-Clav (48 H)

- T 41°C
- BP 140/80
- HR 110
- SpO2 75% on FiO2 40%

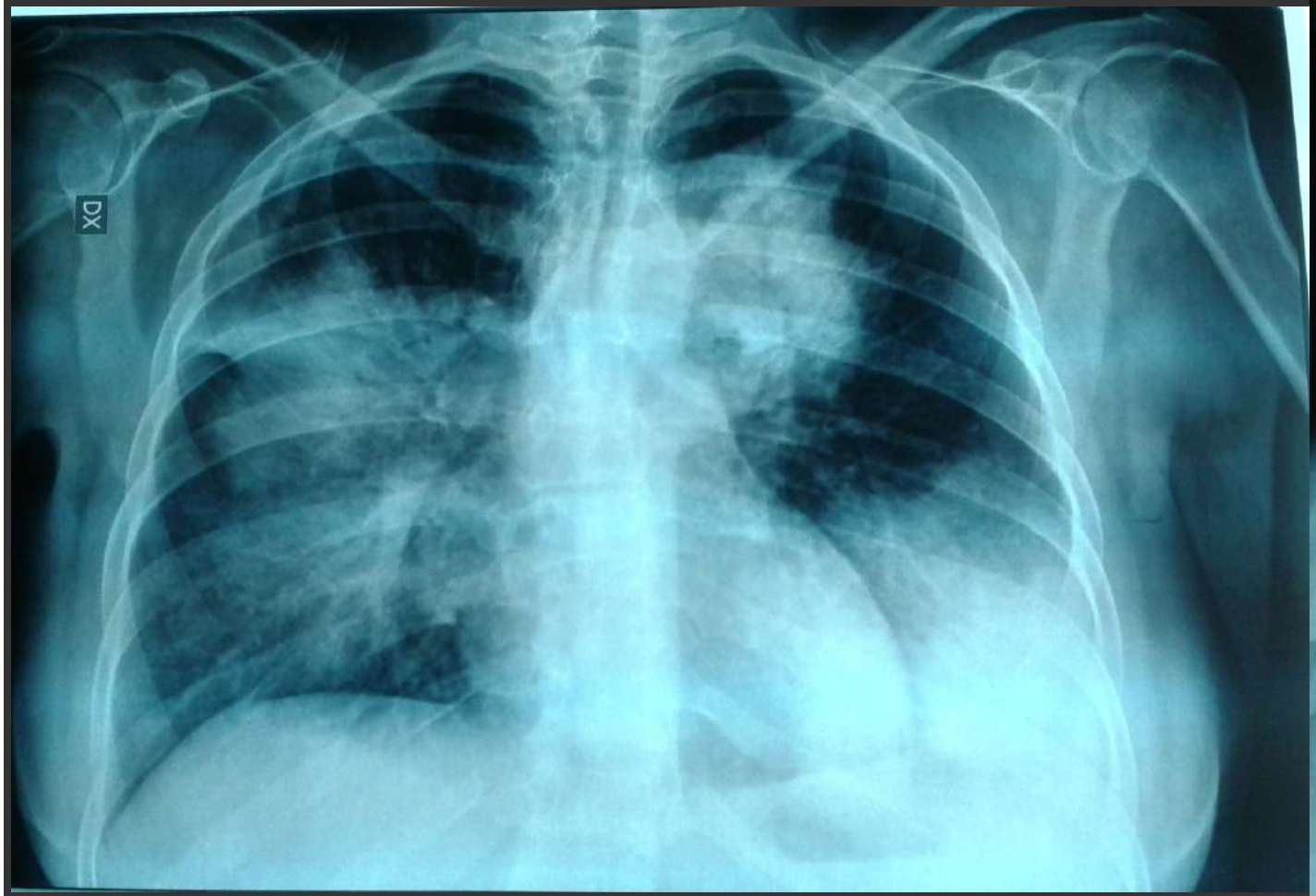
FiO2 40%
FR 40

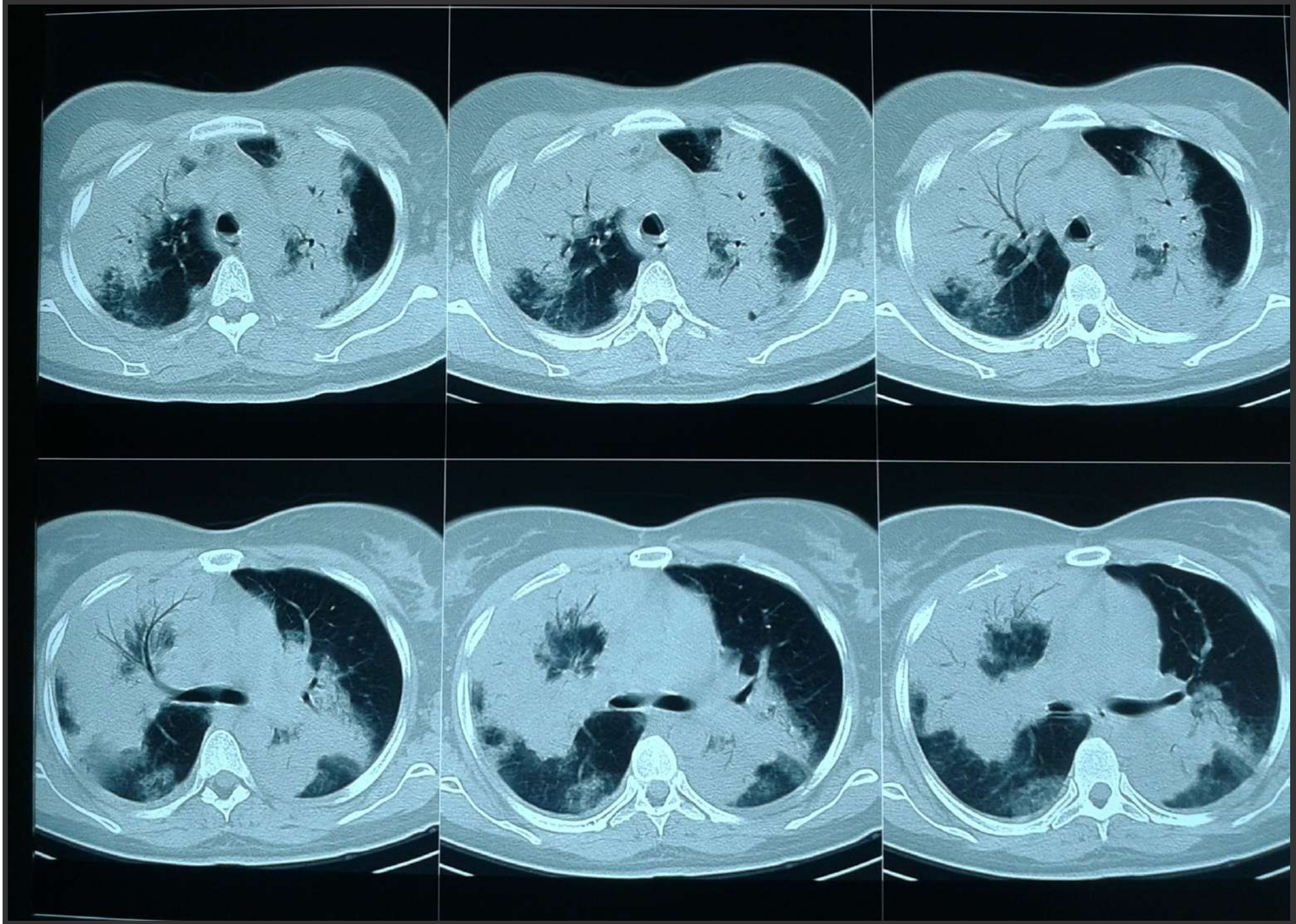
pH	7.52	
pCO2	28	mmHg
pO2	37	mmHg
Na+	123	mmol/L
K+	3.4	mmol/L
Ca++	1.05	mmol/L
Glu	264	mg/dL
Lat	3.7	mmol/L
Hct	31	%

Parametri derivati

Ca++(7.4)	1.10	mmol/L
HCO3-	22.9	mmol/L
HCO3std	25.0	mmol/L
TCO2	23.8	mmol/L
BEecf	0.0	mmol/L
BE(B)	0.6	mmol/L
SO2c	78	%
THbc	9.6	g/dL
A-aDO2	-----	

P/F 92


DX



Clinical Microbiology and Infection 23 (2017) 653–658

Contents lists available at ScienceDirect

Clinical Microbiology and Infection

journal homepage: www.clinicalmicrobiologyandinfection.com

Original article

Levofloxacin versus azithromycin for treating legionella pneumonia: a propensity score analysis

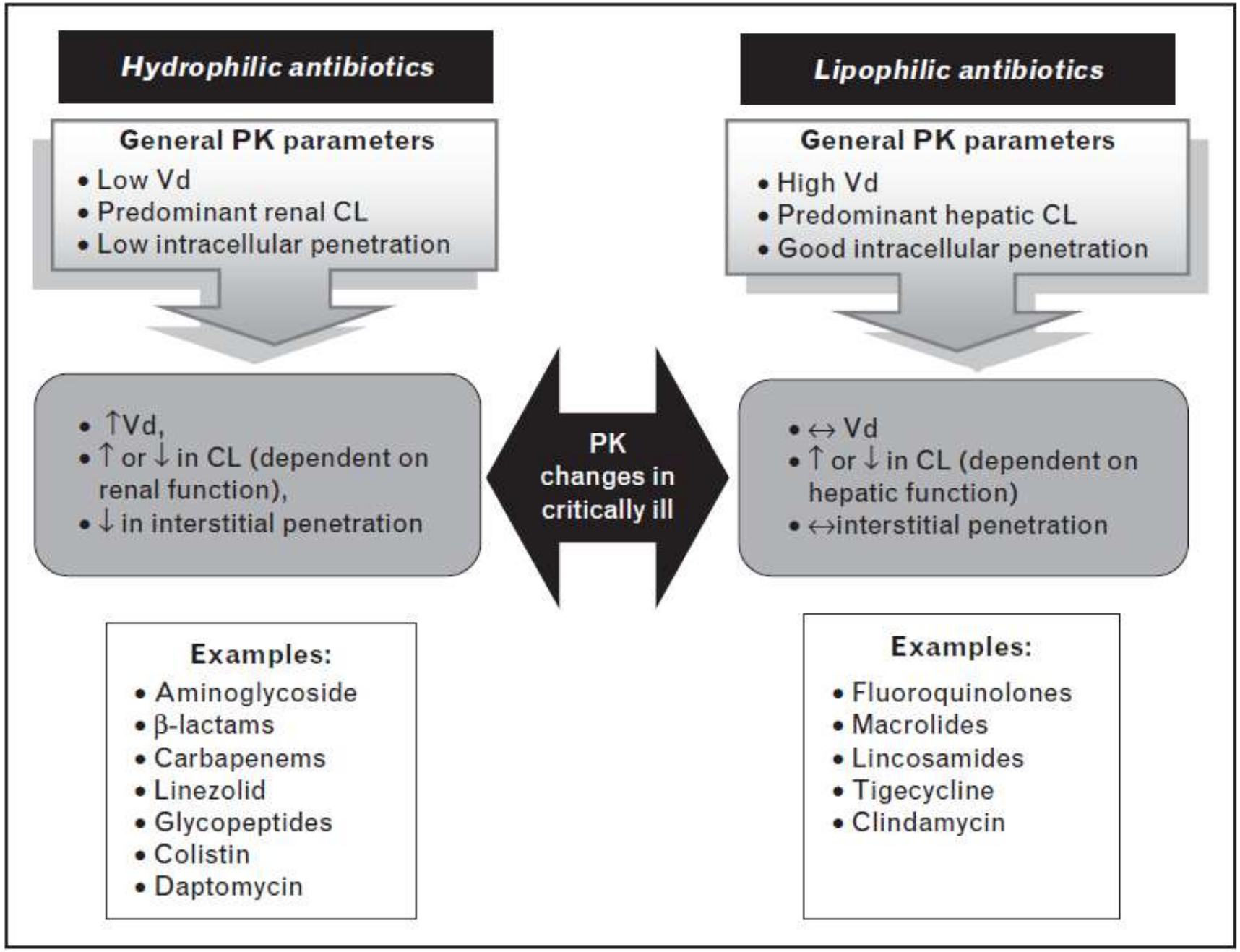
C. Garcia-Vidal [1, 2, *], I. Sanchez-Rodriguez [3], A.F. Simonetti [1], J. Burgos [3], D. Viasus [1, 4], M.T. Martin [3], V. Falco [3], J. Carratalà [1, 2]

446 pts

no significant differences in most outcomes were found between patients treated with levofloxacin and those treated with azithromycin.

Due to the small number of deaths, results regarding mortality should be interpreted with caution.

Antibiotics PK and dosing



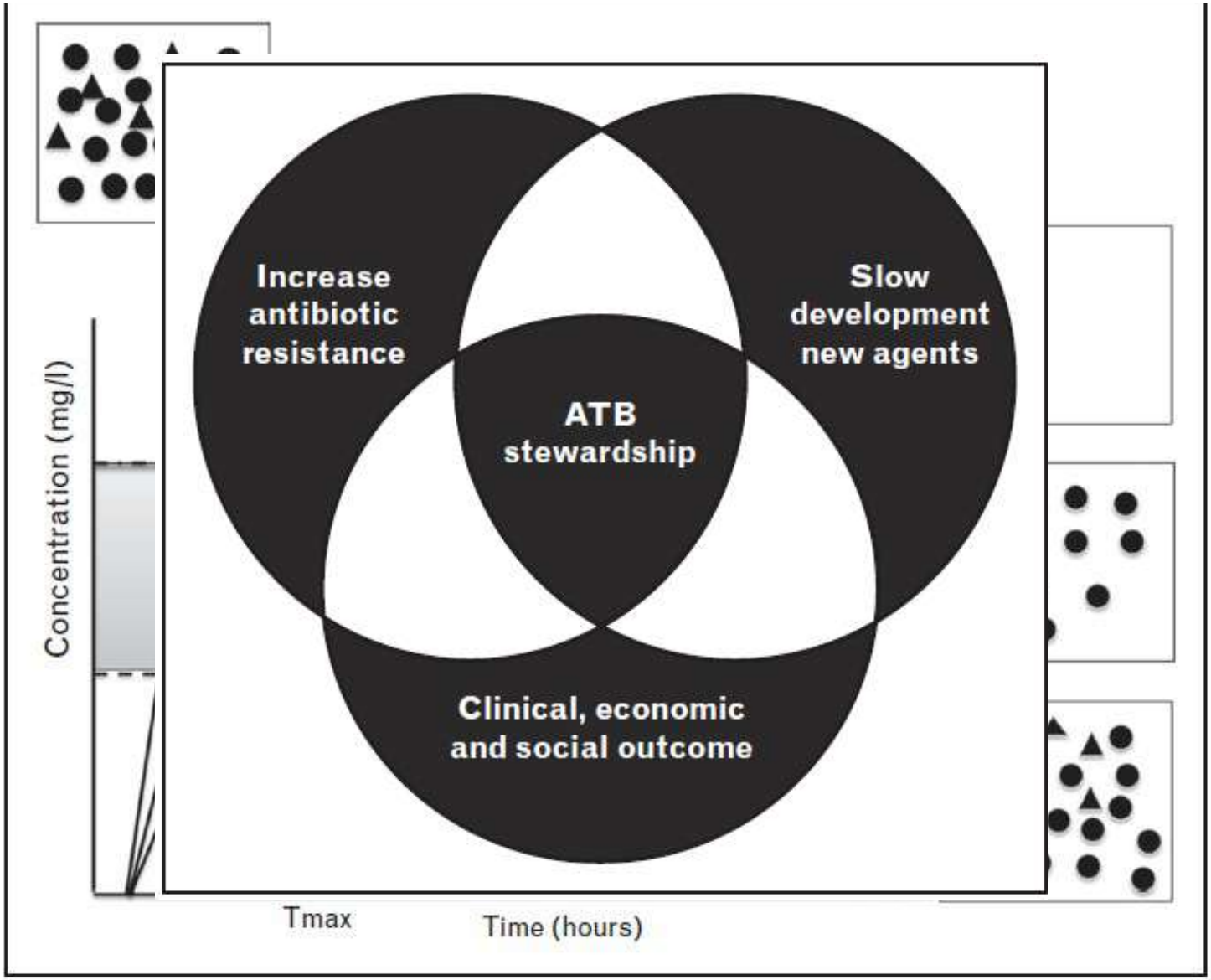
Curr Opin Crit Care 2012, 18:460–471

REVIEW

Curr Opin Crit Care 2014, 20:516–524

Risks for multidrug-resistant pathogens in the ICU

Ignacio Martín-Loeches[a,b], *Emili Diaz*[b], *and Jordi Vallés*[b]



KEY POINTS

1. Etiological vs empirical diagnosis (POCT)
2. Risk assessment and outcome
3. The right treatment at the right time
4. Local guidelines and ABT stewardship