Updates in CAP

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Outline

- Current Guidelines **(IDSA/ATS 2019, ATS 2025)**: Updates and Controversies
- Evidence: Choice of Therapy
- Evidence: Duration of Therapy
- Conclusions

ATS/IDSA Guidelines: 2019 Updates

Table 2. Differences between the 2019 and 2007 American Thoracic Society/Infectious Diseases Society of America Community-acquired Pneumonia Guidelines

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	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 *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

Definition of abbreviations: ATS = American Thoracic Society; CAP = community-acquired pneumonia; IDSA = Infectious Diseases Society of America; MRSA = methicillin-resistant *Staphylococcus aureus*.

Metlay et al. Am J Respir Crit Care Med, 2019

ATS 2025 Guidelines

- New committee convened between IDSA and ATS to update guidelines

- ATS alone released 2025 guidelines **without IDSA endorsement** (but some IDSA co-authors)

- No changes in which antibiotics to use but...

ATS 2025 Guidelines

- Lung ultrasound acceptable alternative to CXR

- **CAP with positive respiratory viral panel** (very low quality evidence)
  - Outpatients without comorbidities*: No antibiotics
  - Outpatients **with comorbidities**: antibiotics suggested
  - Inpatients: antibiotics suggested for all patients **regardless of CAP severity**

- **Duration: Shorter!**

- Steroids for severe CAP (except flu)**

*Chronic lung disease excl asthma, ESLD or ESRD, CHF, alcoholism, malignancy
**based largely on Dequin et al. NEJM 2023

ATS 2025: Empiric Antibiotic Therapy for CAP with + RVP

- **Reason for IDSA non-endorsement**

- **Evidence synthesis:**

> Our systematic review sought studies that enrolled patients with CAP and compared antibiotics versus no antibiotics following the identification of a viral respiratory pathogen by PCR. The literature search identified 3,895 articles but, upon full-text review of 27 articles, none met our pre-specified study selection criteria (lack of comparison or outcomes- see Supplement for details). The search was then broadened to seek indirect evidence. Again, no studies met our pre-specified study selection criteria. Therefore, no published studies were identified to inform the guideline committee's recommendations and the guideline committee had to make clinical recommendations based upon non-comparative evidence and their non-systematic clinical observations, which constitutes very low-quality evidence.

Jones et al. Am J Respir Crit Care Med 2025

ATS 2025: Empiric Antibiotic Therapy for CAP with + RVP

What's the deal?

- Risks weighed:
  - *Missed or delayed antibiotic treatment* to patients with concomitant bacterial PNA (adverse outcomes and death)
  - *Antibiotic use* to individual patients (side effects, disruption of microbiome, costs) and AMR

- Data cited re: 1) early timing of antibiotics in older patients with CAP (but no molecular testing); 2) difficulty of finding an etiologic agent; 3) data specific to influenza; 4) data pointing out that co/super-infection rates lower with COVID as compared to flu/RSV

- Recommendation for severe strong despite low quality evidence 2/2 risk of adverse outcomes or death in severe CAP

Houck et al. Arch Intern Med 2004
Musher et al. JID 2013
Beumer et al. J Crit Care, 2019
Hedberg et al. BMJ 2022

ATS 2025: Empiric Antibiotic Therapy for CAP with + RVP

		+ABX	-ABX
For adult outpatients with co-morbidities who have clinical and imaging evidence of CAP and who test positive for a respiratory virus, we suggest prescribing empiric antibiotics due to concern for bacterial-viral co-infection	Conditional Very low-quality evidence	Suspicion of bacterial co-infection (long symptom onset, "double sickening", purulent sputum, elevated or increasing inflammatory markers, radiologic findings such as consolidative infiltrate) Low likelihood that virus identified explains etiology and severity of pneumonia (ie, virus with low virulence or high-risk of co-infection) High risk of harm if missed bacterial infection -High illness severity, severe symptoms -Higher number, severe, or poorly controlled comorbidities	Low suspicion of bacterial infection (clinical history, normal inflammatory markers, radiologic findings suggestive of viral etiology) High likelihood that virus identified explains etiology and severity of pneumonia (virus with high virulence, low risk of co-infection)) Lower risk of harm if missed bacterial infection -Lower illness severity -Single, mild, or well controlled comorbidities Higher risk of harm from antibiotic exposure (History of *C. difficile,* antibiotic allergy/ adverse event) - Patient preference to avoid antibiotic exposure

In sum- individualized decision making based on multiple clinical factors is key.

Jones et al. Am J Respir Crit Care Med 2025

JOURNAL ARTICLE CORRECTED PROOF

We Dissent: Lessons From the 2025 Community-Acquired Pneumonia (CAP) Guidelines FREE

Leila S Hojat ✉, Maryrose R Laguio-Vila, Liam R Sullivan, Valerie M Vaughn Author Notes

- “in practice, not all hospitalized patients, even among those with co-morbidities, are at risk for poor outcomes, and severe outcomes for patients with mild pneumonia are rare”

- Cited limitations to guideline process:
  - Asynchronous, hybrid meeting (ATS- pulmonary meeting)
  - Non-transparent writing process
  - Non-transparent response to reviewer critiques
  - Mischaracterization of AMS as deprioritizing individual patient

JOURNAL ARTICLE CORRECTED PROOF

Infectious Diseases Society of America (IDSA) Position Statement: Why IDSA Did Not Endorse the Community-Acquired Pneumonia Guidelines 2025 Update FREE

Michael Klompas, Majdi Al-Hasan, Mayar Al Mohajer, Robert Colgrove, Shira Doron, Thomas File, Natasha N Pettit, Michael Pulia, Sharon Weissman ✉ Author Notes

1) Use of empiric antibiotics for most patients with positive viral assays is **not evidence based**

- There's no evidence that it's safe to not given antibiotics in viral pneumonia….nor vice versa

2) Implementing the recommendations **will significantly increase antibiotic overuse**

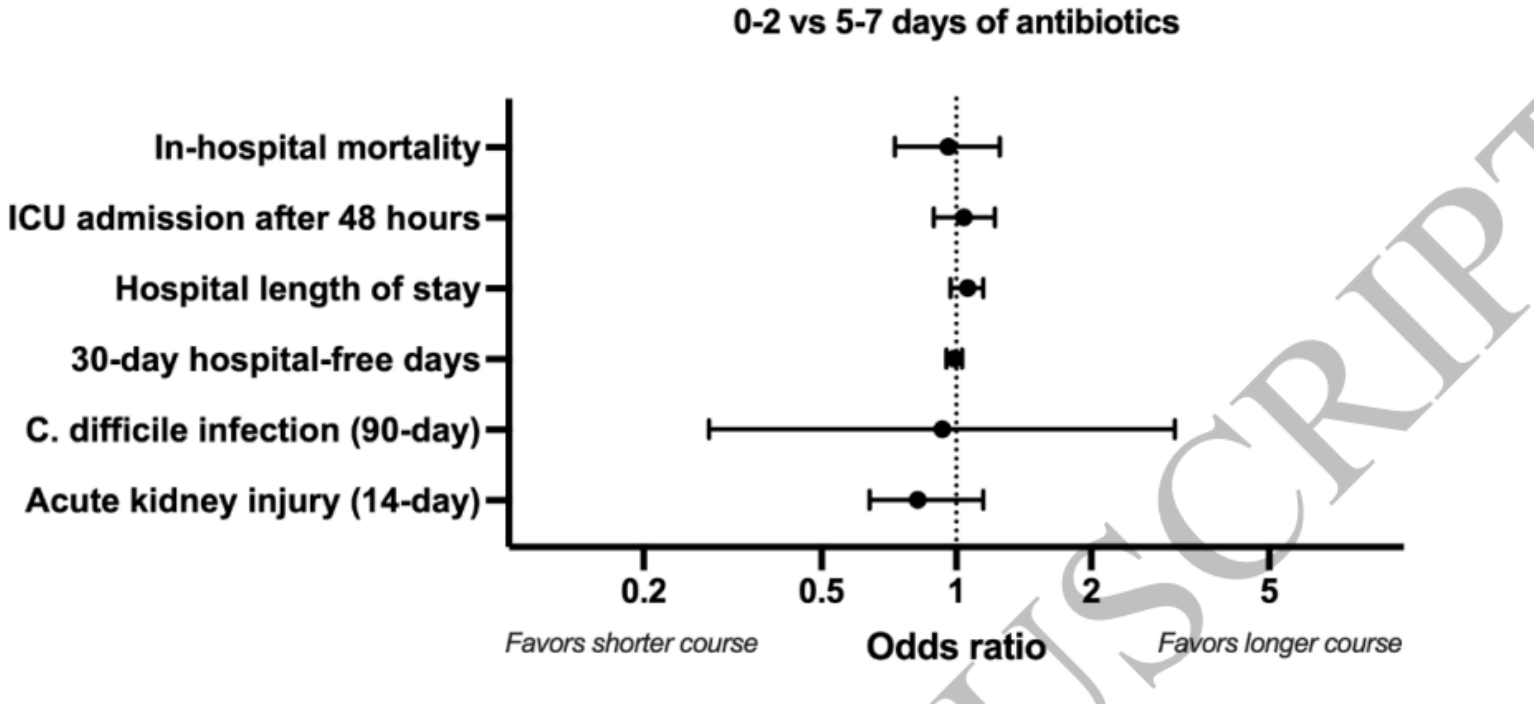
- GRADE framework for guidelines did not account for public health risks of excessive antibiotic use
- "potentially enormous" scope for overuse given frequency of PNA (whether real or not)
- QI metrics may be developed using these definitions == incentivized antibiotic use

Associations b/w antibiotics use and outcomes in patients hospitalized with CAP and positive respiratory viral assays

- Retrospective study in 5 hospitals from 6/2015-12/2024
  - Adults with clinical indicators of PNA who tested positive for respiratory virus within 48 hours of admission
- Comparison of very short course (0-2 days) v conventional (5-7 days) of antibiotics
  - Propensity score weighted for demographics, clinical covariates, antibiotic duration
- Patients treated for a median of 5 days of antibiotics, 30% managed without

Biebelberg et al. CID 2025

Associations b/w antibiotics use and outcomes in patients hospitalized with CAP and positive respiratory viral assays



MANUSCRIPT

NO difference in outcomes amongst patients with conventional, brief, or no antibacterials

Biebelberg et al. CID 2025

ATS 2025: Duration of Therapy

☑ *IDSA Endorsed!*

Situation	OLD 2019 ATS/IDSA	NEW 2025 ATS
Outpatient	At least 5 days + clinical stability	Less than 5 days, minimum **3 days** + clinical stability
Inpatient (non-severe)	At least 5 days + clinical stability	Less than 5 days, minimum **3 days** + clinical stability
Inpatient severe (ICU)	At least 5 days + clinical stability	At least 5 days+ clinical stability

Slide Credit Will Simmons, MD

ATS 2025: Evidence, Duration of Therapy

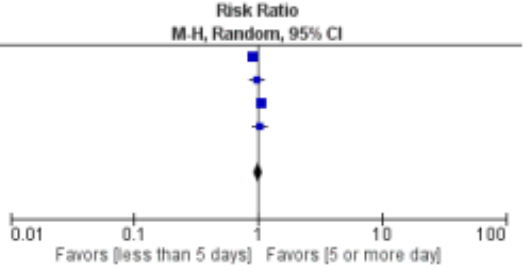
Study	Antibiotics (I VS C)	Intervention days	Control days
Inpatient			
[1]**El Moussaoui - 2006**	Patients who improved after 3 days of IV amoxicillin were randomized to placebo or 750 mg of oral amoxicillin TID	3	8
[2]**Dinh - 2021**	After 72 hours of beta-lactam treatment, patients were randomized to receive placebo or 500 mg amoxicillin plus 62.5 mg of clavulanate TID	3	8
Outpatient			
[3]**D'Ignazio – 2004**	A single 2 gm dose azithromycin microspheres vs 500 mg oral levofloxacin	1	7
[4]**Drehobl - 2005**	A single 2 gm dose azithromycin microspheres vs clarithromycin	1	7

*No mortality difference (Dinh): one death 2/2 SAB in short arm, one death with recurrent PNA in long arm

J) Analysis #3: Clinical cure – long follow-up (3-4 weeks)

Study or Subgroup	Less than 5 days Events	Total	5 or more days Events	Total	Weight	Risk Ratio M-H, Random, 95% CI
D'Ignazio - 2005	164	211	182	212	29.1%	0.91 [0.83, 0.99]
Dinh - 2021	105	141	107	141	19.8%	0.98 [0.86, 1.12]
Drehobl - 2005	175	202	172	209	31.1%	1.05 [0.97, 1.14]
Moussaoui - 2006	47	52	49	56	20.0%	1.03 [0.90, 1.18]
Total (95% CI)		**606**		**618**	**100.0%**	**0.99 [0.92, 1.07]**
Total events	491		510			

Heterogeneity: Tau² = 0.00; Chi² = 6.33, df = 3 (P = 0.10); I² = 53%
Test for overall effect: Z = 0.26 (P = 0.80)



Jones et al. Am J Respir Crit Care Med 2025

Evidence: Duration of Therapy & Transition to PO

- Oral treatment for pneumonia shortens length of hospital stay
  - Castro-Guardiola et al 2001: 85 patients with **non severe** CAP randomized to IV -> PO on day 2 versus all IV (10 day course), LOS 5 days shorter in PO switch
  - Oosterheert et al 2006: 203 patients in non-ICU wards with **severe** CAP randomized to IV --> PO on day 3 versus all IV, LOS 2 days shorter in PO switch

Slide Credit Whitney Hartlage, PharmD

Conclusions

- Take the ATS 2025 Guidelines with a grain of salt (even they say so!)
- Use (your usual) clinical judgment when thinking about when to start antibiotics in a patient with a positive RVP
- 3-5 days of therapy sufficient with early transition to oral therapy
- Think about how guidelines are built- and what is included in prioritization

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