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# Clinical Approach to Non-responsive Pneumonia: A Survey of Wisconsin Primary Care Clinicians

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# Background - ANRP

- What is ANRP?
  - Ambulatory, non-responsive pneumonia
  - Community-acquired pneumonia (CAP) that has not improved with 3-10 days of antibiotic therapy
- Current clinical recommendations exist for CAP<sup>1,2</sup>
- Limited recommendations for ANRP, but generally include additional diagnostic testing, consideration of other causes and antibiotic change<sup>3</sup>

# Current CAP Clinical Recommendations for Outpatients

<b><i>Clinical recommendations</i></b>	<b><i>Evidence rating</i></b>
Chest radiography should be obtained to confirm CAP diagnosis	C
Evaluation for specific pathogens that would alter standard empiric therapy should be performed when the presence of such pathogens is suspected on the basis of clinical and epidemiologic clues; this testing usually is not required in outpatients	C

*SORT evidence rating system:*

*A = consistent, good-quality patient-oriented evidence*

*B = inconsistent of limited-quality patient-oriented evidence*

*C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series*

Source: References 2,4

# Current Recommendations for Management of ANRP

<b>Scenario</b>	<b>Considerations*</b>
No improvement within 72 hrs of therapy	Resistant microorganism or uncovered pathogen Parapneumonic effusion or empyema Nosocomial superfection Noninfectious condition (i.e. pulmonary embolism, CHF, vasculitis)
Clinical deterioration or continued progression of illness	Severity of illness at presentation Metastatic infection (i.e. empyema, meningitis, arthritis) Inaccurate diagnosis Exacerbation of comorbid illness or coexisting noninfectious disease (i.e. renal failure, acute MI, pulmonary embolism)

*\*Further workup and management for unresponsive illness include blood cultures, repeat sputum culture, urine antigen testing for Streptococcal pneumoniae and Legionella if not previously done, chest computed tomography, thoracentesis if significant pleural effusion is present with fluid analysis and culture, and bronchoscopy with bronchoalveolar lavage and transbronchial biopsies.*

Source: Reference 2

# Background - Continued

- Anecdotal evidence suggests that changes in antibiotic prescription may occur without diagnostic testing for uncovered etiologic agents
  - 1-7% of pneumonia cases in Wisconsin are caused by fungal agents
- Treatment failure of pneumonia in the outpatient setting can range from 2-7%
- 6-15% of hospitalized patients with ANRP do not respond to the initial antibiotic treatment

# Objective

- We sought to determine the stated approach to ANRP by primary care clinicians in Wisconsin

# Method

- On-line survey containing algorithmic, scenario-based clinical case
- Sent to Wisconsin Research & Education Network (WREN) Survey Group
  - WREN Survey Group is a group of Wisconsin primary care clinicians that have agreed to rapidly respond to electronic surveys sent via e-mail
  - 103 eligible members
- Respondents were presented with potential diagnostic and therapeutic responses to the case scenario which was constructed from recent consensus guidelines

# Scenario

*A 40-year-old female presents to the office with a two-day history of productive cough, slight shortness of breath, low-grade fevers (up to 100.6 degrees F), pleuritic chest pain and fatigue, which have been slowly progressing. She denies headache, nasal congestion and rhinorrhea, sore throat or recent sick contacts. Past medical history is significant only for well-controlled hypertension. No known drug allergies. Patient's only medications are Hydrochlorothiazide and daily multivitamin. Patient denies any allergies, history of smoking, and works as an office manager, though she does note she spent a long weekend camping up in northern Wisconsin approximately 2 weeks ago.*

*Vital signs include T-100.2, RR-25, HR-97, BP-110/70, POx-94% on room air.*

*Physical exam significant for slightly decreased breath sounds in the right lower lobe. Exam otherwise normal.*



# Results

- 53/103 returned surveys (51%)
- 44 complete surveys (43%)
- Demographics:
  - 61% male
  - 30% rural
  - Mean 20 years of practice
  - 13 counties represented

- 39/44 (89%) ordered chest x-rays
- 29/44 (66%) had done no sputum or antigen testing by 4 days
- 24/44 (55%) had done no sputum or antigen testing by 11 days

# Results – Chest X-ray Group

- Initial presentation:
  - 39/39 (100%) ordered antibiotics
- 4 days no improvement:
  - 23/39 (59%) performed additional diagnostic testing
  - 26/39 (67%) started or changed antibiotics
    - 5 (13%) changed without further testing
- 11 days no improvement:
  - 39/39 (100%) performed additional diagnostic testing
    - 23/39 (59%) ordered CT of chest
    - 16 (41%) ordered bronchoscopy



# Results – No Chest X-ray Group

- Initial presentation:
  - 3/5 (60%) ordered antibiotics
- 4 days no improvement:
  - 0/5 (0%) performed additional diagnostic testing
  - 3/5 (60%) changed or started antibiotics
    - 5 (100%) changed without further testing
- 11 days no improvement:
  - 4/5 (80%) performed additional diagnostic testing
    - 4/4 (100%) ordered chest x-ray or CT of chest
    - 0/4 (0%) ordered bronchoscopy

# Conclusions

- When presented with an ANRP scenario, a majority of regional primary care clinicians both change antibiotics and do further testing after 4 days of no response
- Majority do not test for fungi by 11 days
- Findings highlight the need for practice guidelines based on research outcomes and expert experience to establish pathways for optimal treatment for ANRP
  - Partially addressed by publication since this study<sup>3</sup>
- A study is underway to determine what is done in actual practice in Wisconsin

# References & Acknowledgements

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- Thanks to: Paul Smith, MD, Kiley Bernhard, MPH, and Melody Bockenfeld, MPH