PNEUMONIAS COMUNITÁRIAS DIRETRIZES E PRÁTICA CLÍNICA

Dra. Priscilla Alexandrino

Médica Infectologista

CONFLITOS DE INTERESSE

- Speaker MSD, Astellas, Novartis, Astra Zeneca e Bayer.
- Programas de Educação Médica: Novartis, Pfizer, MSD, Bayer e Astellas.

Resolução Anvisa 102/2000

Resolução CFM nº 1.595/2000

- Introdução
- Definição e epidemiologia
- Etiologia e resistência
- Diretrizes
- Índices de Gravidade
- Local de tratamento
- Terapêutica

PNEUMONIAS COMUNITÁRIAS
RELEVÂNCIA DO TEMA

- 4.000.000 de atendimentos médicos nos EUA
- 8ª causa de mortalidade ; 57.000 óbitos/2007
- 17 bilhões de dólares gastos anualmente

Watikins R.R, Lemonvich T.L. *Am Fam Physician. 2011;83(11):1299-1306.*

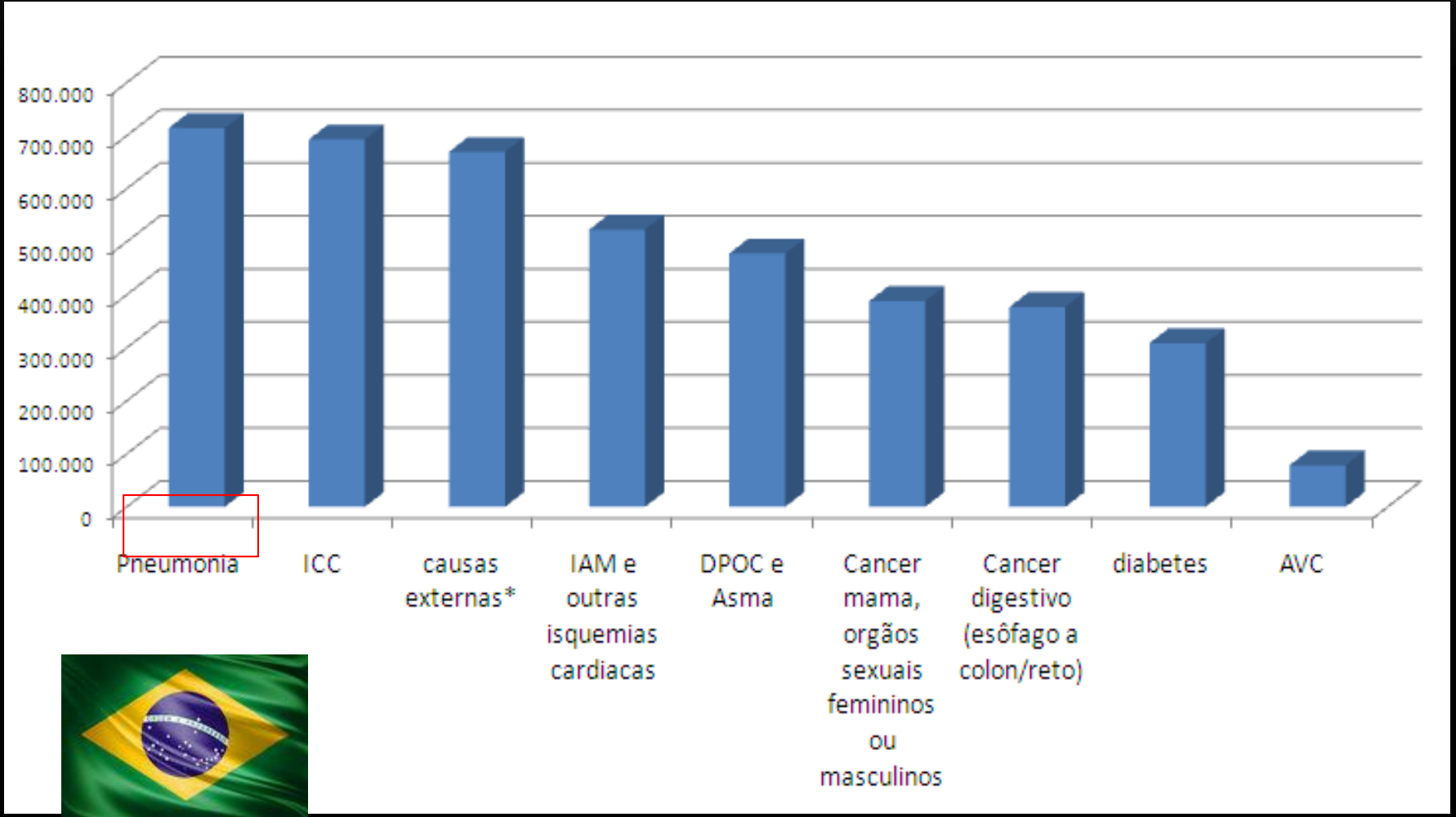
- Maior causa de mortalidade por infecção na Europa
- 10 bilhões de dólares gastos ao ano para o tratamento na Europa

Blasi F, Mantero M, Santus P, et al. U. Clin Microbiol Infect 2012;18:1–8.

- Primeira causa de internação geral no Brasil
- 733.000 internações no SUS em 2007

Corrêa R.A *et al. 2009;35(6):574-601.4.*

PNEUMONIAS ADQUIRIDAS NA COMUNIDADE IMPORTÂNCIA CLÍNICO-EPIDEMIOLÓGICA NO BRASIL

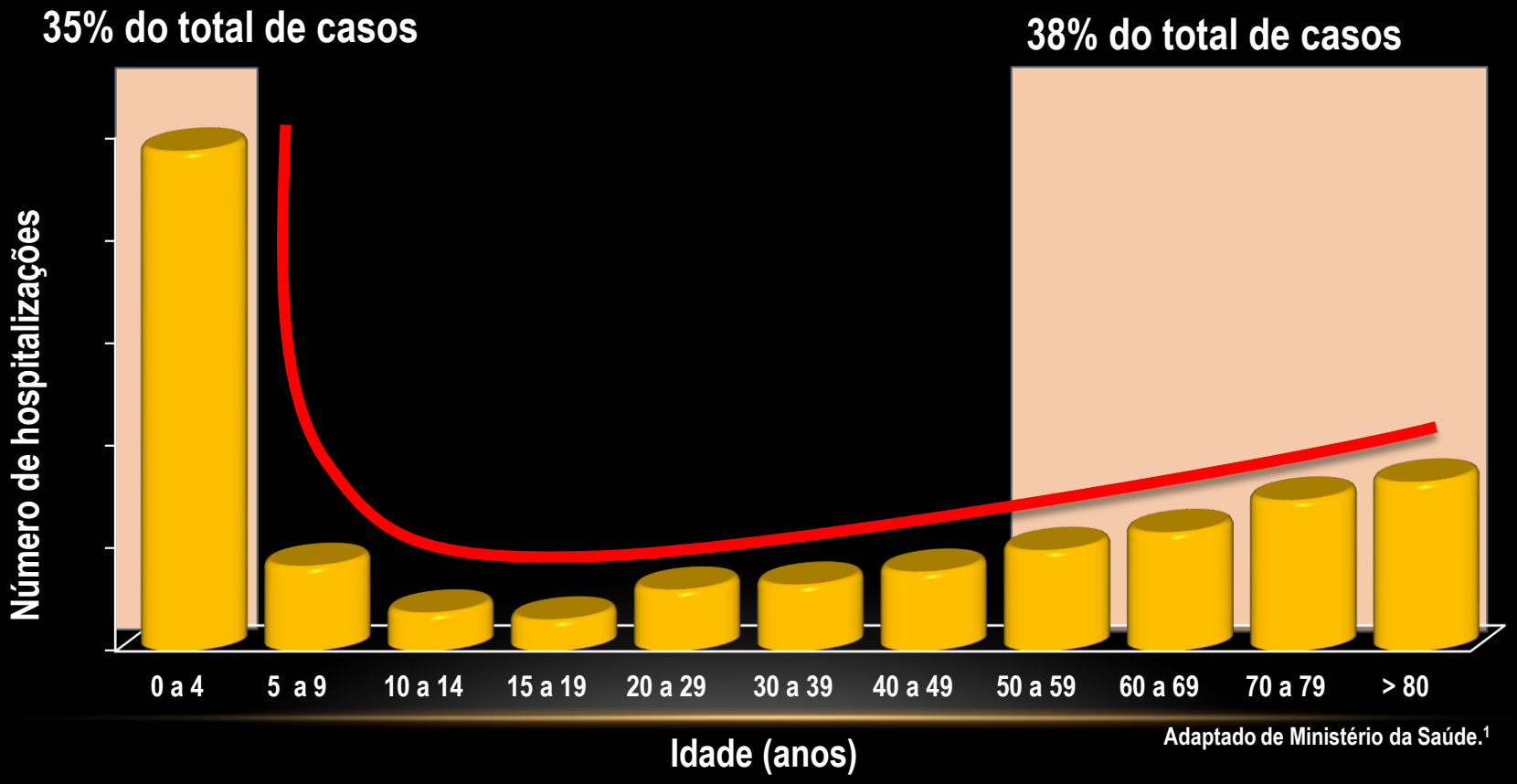


Ministério da Saúde. Datasus.Acesso em 20/09/2013.

Número de hospitalizações por pneumonia segundo faixa etária

(Brasil, 2012)

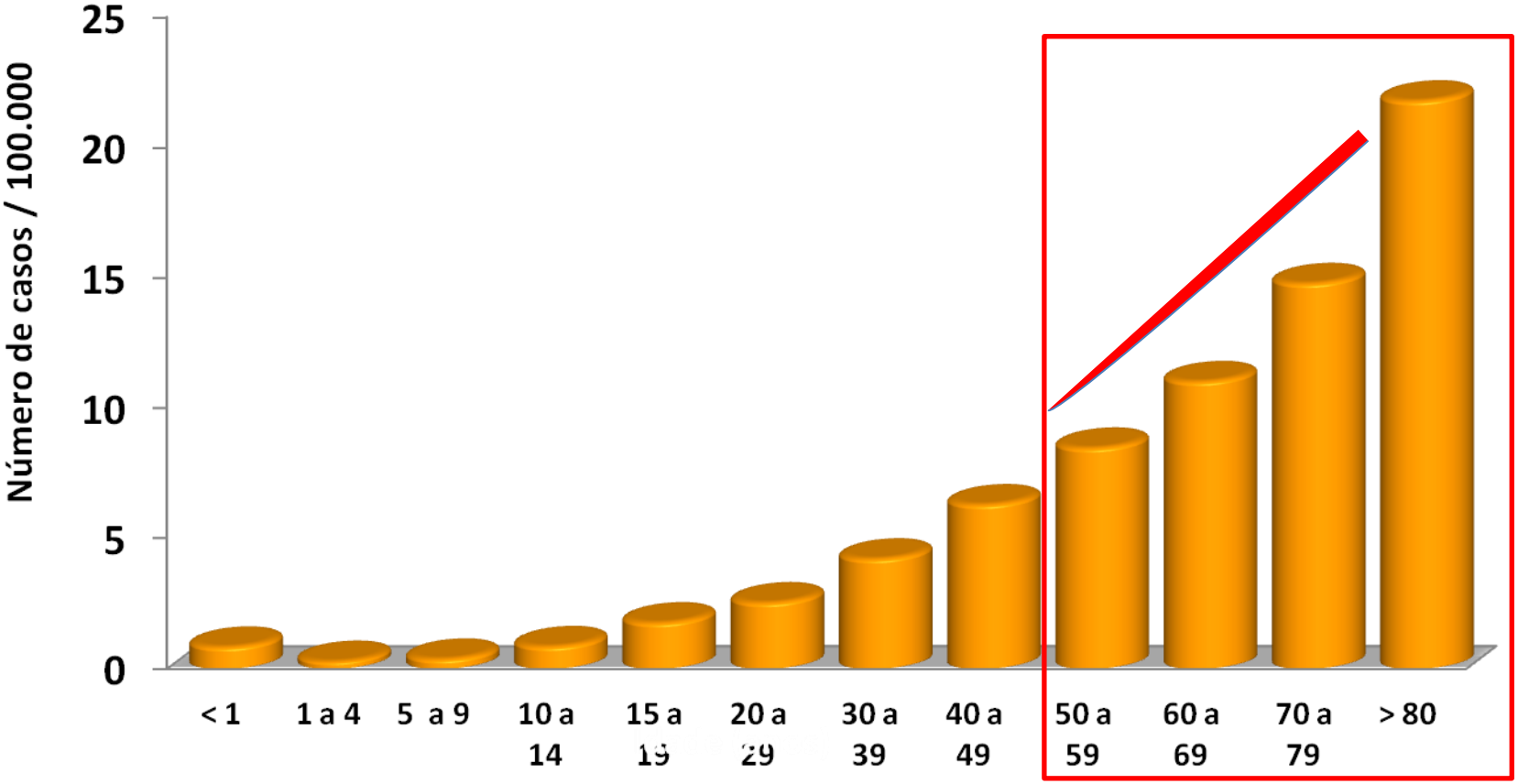
N =682.345 casos



Adaptado de Ministério da Saúde.[1]

1. Ministério da Saúde. Datasus. Informações de Saúde (TABNET). Número de nternações por pneumonia de janeiro a dezembro de 2012. Disponível em: http://www2.datasus.gov.br/DATASUS/index.php?area=0203. Acesso em 20/09/2013.

Pneumonias Adquiridas na Comunidade-PACs
Aspectos Clínico-Epidemiológicos/Mortalidade



Ministério da Saúde. Datasus. Informações de Saúde (TABNET). Taxa de mortalidade por pneumonia de janeiro a dezembro de 2012. Disponível em http://www2.datasus.gov.br/DATASUS/index.php?area=0203 Acesso em 20/09/2013.

PNEUMONIA ADQUIRIDA NA COMUNIDADE DEFINIÇÃO

- Pneumonias são doenças inflamatórias agudas de causa infecciosa que acometem os espaços aéreos e são causadas por vírus, bactérias ou fungos. ***A PAC se refere à doença adquirida fora do ambiente hospitalar ou de unidades especiais de atenção à saúde ou, ainda, que se manifesta em até 48 h da admissão à unidade assistencial***

J Bras Pneumol, 2009;35(6):574-601

INFECÇÕES ASSOCIADAS À ASSISTÊNCIA À SAÚDE

AHRQ Agency for Healthcare Research and Quality

Advancing Excellence in Health Care

Infecções cuja ocorrência se associa à prestação de alguma forma de assistência à saúde, mesmo que realizada fora do ambiente hospitalar. Estes cuidados predispõe à colonização por microorganismos multirresistentes

- Diálise
- Assistência domiciliar
- Estabelecimento de longa permanência
- **Internação nos últimos 2 meses**
- **Uso de antimicrobianos,** quimioterápicos **ou cuidados em feridas no último mês**

www.psnet.ahrq.gov. Acesso em 05/05/2013

EPIDEMIOLOGIA DA PAC

- Incidência : 2–16 / 1.000 habitantes / ano em adultos [2,3]
- 8–51% dos adultos diagnosticados com PAC são hospitalizados[2]
  - A taxa de hospitalizações por PAC no Reino Unido aumentou de 1,48 por 1.000 habitantes em 1998 para 1,98 por 1.000 habitantes em 2005 (aumento de 38%)[4]
  - 1,2–10% dos pacientes com PAC são internados em unidade de terapia intensiva[5]
- Mortalidade varia de <1% a 48%[1]
  - Maior mortalidade associada à idade ≥65 anos
- Pacientes hospitalizados com PAC[2]
  - Taxas de mortalidade estimadas de 4–15%
  - Mortalidade de 35,7% para pacientes com PAC internados em UTI no Reino U (2000–2004)[6]
  - Aproximadamente 78% dos pacientes apresentam comorbidades[7]

PAC : O AMBIENTE EM TRANSIÇÃO

- Outros patógenos importantes em PAC:
  - Gram-positivos: MSSA
  - Gram-negativos: *Haemophilus influenzae* e *Moraxella catarrhalis*
  - Patógenos bacterianos atípicos (como *Mycoplasma pneumoniae*, *Chlamydophila pneumoniae, Legionella pneumophila*)*
- Aumento do numero de cepas resistentes de *S. pneumoniae* [4,5]
- Taxas de **falha no tratamento empírico** em pacientes hospitalizados com PAC variaram de **5 a 25%**[6]
- **Taxas de troca** do tratamento empírico em pacientes hospitalizados com PAC que necessitam de tratamento com antibiótico IV são altas **(37%)**[7]

ESTUDO REACH – PAC

FALHA DE TRATAMENTO É A RAZÃO MAIS COMUM PARA A MODIFICAÇÃO DO TRATAMENTO INICIAL

Clinical outcome, n (%)	N=2,039
Patients with initial antibiotic treatment modification or death	757 (37.1)
Primary reason for initial antibiotic treatment modification	
Adverse events	41 (**2.0**)
Insufficient response/treatment failure	244 (**12.0**)
Possible interaction with other treatment	1 (**0**)
Streamlining	105 (**5.1**)
Other	149 (**7.3**)
Unknown	47 (**2.3**)
No reason reported	107 (**5.2**)
Death	63 (**3.1**)

Blasi et al. Respiratory Research 2013, 14:44

ESTUDO REACH – PAC

A MODIFICAÇÃO DO TRATAMENTO INICIAL ESTÁ ASSOCIADA COM COMPLICAÇÕES

Event	With treatment modification	Without treatment modification
Mean length of hospital stay, days	15.3	10.9
ICU admission, %	21.3	9.1
Incidence of septic shock, %	8.5	1.6

Ostermann H et al. Clin Microbiol Infect 2012;18(Suppl. 3):24 (abstract from ECCMID 31 March, 2012. Oral presentation O175

PNEUMONIAS ''ATÍPICAS''
E A COBERTURA EMPÍRICA INICIAL...

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Table 1

Proportion of patients with atypical pathogen positive community - acquired pneumonia on the basis of PCR and serological findings

Total number of enrolled patients with community acquired pneumonia: 722

Total number of atypical pathogen positive patients: 215 (29.78%)

Detected Pathogen	By only ELISA	By only PCR	By both PCR and ELISA	Total of atypical pathogen positive cases
M. pneumoniae	9	42	139	190
C. pneumoniae	0	7	6	13
L. pneumophila	0	1	11	12

Huong *et al.*

Huong *et al. BMC Public Health* 2014 **14**:1304 doi:10.1186/1471-2458-14-1304

OPEN DATA

Thanh Tuong PE et al. BMC Public Health. 2014; 14: 1304

BRIEF REPORT

High Prevalence of Macrolide Resistance in *Mycoplasma pneumoniae* Isolates from Adult and Adolescent Patients with Respiratory Tract Infection in China

Bin Cao,[1,a] Chun-Jiang Zhao,[2,a] Yu-Dong Yin,[1,a] Fei Zhao,[4,a] Shu-Fan Song,[1] Lu Bai,[1] Jian-Zhong Zhang,[4] Ying-Mei Liu,[1] Yu-Yu Zhang,[1] Hui Wang,[3,a] and Chen Wang[2]

[1]Department of Infectious Diseases and Clinical Microbiology and [2]Beijing Institute of Respiratory Medicine, Beijing Chao-Yang Hospital, Capital Medical University, [3]Department of Clinical Laboratory, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences, and [4]Chinese Center for Disease Control and Prevention, Beijing, People's Republic of China

The resistance rate of 67 *Mycoplasma pneumoniae* isolates from 356 ambulatory adult patients with respiratory tract infection was 69% (46 of 67). All 46 macrolide-resistant strains harbored point mutations in the 23S ribosomal RNA gene. Patients infected with macrolide-resistant *M. pneumoniae* required significantly longer durations of antibiotic therapy and had longer time to resolution of fever.

Mycoplasma pneumoniae is a common cause of community-acquired pneumonia (CAP), especially in children and young adults, accounting for 10%–30% of cases [1–4]. In a 2009 Chinese report of adult patients with CAP, *M. pneumoniae* was the most prevalent pathogen, accounting for 20.7% of CAP cases [5]. Macrolides are the drugs of primary choice for the treatment of these infections [1], although emergence of macrolide-

of this pathogen among adult patients with CAP. We also assessed the differences in clinical consequences between infection with macrolide-susceptible *M. pneumoniae* and infection with macrolide-resistant *M. pneumoniae*. Finally, the mechanism for resistance to macrolides in *M. pneumoniae* was studied.

Methods. From 1 August 2008 through 30 September 2009, consecutive adults and adolescents (aged ≥14 years) who were seen in the fever clinic and who did not require hospitalization were prospectively enrolled in a surveillance study. None of the patients were immunocompromised; patients with human immunodeficiency virus (HIV) infection, patients with neutropenia, and patients receiving immunosuppressive chemotherapy were excluded. In addition, patients from nursing homes or patients who had been admitted to a hospital within the past 30 days were also excluded. After the first clinic encounter, all patients were followed up via telephone within 7–28 days. Symptoms and signs were recorded daily. All patients who were suspected of having CAP had a chest radiograph. When findings of the chest radiograph were normal, a chest computed tomography scan was ordered. The pneumonia severity index was used to assess the severity of illness [14].

A total of 215 and 141 throat swab specimens were collected from patients with CAP and patients with acute upper respiratory tract infection, respectively, as previously described [15]. *M. pneumoniae* isolates were identified by colony morphology and polymerase chain reaction (PCR) assay [15]. Minimum inhibitory concentrations (MICs) were determined by broth microdilution methods with SP4 broth (Remel) [15]. Susceptibility tests were performed in triplicate. The total length of the 23S ribosomal RNA (rRNA) gene of each *M. pneumoniae* strain was sequenced by the method described previously [7].

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Cao Bin et al. Clinical Infectious Diseases 2010; 51(2):189–194

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Journals.ASM.org

Macrolide-Resistant *Mycoplasma pneumoniae* Pneumonia in Adolescents and Adults: Clinical Findings, Drug Susceptibility, and Therapeutic Efficacy

Naoyuki Miyashita,[a] Hiroto Akaike,[b] Hideto Teranishi,[b] Kazunobu Ouchi,[b] Niro Okimoto[a]

Department of Internal Medicine 1[a] and Department of Pediatrics,[b] Kawasaki Medical School, Okayama, Japan

We investigated differences in the clinical findings between 30 patients with macrolide-resistant *Mycoplasma pneumoniae* pneumonia and 43 patients with macrolide-sensitive *M. pneumoniae* pneumonia in adolescents and adults. No differences in clinical presentation were observed between the two groups. Among patients with macrolide-resistant *Mycoplasma pneumoniae* pneumonia, treatment was more effective in the groups that received quinolones and minocycline than in the group that received macrolides ($P = 0.0361$ and $P = 0.0237$, respectively).

Principe N et al. J. Antimicrob. Chemother. (2013)68 (3): 506-511.

ORIGINAL ARTICLE 10.1111/j.1469-0691.2011.03602.x

Guidelines for the management of adult lower respiratory tract infections - Summary

M. Woodhead[1], F. Blasi[2], S. Ewig[3], J. Garau[4], G. Huchon[5], M. Ieven[6], A. Ortqvist[7], T. Schaberg[8], A. Torres[9], G. van der Heijden[10], R. Read[11] and T. J. M. Verheij[12] Joint Taskforce of the European Respiratory Society and European Society for Clinical Microbiology and Infectious Diseases

1) Department of Respiratory Medicine, Manchester Royal Infirmary, Manchester, UK, 2) Dipartimento Toraco-Polmonare e Cardiocircolatorio, Universita degli Studi di Milano, IRCCS Ospedale Maggiore di Milano, Milano, Italy, 3) Chefarzt der Kliniken für Pneumologie und Infektiologie, Ev. Krankenhaus Herne und Augusta-Kranken-Anstalt, Bergstrasse, Bochum, Germany, 4) Department of Medicine, Hospital Universitari Mutua de Terrassa, University of Barcelona, Barcelona, Spain, 5) Pneumologie et Reanimation, Hotel-Dieu de Paris, 1 Place Parvis Notre-Dame, Paris, France, 6) Microbiology Laboratory, University Hospital Antwerp, Edegem, Belgium, 7) Department of Communicable Diseases Control and Prevention, Stockholm County, Stockholm, Sweden, 8) Zentrum für Pneumologie, Diakoniekrankenhaus Rotenburg, Elise-Averdiek-Str. Rotenburg, Germany, 9) Pulmonary Department, Institut Clinic del Torax, Hospital Clinic de Barcelona, IDIBAPS, CIBERES (Ciber de Enfermedades Respiratorias), Facultad de Medicina. Universitat de Barcelona, Barcelona, Spain, 10) Clinical Epidemiology, Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Julius Center, Utrecht, The Netherlands, 11) Infectious Diseases, Department of Infection and Immunity, Sheffield School of Medicine and Biomedical Science, University of Sheffield, Royal Hallamshire Hospital, Sheffield, UK and 12) General Practice, Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, The Netherlands

Cornelly O.A et al. Clin Microbiol Infect 2012;18(suppl.7):19-37

Contents Volume 64 Issue Suppl III | THORAX October 2009

BTS guidelines for the management of community acquired pneumonia in adults: update 2009

Lim W.S et al. Thorax 2009;64:1-55

SUPPLEMENT ARTICLE

Infectious Diseases Society of America/American Thoracic Society Consensus Guidelines on the Management of Community-Acquired Pneumonia in Adults

Lionel A. Mandell,[1,a] Richard G. Wunderink,[2,a] Antonio Anzueto,[3,4] John G. Bartlett,[7] G. Douglas Campbell,[8] Nathan C. Dean,[9,10] Scott F. Dowell,[11] Thomas M. File, Jr.[12,13] Daniel M. Musher,[5,6] Michael S. Niederman,[14,15] Antonio Torres,[16] and Cynthia G. Whitney[11]

[1]McMaster University Medical School, Hamilton, Ontario, Canada; [2]Northwestern University Feinberg School of Medicine, Chicago, Illinois; [3]University of Texas Health Science Center and [4]South Texas Veterans Health Care System, San Antonio, and [5]Michael E. DeBakey Veterans Affairs Medical Center and [6]Baylor College of Medicine, Houston, Texas; [7]Johns Hopkins University School of Medicine, Baltimore, Maryland; [8]Division of Pulmonary, Critical Care, and Sleep Medicine, University of Mississippi School of Medicine, Jackson; [9]Division of Pulmonary and Critical Care Medicine, LDS Hospital, and [10]University of Utah, Salt Lake City, Utah; [11]Centers for Disease Control and Prevention, Atlanta, Georgia; [12]Northeastern Ohio Universities College of Medicine, Rootstown, and [13]Summa Health System, Akron, Ohio; [14]State University of New York at Stony Brook, Stony Brook, and [15]Department of Medicine, Winthrop University Hospital, Mineola, New York; and [16]Cap de Servei de Pneumologia i Al·lèrgia Respiratòria, Institut Clínic del Tòrax, Hospital Clínic de Barcelona, Facultat de Medicina, Universitat de Barcelona, Institut d'Investigacions Biomèdiques August Pi i Sunyer, CIBER CB06/06/0028, Barcelona, Spain.

Mandell L.A et al. Clinical Infectious Diseases 2007; 44:S27–72

Diretrizes da SBPT

Diretrizes brasileiras para pneumonia adquirida na comunidade em adultos imunocompetentes - 2009*

Brazilian guidelines for community-acquired pneumonia in immunocompetent adults - 2009

Corrêa R.A et al. J Bras Pneumol. 2009;35(6):574-601

DIRETRIZES DE TRATAMENTO

- Estratificação de risco
- Tratamento empírico x isolamento do agente
- Avaliação da microbiota presumida
- Importância do *Estreptococcus pneumoniae*
- Cobertura para *Micoplasma pneumoniae, Legionella pneumophila e Clamydophila pneumoniae*
- Monoterapia com quinolonas respiratórias ou betalactâmicos+macrolídeos em enfermaria
- Betalactâmico+quinolonas/macrolídeos em unidades de terapia intensiva
- Considerar risco para *Pseudomonas aeruginosa.*

Cornelly O.A et al. Clin Microbiol Infect 2012;18(suppl.7):19-37
Corrêa R.A et al. J Bras Pneumol. 2009;35(6):574-601
Lim W.S et al. Thorax 2009;64:1-55
Mandell L.A et al. Clinical Infectious Diseases 2007; 44:S27–72

PACS - LOCAL DE TRATAMENTO AMBULATÓRIO X ENFERMARIA

- Índices de Gravidade
- Fine (PORT)/*PSI* e *BTS* (CURB/CRB)
- Idade, comorbidades, achados clínicos, laboratoriais e radiológicos
- Mortalidade em 30 dias
- Orientação do local de tratamento e terapia

J Bras Pneumol, 2009;35(6):574-601

Fine MJ et al. N Engl J Med. 1997;336(4):243-50.

INTERPRETAÇÃO-CURB/65

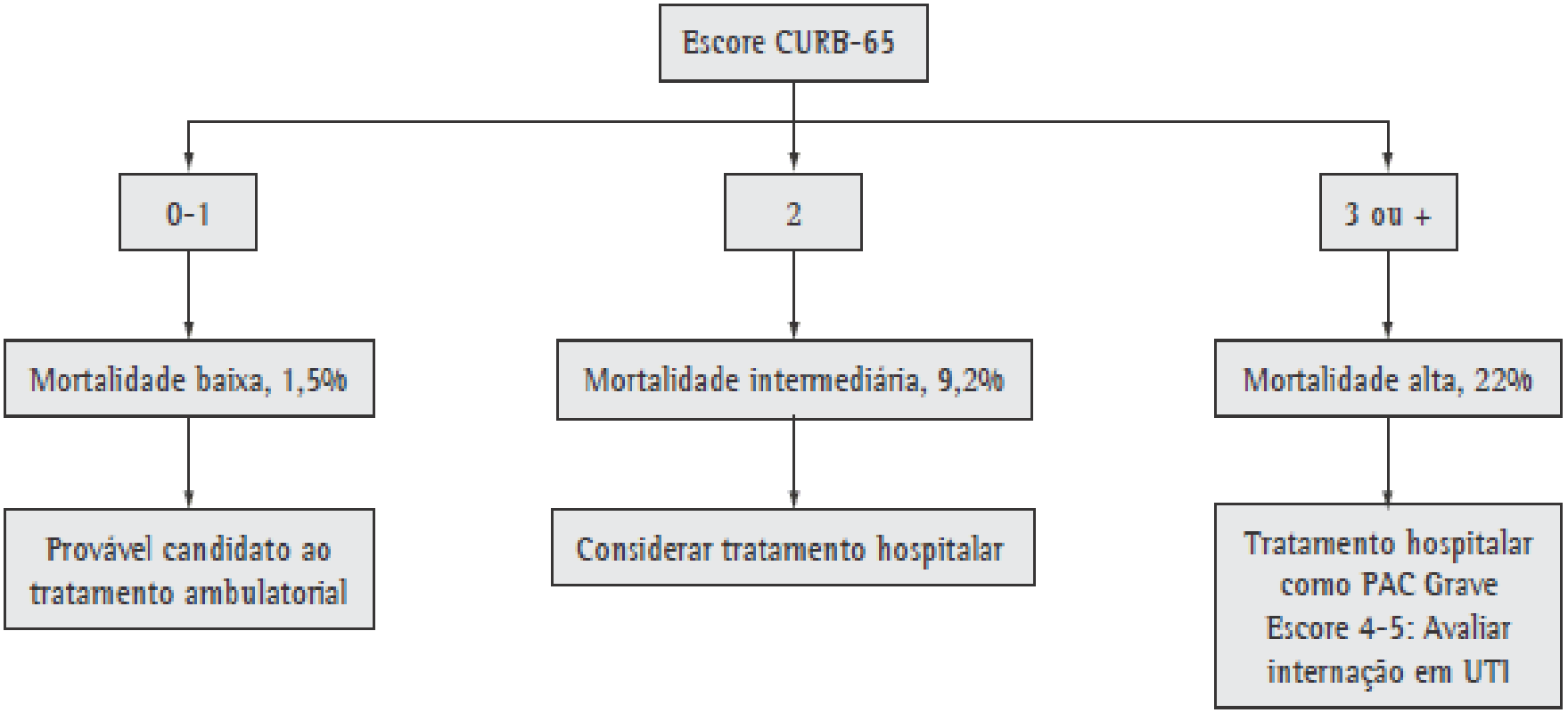


Figura 2 – Escore de avaliação CURB-65. PAC: pneumonia adquirida na comunidade; UTI: unidade de terapia intensiva; CURB-65: (C: confusão mental; U: ureia > 50 mg/dL; R: frequência respiratória ≥ 30 ciclos/min; B: Pressão arterial sistólica < 90 mmHg ou diastólica ≤ a 60 mmHg; e Idade ≥ 65 anos).

ENFERMARIA X UNIDADE DE TERAPIA INTENSIVA CRITÉRIOS DE *EWIG ET AL*

Critérios de definição de pneumonia adquirida na comunidade grave

• *Critérios maiores: presença de um critério indica a necessidade de UTI*

- Choque séptico necessitando de vasopressores

- Insuficiência respiratória aguda com indicação de ventilação mecânica

• *Critérios menores: presença de 2 critérios indica a necessidade de UTI*

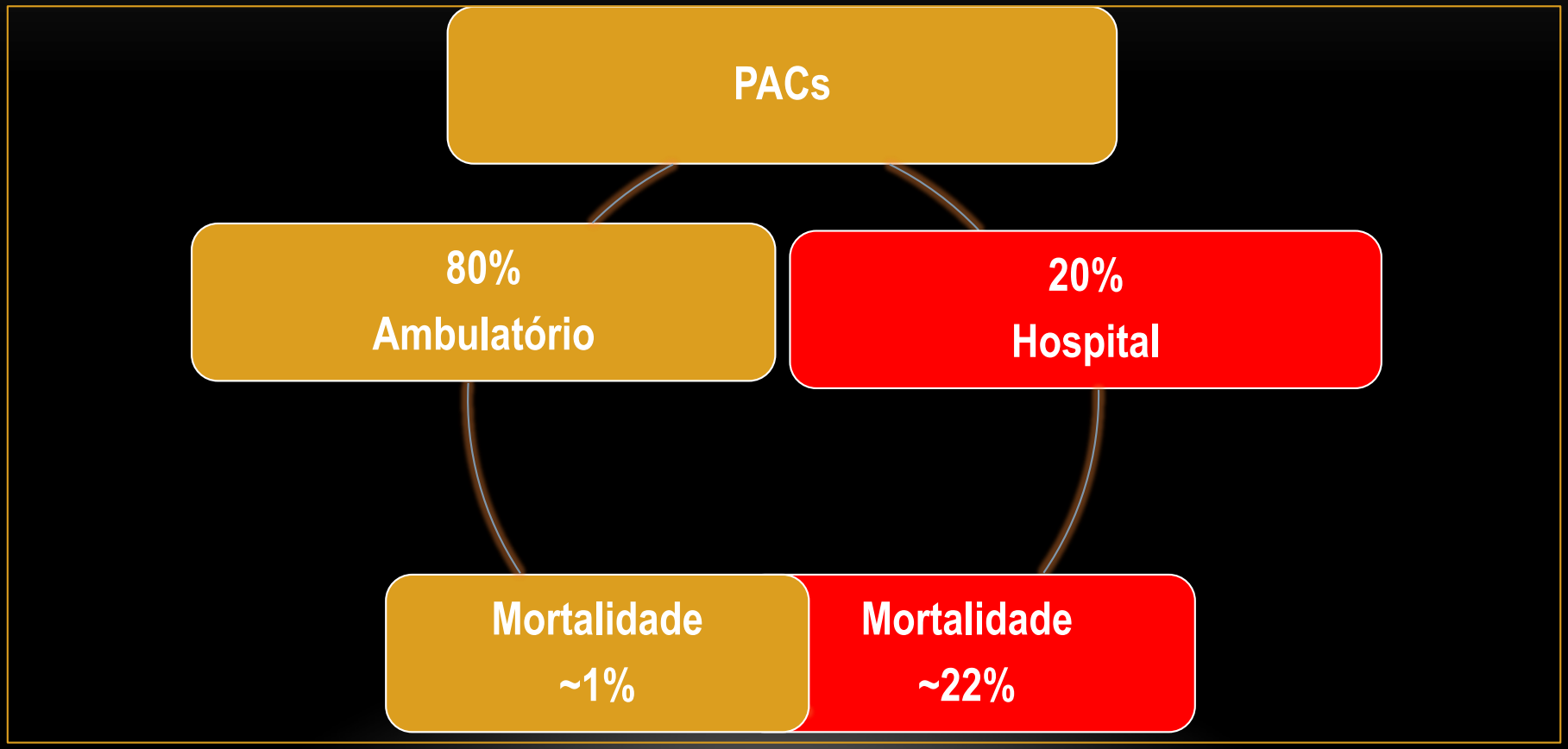
- Hipotensão arterial

- Relação Pa02/Fi02 menor do que 250

- Presença de infiltrados multilobulares

Ewig S, Schäfer H, Torres A. Severity assessment in community-acquired pneumonia. Eur Respir J. 2000;16(6):1193-201.

PACS – LOCAL DE TRATAMENTO



J Bras Pneumol, 2009;35(6):574-601

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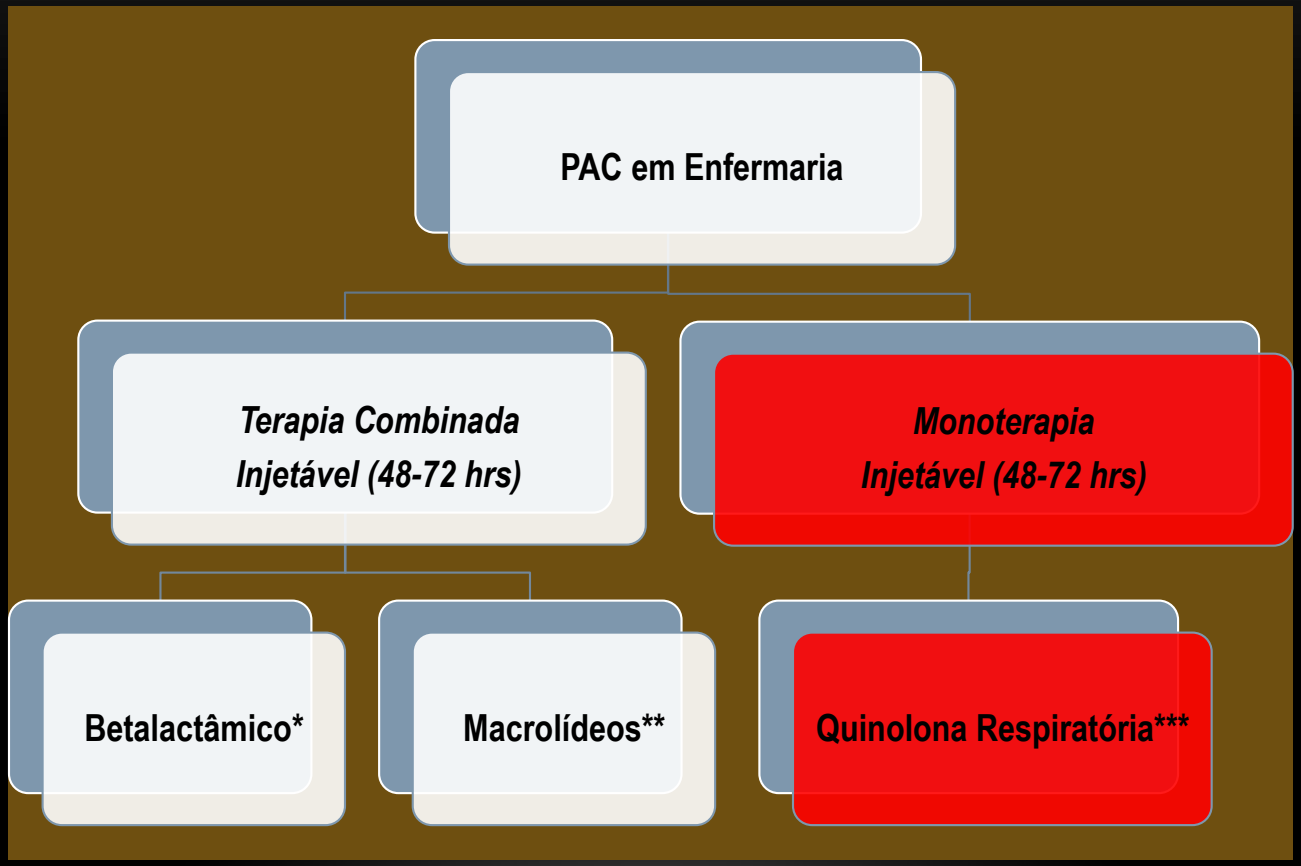
ORIGINAL ARTICLE

Antibiotic Treatment Strategies for Community-Acquired Pneumonia in Adults

Douwe F. Postma, M.D., Cornelis H. van Werkhoven, M.D., Leontine J.R. van Elden, M.D., Ph.D., Steven F.T. Thijsen, M.D., Ph.D., Andy I.M. Hoepelman, M.D., Ph.D., Jan A.J.W. Kluytmans, M.D., Ph.D., Wim G. Boersma, M.D., Ph.D., Clara J. Compaijen, M.D., Eva van der Wall, M.D., Jan M. Prins, M.D., Ph.D., Jan J. Oosterheert, M.D., Ph.D., and Marc J.M. Bonten, M.D., Ph.D. for the CAP-START Study Group

N Engl J Med 2015; 372:1312-1323 | April 2, 2015 | DOI: 10.1056/NEJMoa1406330

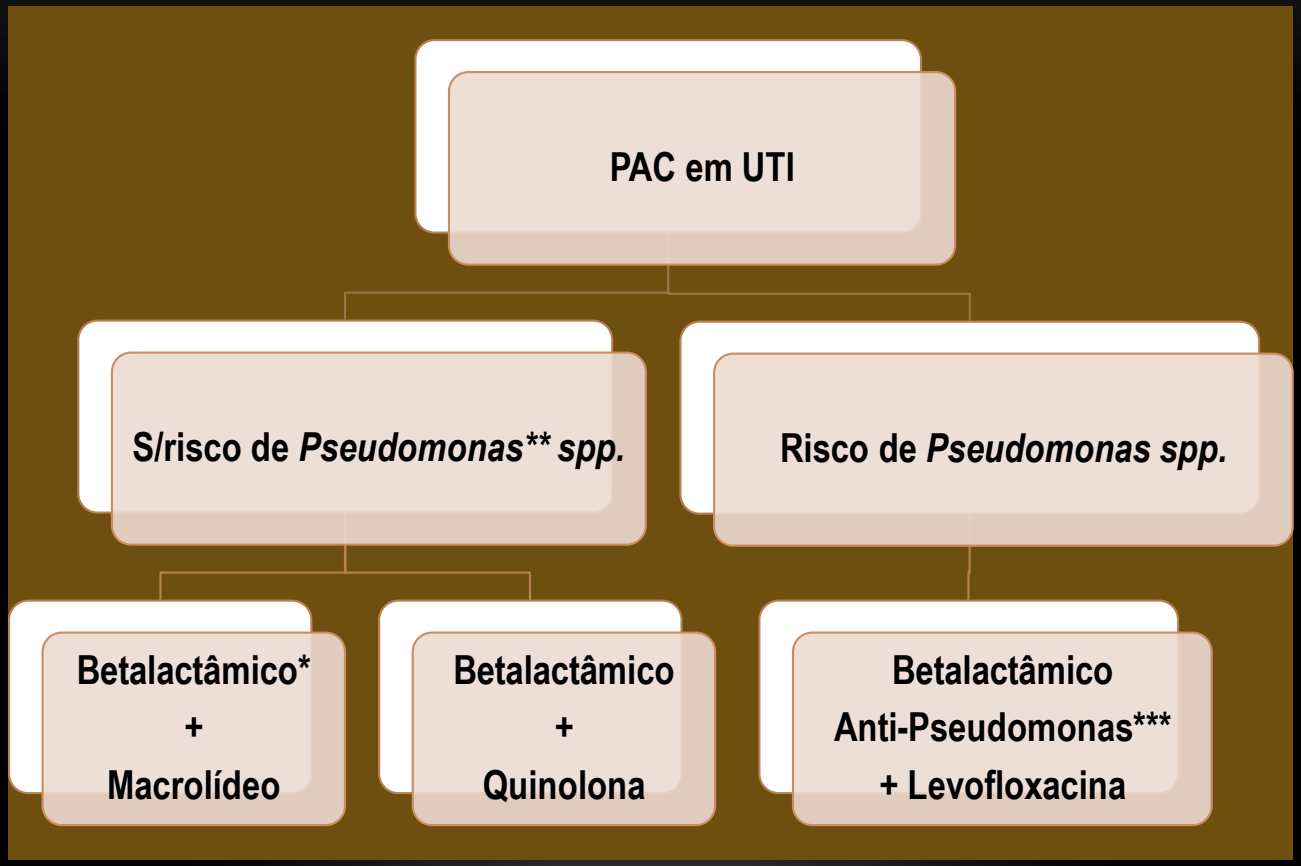
DECISÕES IMPORTANTES...
TRATAMENTO –ENFERMARIA



*** Penicilina+IB, Cefalosporinas de 3ª Geração ou Ertapenem**
****Azitromicina ou Claritromicina**
*****Levofloxacina ou Moxifloxacina**

Adaptado J Bras Pneumol, 2009;35(6):574-601

DECISÕES IMPORTANTES...
TRATAMENTO – PACS GRAVES



* Penicilina+Inibidor de Betalactamase, Cefalosporinas de 3ª Geração

**Portadores de doença pulmonar estrutural, hospitalização nos últimos 30 dias e/ou uso de antibióticos (>48 hrs) nos últimos 30 dias

***Cefepime, Piperacilina+Tazobactam, Imipenem e Meropenem

Adaptado J Bras Pneumol, 2009;35(6):574-601

‘’CONSULTE SEMPRE UM ESPECIALISTA”

MAJOR ARTICLE

Infectious Diseases Specialty Intervention Is Associated With Decreased Mortality and Lower Healthcare Costs

Steven Schmitt,[1] Daniel P. McQuillen,[2] Ronald Nahass,[3] Lawrence Martinelli,[4] Michael Rubin,[5] Kay Schwebke,[6] Russell Petrak,[7] J. Trees Ritter,[8] David Chansolme,[9] Thomas Slama,[10] Edward M. Drozd,[11] Shamonda F. Braithwaite,[11] Michael Johnsrud,[12] and Eric Hammelman[11]

[1]Department of Infectious Diseases, Medicine Institute, Cleveland Clinic, Ohio; [2]Center for Infectious Diseases and Prevention, Lahey Hospital & Medical Center, Tufts University School of Medicine, Burlington, Massachusetts; [3]ID Care, Hillsborough, New Jersey; [4]Covenant Health, Lubbock, Texas; [5]Divisions of Clinical Epidemiology and Infectious Diseases, University of Utah School of Medicine, Salt Lake City; [6]Optum Insight, Eden Prairie, Minnesota; [7]Metro ID Consultants, LLC, Burr Ridge, Illinois; [8]French Hospital Medical Center, San Luis Obispo, California; [9]Infectious Disease Consultants of Oklahoma City, Oklahoma; [10]Indiana University School of Medicine, Indianapolis, Indiana; [11]Data Analytics, and [12]Health Economics and Outcomes Research, Avalere Health, Washington, D.C.

(See the Editorial Commentary by Bouza on pages 29–31.)

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Schimth S. et al. Clin Infect Dis 2014;58(1):22-28