tratamento antimicrobiano das infecções do trato respiratório inferior e superior

marcos tanita
uti-hurp

tratamento antimicrobiano das infecções do trato respiratório superior e inferior

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infecções do trato respiratório inferior

- o tamanho do problema
- aderência aos guidelines
- estratégias para otimizar o uso de ATBs
- comentários


o tamanho
do problema

Infection (2015) 43:671–680
DOI 10.1007/s15010-015-0789-3

ORIGINAL PAPER

Clinical and economic burden of community-acquired pneumonia in the Veterans Health Administration, 2011: a retrospective cohort study

John M. McLaughlin[1,4] · Maribeth H. Johnson[2,3] · Stephen A. Kagan[1] · Stephanie L. Baer[2,3]

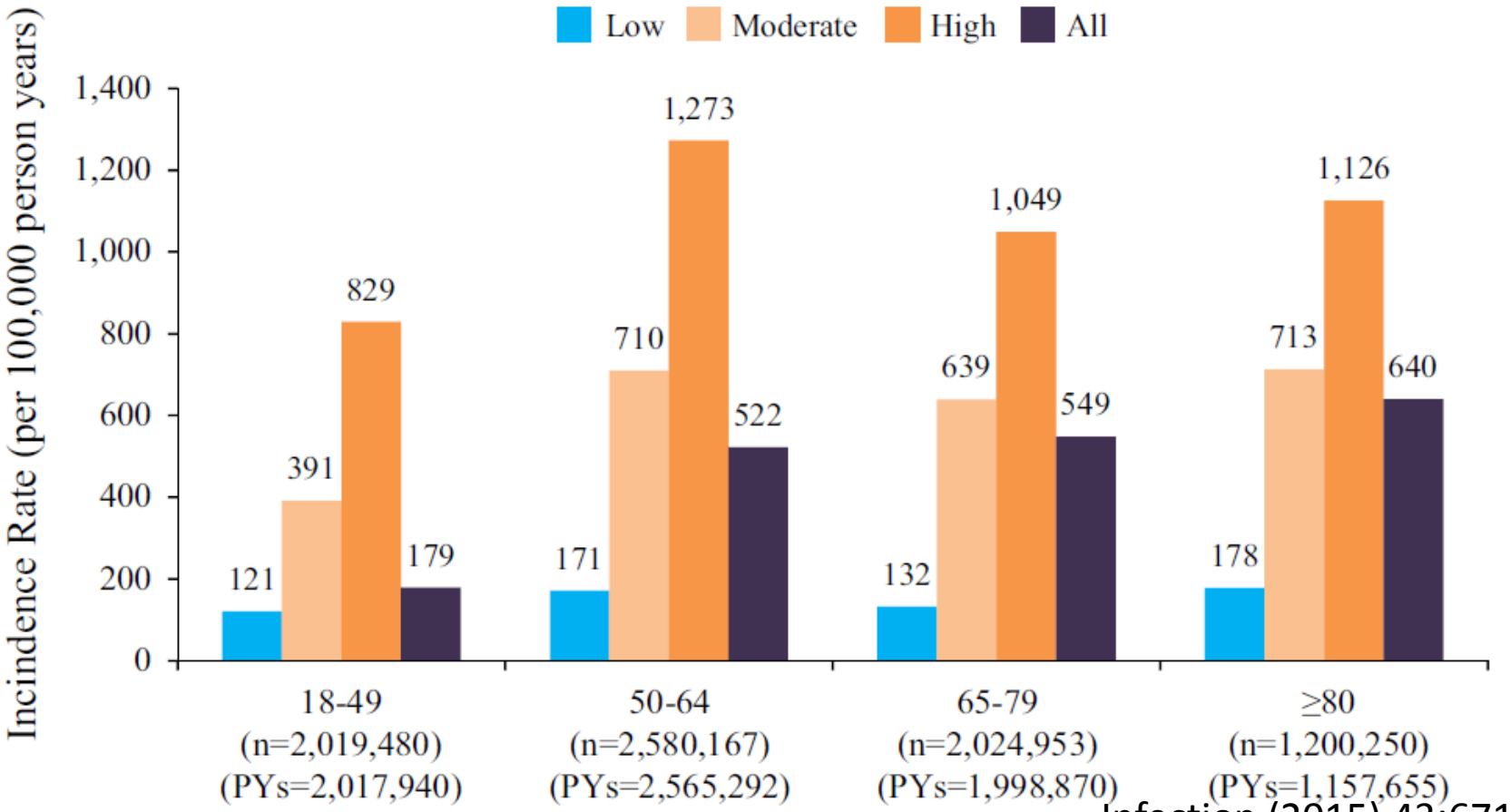


Table 2 Proportion of community-acquired pneumonia (CAP) Patients who were hospitalized for CAP, readmitted (any cause) within 30-days of hospital discharge, or died in the same year as the CAP event by risk status and age Group, 2011 ($n = 34{,}101$)

Risk of CAP*	Low *n* (%)			Moderate *n* (%)			High *n* (%)		
	Hospitalized	30-Day all-cause readmission	Died	Hospitalized	30-Day all-cause readmission	Died	Hospitalized	30-Day all-cause readmission	Died
Age group									
18–49 ($n = 3{,}557$)	234 (12)	23 (10)	21 (1)	315 (26)	40 (13)	32 (3)	159 (42)	30 (19)	37 (10)
50–64 ($n = 12{,}962$)	409 (20)	32 (8)	85 (4)	3,072 (43)	475 (15)	603 (8)	2,019 (55)	409 (20)	978 (27)
65–79 ($n = 10{,}515$)	230 (25)	24 (10)	82 (9)	2,451 (46)	348 (14)	786 (15)	2,371 (55)	433 (18)	1,353 (32)
≥80 ($n = 7{,}067$)	302 (45)	40 (13)	189 (28)	1,798 (56)	245 (14)	1,010 (31)	1,905 (60)	278 (15)	1,389 (41)
All Ages	1,175 (21)	119 (10)	377 (7)	7,636 (45)	1,108 (15)	2,431 (14)	6,454 (56)	1,150 (18)	3,677 (32)

* Low risk was defined as immunocompetent without chronic medical conditions. Moderate risk was defined as immunocompetent with ≥1 chronic medical condition. High risk was defined as immunocompromised

Infection (2015) 43:671–680


guidelines

- IDSA – 2007 (Clinical Infectious Diseases 2007; 44:S27–72)
- BTS – 2009 (Thorax 2009;64:iii1-iii55)
- SBPT – 2009 (J Bras Pneumol. 2009;35(6):574-601)
- ESCMID – 2011 (Clin Microbiol Infect 2011; 17 (Suppl. 6): 1–24)
- AAFP – 2016 (Am Fam Physician. 2016 Nov 1;94(9):698-706)
  - USG para diagnóstico
  - corticosteróides
  - vacina antipneumocócica

- beta-lactâmicos
  - aminopenicilinas
  - cefalosporinas
  - carbapenemicos
- fluoroquinolonas
- macrolídeos
- doxiciclina

Table 6. Empiric Therapy for Community-Acquired Pneumonia

Patient group	*Recommended initial therapy*
Previously healthy outpatients with no antibiotic use in past three months	Macrolide (azithromycin [Zithromax]) or doxycycline
Outpatients with comorbidities* or antibiotic use in past three months†	*Preferred*[36,37]: Respiratory fluoroquinolone (levofloxacin [Levaquin], gemifloxacin [Factive], or moxifloxacin [Avelox]) *Alternative*: Beta-lactam antibiotic (high-dose amoxicillin, amoxicillin/clavulanate [Augmentin], cefuroxime [Ceftin], or cefpodoxime) plus a macrolide‡
Inpatients, non-ICU§	*Preferred*[36,37]: Respiratory fluoroquinolone *Alternative*: Beta-lactam antibiotic plus a macrolide
Inpatients, ICU	Beta-lactam antibiotic (ceftriaxone, cefotaxime [Claforan], or ampicillin/sulbactam [Unasyn]), plus a macrolide alone or a macrolide and a respiratory fluoroquinolone‖¶
Special considerations	
Risk factors for *Pseudomonas* species	Beta-lactam antibiotic (piperacillin/tazobactam [Zosyn], cefepime, imipenem/cilastatin [Primaxin], meropenem [Merrem IV], or doripenem [Doribax]), plus either ciprofloxacin or levofloxacin *or* The above beta-lactam antibiotic plus an aminoglycoside and azithromycin *or* The above beta-lactam antibiotic plus an aminoglycoside and an antipneumococcal respiratory fluoroquinolone
Risk factors for methicillin-resistant *Staphylococcus aureus*	Vancomycin, linezolid (Zyvox), or ceftaroline (Teflaro)[38]
Influenza virus	Oseltamivir (Tamiflu) or zanamivir (Relenza)

Am Fam Physician. 2016;94(9):698-706

PLOS ONE

RESEARCH ARTICLE

Antibiotic prescribing for acute lower respiratory tract infections (LRTI) – guideline adherence in the German primary care setting: An analysis of routine data

Table 7. Proportions of antibiotic choice congruence to DEGAM guideline for patients with acute lower respiratory tract infection by diagnosis.

	Congruent prescribing, recommended choice	Noncongruent prescribing, recommended choice	Congruent prescribing, not recommended choice	Noncongruent prescribing, not recommended choice	Total
cough	36 (26.87%)	26 (19.40%)	42 (31.34%)	30 (22.39%)	134
acute bronchitis	1463 (21.61%)	1857 (27.43%)	1879 (27.75%)	1572 (23.22%)	6771
pneumonia	368 (72.02%)	0 (0.00%)	143 (27.98%)	0 (0.00%)	511
Total	1867 (25.18%)	1883 (25.39%)	2064 (27.83%)	1602 (21.60%)	7416

Data are presented as n (%) of antibiotic items prescribed. DEGAM = German Society of General Practitioners and Family Medicine

PLoS One. 2017 Mar 28;12(3):e0174584


estratégias

- scores de predição
  - local de tratamento
  - titulação do espectro de ação
  - evitar admissões desnecessárias

TABLE 3

Pneumonia Severity Index

Patient Characteristics	*Points*
Demographics	
Male	Age (years)
Female	Age (years) – 10
Nursing home resident	+ 10
Comorbid illness	
Neoplastic disease	+ 30
Liver disease	+ 20
Congestive heart failure	+ 10
Cerebrovascular disease	+ 10
Renal disease	+ 10
Physical examination findings	
Altered mental status	+ 20
Respiratory rate > 30 breaths per minute	+ 20
Systolic blood pressure < 90 mm Hg	+ 20
Temperature < 35°C (95°F) or > 40°C (104°F)	+ 15
Pulse rate > 125 beats per minute	+ 10
Laboratory and radiographic findings	
Arterial pH < 7.35	+ 30
Blood urea nitrogen > 64 mg per dL (22.85 mmol per L)	+ 20
Sodium < 130 mEq per L (130 mmol per L)	+ 20
Glucose > 250 mg per dL (13.87 mmol per L)	+ 10
Hematocrit < 30 percent	+ 10
Partial pressure of arterial oxygen < 60 mm Hg or oxygen percent saturation < 90 percent	+ 10
Pleural effusion	+ 10
Total points:	_____

Point total	*Risk*	*Risk class*	*Mortality % (No. of patients)*	*Recommended site of care*
No predictors	Low	I	0.1 (3,034)	Outpatient
≤ 70	Low	II	0.6 (5,778)	Outpatient
71 to 90	Low	III	2.8 (6,790)	Inpatient (briefly)
91 to 130	Moderate	IV	8.2 (13,104)	Inpatient
> 130	High	V	29.2 (9,333)	Inpatient

Information from reference 15.

Am Fam Physician 2006;73:442-50

Table 5. CURB-65 and CRB-65 Mortality Prediction Tools for Patients with Community-Acquired Pneumonia

Prognostic variables (assign 1 point for each variable)

Confusion (new onset)

Urea nitrogen level > 20 mg per dL (7.14 mmol per L)*

Respiratory rate ≥ 30 breaths per minute

Blood pressure (systolic < 90 mm Hg or diastolic ≤ 60 mm Hg)

Age ≥ 65 years

30-day mortality for CURB-65 (CRB-65)

Score	*Sensitivity*	*Specificity*	*LR+*	*LR–*
≥ 1 point	98.6% (94.4%)	26.5% (38.3%)	1.2 (1.3)	0.10 (0.15)
≥ 2 points	89.1% (72.7%)	52.2% (70.8%)	1.7 (2.4)	0.21 (0.39)
≥ 3 points	62.0% (29.1%)	80.8% (90.9%)	3.1 (4.4)	0.46 (0.72)
≥ 4 points	29.0%	95.3%	5.4	0.73

30-day observed mortality by score

CURB-65†		*CRB-65‡*	
Score	*Observed mortality*	*Score*	*Observed mortality*
0 to 1	2.0%	0	2.3%
2	8.3%	1 to 2	13.3%
3 to 5	22.3%	3 to 4	34.4%

Am Fam Physician. 2016;94(9):698-706

- AUROC
  - determina o valor discriminatório
  - sensibilidade e especificidade tem o mesmo peso
  - falha na admissão na UTI de um paciente grave (falso negativo)
    - risco à segurança do paciente
  - uso excessivo da UTI por paciente não crítico (falso positivo)
    - limites de disponibilidade de recursos

Q J Med 2014; 107:595–596

Clinical Infectious Diseases

MAJOR ARTICLE

Comprehensive Molecular Testing for Respiratory Pathogens in Community-Acquired Pneumonia

Naomi J. Gadsby,[1] Clark D. Russell,[1,2] Martin P. McHugh,[1] Harriet Mark,[1] Andrew Conway Morris,[3] Ian F. Laurenson,[1] Adam T. Hill,[4] and Kate E. Templeton[1]

[1]Medical Microbiology, Department of Laboratory Medicine, Royal Infirmary of Edinburgh, [2]College of Medicine and Veterinary Medicine, University of Edinburgh, [3]Department of Anaesthesia, University of Cambridge, and [4]Respiratory Medicine, Royal Infirmary of Edinburgh, United Kingdom

Table 2. Pathogen Detection in Patients With Community-Acquired Pneumonia Using Molecular Methods (n = 323)

Pathogen	N (%)
Bacteria	
Any bacteria	262 (81.1)
With $>10^5$ CFU/mL cutoff where quantified	231 (71.5)

Table 3. Estimated Potential Impact of Comprehensive Molecular Testing on Antimicrobial Prescribing in Patients With Community-Acquired Pneumonia (n = 320)

Potential Modification	Antibiotic Agent	N (%)
De-escalation		247 (77.2)
Remove 1 agent		113
	CLR	108
	AMC	2
	Other[a]	3

Clinical Infectious Diseases® 2016;62(7):817–23

Table 7. Criteria to Transition Patients with CAP from Intravenous to Oral Antibiotics

Able to ingest oral agents
Heart rate < 100 beats per minute and systolic blood pressure > 90 mm Hg
Oxygen saturation > 90%, arterial oxygen partial pressure > 60 mm Hg on room air or with low-flow supplemental oxygen via nasal cannula, or return to baseline oxgen level for patients receiving long-term oxygen therapy
Respiratory rate < 25 breaths per minute
Return to baseline cognitive status
Temperature < 100.9°F (38.3°C)

CAP = community-acquired pneumonia.

NOTE: *All criteria should be met for at least 24 hours before switching to oral antibiotics.*

Information from reference 36.

Am Fam Physician. 2016;94(9):698-706

Which oral antibiotics are recommended on completion of intravenous therapy?

103. The antibiotic choices for the switch from intravenous to oral are straightforward where there are effective and equivalent oral and parenteral formulations. [C]
104. In the case of parenteral cephalosporins, the oral switch to co-amoxiclav 625 mg three times daily is recommended rather than to oral cephalosporins. [D]
105. For those treated with benzylpenicillin + levofloxacin, oral levofloxacin with or without oral amoxicillin 500 mg–1.0 g three times daily is recommended. [D]

Thorax 2009;64:iii1-iii55

Respirology (2007) **12**, 111–116 doi: 10.1111/j.1440-1843.2006.00931.x

ORIGINAL ARTICLE

Early switch to oral antibiotics and early discharge guidelines in the management of community-acquired pneumonia

RICHARD WAI WING LEE[1,2] AND STEVEN TERENCE LINDSTROM[1,2]

Table 1 Guideline for early switch to oral antibiotics

1	Improving symptoms (e.g. cough, pain, dyspnoea)
2	Absence of fever (<38°C) for ≥16 h
3	White blood cell count normalizing
4	Negative blood cultures
5	Intact gastrointestinal absorption

Table 2 Guideline for early discharge

1	Early switch to oral antibiotics criteria satisfied
2	Normal oxygenation ($SaO_2 \geq 90\%$)
3	Stable comorbid conditions
4	Social needs attended

Table 5 IV antibiotics duration and length of stay (LOS) (days ± SEM) after exclusion of deceased patients

	Controls	Guidelines	*P*-value
IV antibiotics duration	3.82 ± 0.26	3.47 ± 0.24	0.086
LOS	8.33 ± 0.57	7.67 ± 0.65	0.028

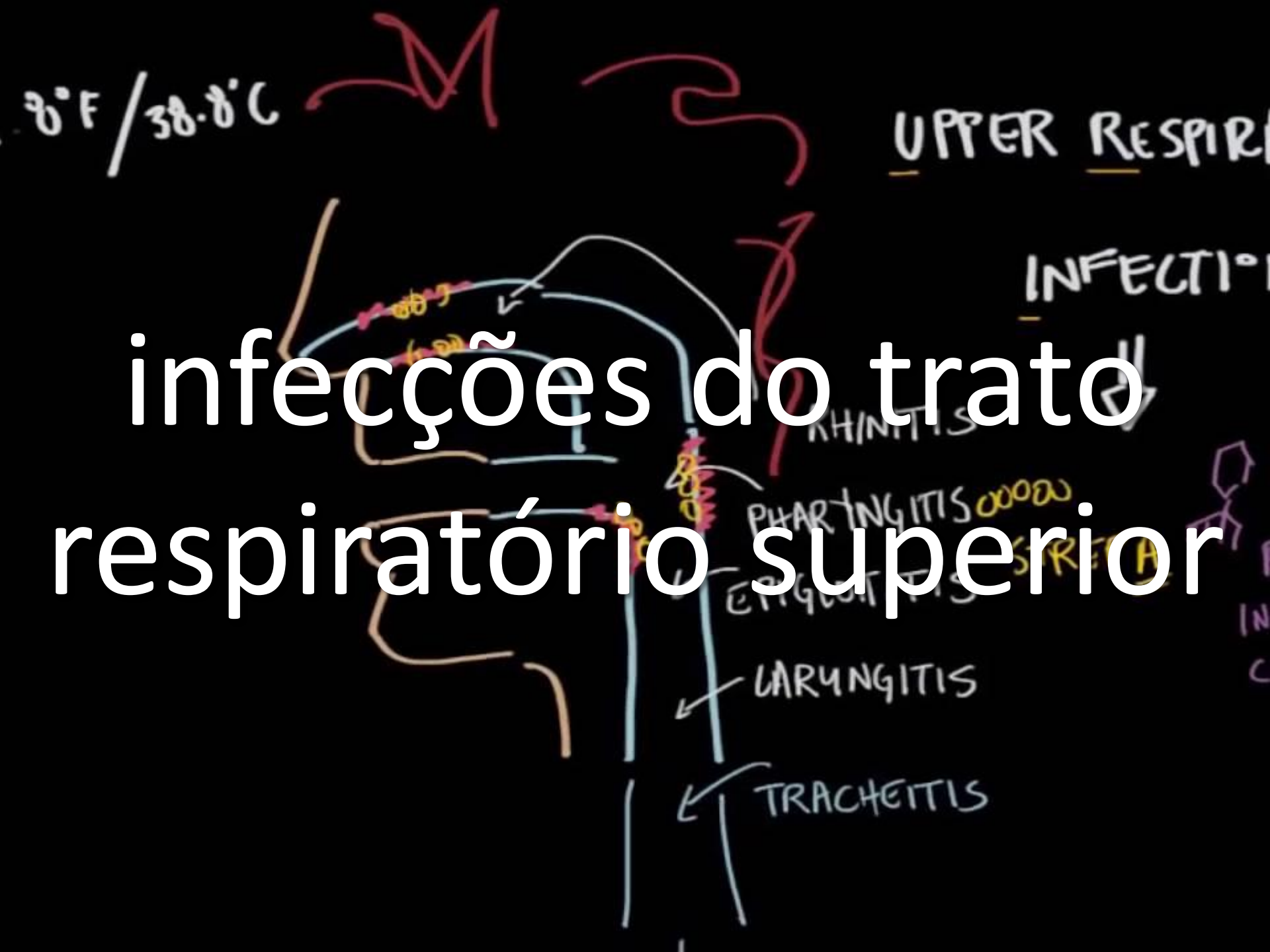
Table 6 Inpatient mortality rate

	Controls (%)	Guidelines (%)	*P*-value
Class I	0	0	
Class II	0	0	
Class III	4.5	3.6	NS
Class IV	9	7.1	NS
Class V	54	22	0.015

Respirology (2007) **12**, 111–116

comentários finais

- scores não devem ser utilizados como única ferramenta para indicação do ATB ou admissão hospitalar
- testes rápidos para identificação de microrganismos são recomendados para restringir o espectro ou deescalonamento
- transição para via oral e alta precoce devem reduzir custos de internação hospitalar



infecções do trato respiratório superior

- o tamanho do problema
- aderência aos guidelines
- estratégias para minimizar o uso de ATBs
- comentários


o tamanho
do problema

- doença infecciosa mais comum na população geral
- maior causa de faltas no trabalho ou escola
- diagnóstico mais comum no cenário de prontos-atendimentos e consultório

http://www.cdc.gov/nchs/data/nhsr/nhsr003.pdf

- nasofaringite (resfriado comum)
- faringite
- rinossinusite
- epiglotite
- laringite e laringotraqueíte
- otite média

condições variadas
mesmo problema

- 41 milhões de prescrições ambulatoriais
- 2 milhões de infecções causadas por MOs resistentes
- US$ 30 bilhões

Ann Intern Med. 2016;164:425-434

- US$ 10 bilhões
- US$ 6.5 bilhões na comunidade
- 50% considerados desnecessários
- ATBs responsáveis pelo maior número de eventos adversos

Ann Intern Med. 2016;164:425-434

- o assunto parece óbvio e resolvido, mas não é tão simples
- condição em que mais se usa um antimicrobiano, a que mais seleciona resistência. Muito mais do que poucos pacientes em estado gravíssimo numa UTI.
- situações mais “simples” onde usamos antibióticos “inócuos”.

https://infectologista.net/2016/01/25/antibioticoterapia-em-infeccoes-respiratorias-agudas-guideline-2016/


guidelines

TABLE 2

Clinical Practice Guidelines Compendium: Adults with URI

Illness/pathogen	*Indications for antibiotic treatment*
Acute bacterial sinusitis *Streptococcus pneumoniae*, nontypeable *Haemophilus influenzae*, *Moraxella catarrhalis*, mainly viral pathogens	**When to treat with an antibiotic:** diagnosis may be made in adults with symptoms of a viral upper respiratory infection that have not improved after 10 days or that worsen after five to seven days. Diagnosis may include some or all of the following: nasal drainage, nasal congestion, facial pressure or pain (especially when unilateral and focused in the region of a particular sinus), postnasal discharge, hyposmia, anosmia, fever, cough, fatigue, maxillary dental pain, ear pressure or fullness. **When not to treat with an antibiotic:** nearly all cases resolve without antibiotics. Antibiotic use should be reserved for moderate symptoms that are not improving after 10 days or that worsen after five to seven days, and severe symptoms.
Pharyngitis *Streptococcus pyogenes*, routine respiratory viruses	**When to treat with an antibiotic:** *S. pyogenes* (group A streptococcus infection). Symptoms of sore throat, fever, headache. Physical findings include fever, tonsillopharyngeal erythema and exudates, palatal petechiae, tender and enlarged anterior cervical lymph nodes, and absence of cough. Confirm diagnosis with throat culture or rapid antigen testing before using antibiotics; negative rapid antigen test results may be confirmed with throat culture. **When not to treat with an antibiotic:** most pharyngitis cases are viral in origin. The presence of the following is uncommon with group A streptococcal infection and points away from using antibiotics: conjunctivitis, cough, rhinorrhea, diarrhea, and absence of fever.
Nonspecific cough illness/ acute bronchitis *Bordetella pertussis*, *Chlamydia pneumoniae*, *Mycoplasma pneumoniae*	**When to treat with an antibiotic:** antibiotics not indicated in patients with uncomplicated acute bacterial bronchitis. Sputum characteristics not helpful in determining need for antibiotics. Treatment is reserved for patients with acute bacterial exacerbation of chronic bronchitis and COPD, usually smokers. In patients with severe symptoms, rule out other more serious conditions (e.g., pneumonia). **When not to treat with an antibiotic:** 90 percent of cases are nonbacterial. Literature fails to support use of antibiotics in adults without history of chronic bronchitis or other comorbid condition.
Nonspecific upper respiratory infection Viral	**When not to treat with an antibiotic:** Antibiotics not indicated; however, nonspecific upper respiratory infection is a major etiologic cause of acute respiratory illnesses presenting to primary care physicians. Patients often expect treatment. Attempt to discourage antibiotic use and explain appropriate treatment.
Influenza Influenza virus	**When not to treat with an antibiotic:** antibiotics not indicated. For acute treatment, supportive and symptomatic care is the standard. Characterized by abrupt onset of constitutional and respiratory signs and symptoms such as fever, myalgia, headache, rhinitis, severe malaise, nonproductive cough, and sore throat. The incubation period for influenza is one to four days, with an average of two days. Adults typically are infectious from the day before symptoms begin through approximately five days after onset of illness.

Am Fam Physician. 2006 Sep 15;74(6):956-66

TABLE 2
Clinical Practice Guidelines Compendium: Adults with URI

Illness/pathogen	*Treatment*	*Antibiotic*
Acute bacterial sinusitis *Streptococcus pneumoniae*, nontypeable *Haemophilus influenzae, Moraxella catarrhalis*, mainly viral pathogens	Antibiotic duration: 10 days Failure to respond after 72 hours of antibiotics: reevaluate patient and switch to alternate antibiotics	**First-line therapy** Amoxicillin **Alternative therapy** Amoxicillin/clavulanate (Augmentin), cefpodoxime (Vantin), cefdinir (Omnicef), respiratory quinolones (gatifloxacin [Tequin], levofloxacin [Levaquin], moxifloxacin [Avelox]) For beta-lactam allergy: TMP-SMX (Bactrim, Septra), doxycycline (Vibramycin), azithromycin (Zithromax), clarithromycin (Biaxin)
Pharyngitis *Streptococcus pyogenes*, routine respiratory viruses	Group A streptococcal infection, antibiotic duration: 10 days	**First-line therapy** Penicillin V (Veetids), penicillin G benzathine (Bicillin LA) **Alternative therapy** Amoxicillin, macrolides (erythromycin preferred in patients allergic to penicillin), oral cephalosporins, clindamycin (Cleocin)
Nonspecific cough illness/ acute bronchitis *Bordetella pertussis, Chlamydia pneumoniae, Mycoplasma pneumoniae*	Uncomplicated: not indicated	Chronic bronchitis and COPD: amoxicillin, TMP-SMX, or doxycycline Other (*B. pertussis, C. pneumoniae, M. pneumoniae*): erythromycin or doxycycline
Nonspecific upper respiratory infection Viral	Not indicated	None
Influenza Influenza virus	Antibiotics not indicated, but patients often expect treatment.	Antiviral medications available for acute relief of symptoms and for prevention in some cases

Am Fam Physician. 2006 Sep 15;74(6):956-66

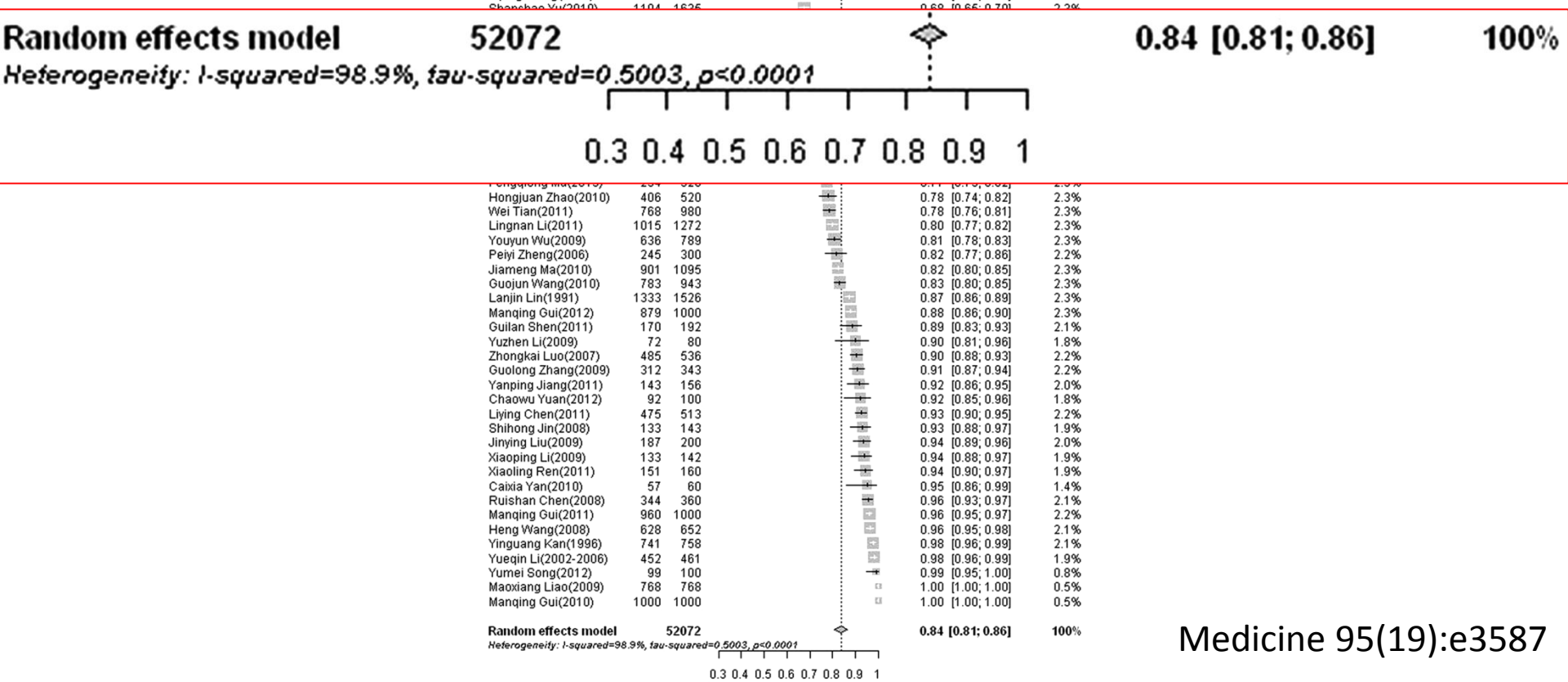
Medicine®

META-ANALYSIS OF OBSERV STUDIES IN EPIDEMIOLOGY

OPEN

A Systematic Review of Antibiotic Prescription Associated With Upper Respiratory Tract Infections in China

Jing Li, MS, Xingyue Song, MPH, Tingting Yang, MS, Yawen Chen, MS, Yanhong Gong, PhD, Xiaoxv Yin, PhD, and Zuxun Lu, MD, PhD



Medicine 95(19):e3587

TABLE 1. Percentage of URTI Outpatients Prescribed Antibiotics

	Number of Study	n/N	Percentage Use of Antibiotics (95% CI)
Overall	48*	37736/52072	83.7 (80.6, 86.4)
Region			
Eastern China	28	19650/27102	82.3 (77.9,86.0)
Central China	12	15305/21539	86.6 (79.8, 91.4)
Western China	8	2781/3431	83.9 (79.4, 87.6)
Hospital level			
Level 3 hospitals	16	13079/20153	76.7 (68.7, 83.2)
Level 2 hospitals	26	23455/30537	84.8 (81.8, 87.4)
Level 1 hospitals	6	1202/1382	91.1 (84.3, 95.2)
Year of study			
Before 2008	10	5354/6120	91.6 (86.0, 95.1)
2009	9	3956/5301	84.3 (75.5, 90.3)
2010	10	5243/6766	78.3 (70.1, 84.8)
2011	6	8814/11586	86.9 (80.1, 91.5)
2012	9	10676/17321	78.2 (68.0,85.7)
2013	4	3693/4978	72.9 (68.5, 76.9)

Medicine 95(19):e3587

TABLE 2. Percentage of URTI Outpatients With Antibiotic Prescription Prescribed 1, 2, or More Antibiotics

	Number of Study	n/N	Percentage Use of Antibiotics (95% CI)
With 1 antibiotic	48	30725/37736	79.7 (72.8, 85.2)
Region			
Eastern China	28	15108/19650	78.5 (69.4, 85.5)
Central China	12	13441/15305	87.3 (74.8, 94.1)
Western China	8	2176/2781	69.6 (46.1, 86.0)
Hospital level			
Level 3 hospitals	16	10006/13079	82.6 (72.9, 89.4)
Level 2 hospitals	26	20213/23455	83.8 (74.6, 90.2)
Level 1 hospitals	6	506/1202	43.1 (31.0, 56.2)
With 2 antibiotic	48	6478/37736	18.4 (13.6, 24.5)
Region			
Eastern China	28	4184/19650	19.4 (13.2,27.5)
Central China	12	1735/15305	11.7 (5.8,22.2)
Western China	8	559/2781	28.1 (13.2, 50.0)
Hospital level			
Level 3 hospitals	16	2817/13079	15.8 (10.0, 24.0)
Level 2 hospitals	26	3004/23455	14.8 (9.3,22.9)
Level 1 hospitals	6	657/1202	51.7 (35.9, 67.2)
With 3 or more antibiotics	48	533/37736	1.1 (0.7, 1.6)
Region			
Eastern China	28	358/19650	1.3 (0.8, 2.1)
Central China	12	129/15305	0.5 (0.2, 1.2)
Western China	8	46/2781	1.4 (0.5,3.9)
Hospital level			
Level 3 hospitals	16	256/13079	0.9 (0.4,1.9)
Level 2 hospitals	26	238/23455	0.8 (0.5,1.5)
Level 1 hospitals	6	39/1202	3.8 (1.6,8.9)

Medicine 95(19):e3587


estratégias

Cochrane Library

Cochrane Database of Systematic Reviews

Delayed antibiotics for respiratory infections (Review)

Spurling GKP, Del Mar CB, Dooley L, Foxlee R, Farley R

- fornecer prescrição, orientando aguardar a resolução dos sintomas
- imediato: 93%
- delayed: 32%
- no: 14%

Cochrane Database of Systematic Reviews
2013, Issue 4

- febre, dor e mal estar: sem diferença
  - exceção: OMA
- complicações: sem diferença
- satisfação: levemente reduzida para delayed

Cochrane Database of Systematic Reviews
2013, Issue 4

Cochrane Library

Cochrane Database of Systematic Reviews

Interventions to facilitate shared decision making to address antibiotic use for acute respiratory infections in primary care (Review)

- decisão compartilhada
- habilidade em comunicação
- redução de uso de 47% para 29%
- não ouve aumento de re-consultas
- satisfação mantida

Cochrane Database Syst Rev. 2015 Nov 12;(11)

Cochrane Library

Cochrane Database of Systematic Reviews

Written information for patients (or parents of child patients) to reduce the use of antibiotics for acute upper respiratory tract infections in primary care (Review)

- informativos impressos
- reduziu número de ATBs prescritos em 20%
- reduziu percentual de médicos que prescreveram ATBs em 9%
- satisfação: sem diferença

Cochrane Database Syst Rev. 2016 Nov 25;11

comentários finais

- volume de ATBs prescritos é maciça
- condição com menor aderência aos guidelines
- comunicação
  - relação médico-paciente
- como melhorar a prescrição de ATBs?
  - sistemas de saúde sobrecarregados
  - satisfação do paciente
  - segurança do médico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