

Diagnostic utility of pneumococcal urinary antigen assay in clinical practice: a retrospective study in a community hospital in Evanston, IL

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Background:

While the pneumococcal urine antigen test (PUAT) is a validated tool for diagnosing pneumonia, recent evidence suggested lower sensitivity than expected (approximately 60-65%) and limited impact on clinical outcomes. A lack of clinical indicators for a positive test result and the absence of clear recommendations based on high-quality evidence create grounds for potential test misuse in real practice.

Methods:

Community hospital

January 1, 2011, and December 31, 2021

N=8110

Adult patients tested for PUAT (BinaxNOW™)

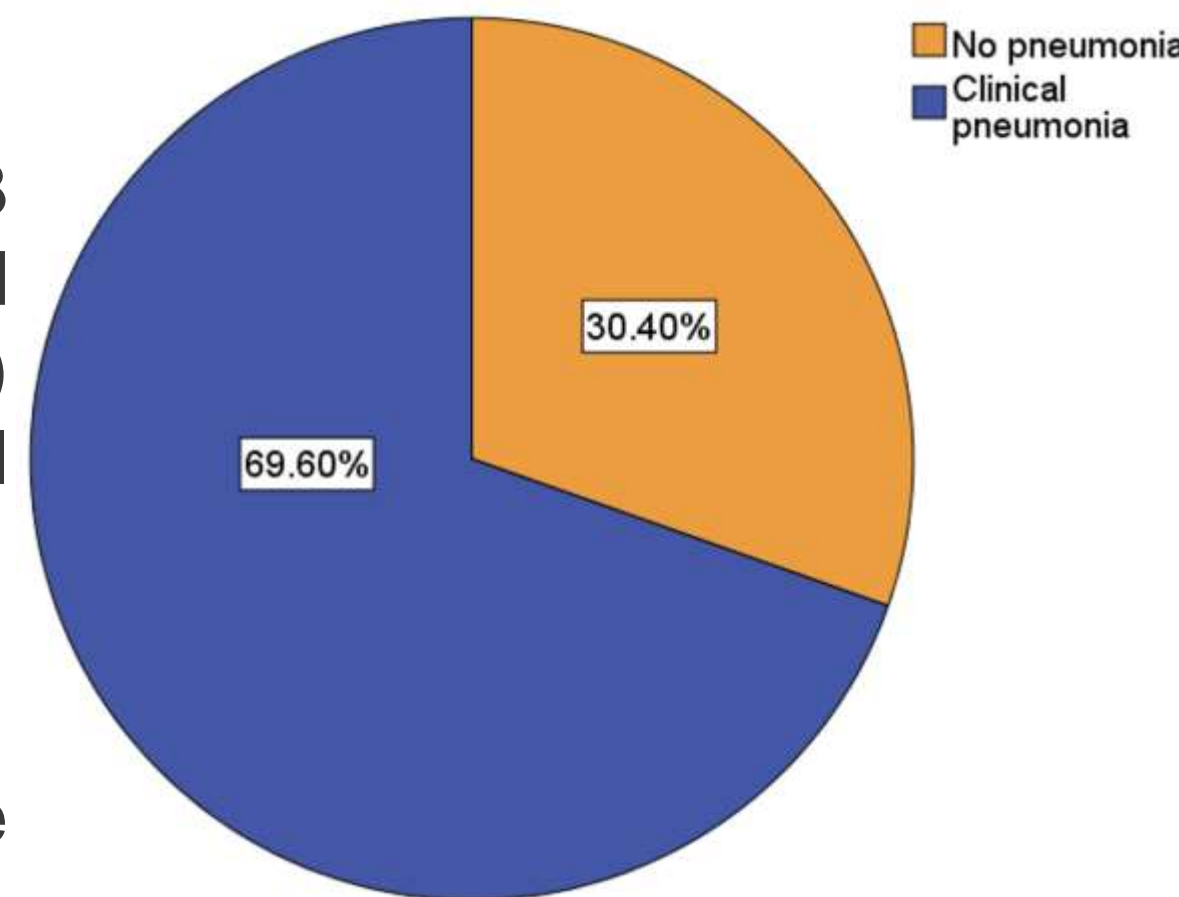
Patients with or without clinical pneumonia were identified

Based on McGeer criteria

Results:

- Out of 8110 patients only 273 positive results were identified (3.36%); of those, 83 (30.4%) did not meet criteria for clinical pneumonia

- The positive predictive value of PUAT was 69% in our study



	Clinical pneumonia	No clinical pneumonia	Total	PPV
Positive PUAT	190	83	273	0.69
Negative PUAT	NA	NA	7837	
Total			8110	

- *S. pneumoniae* was cultured in only 13.9% (21) of cases in patients with clinical pneumonia, which correlates with the known sensitivities of this test

Our study demonstrated a **low positivity rate of PUAT** despite a large sample size and a significant proportion of **positive test results in patients without clinical pneumonia**

More results:

More ICU admissions and NIPPV use were noted in patients with clinical pneumonia ($p = 0.04$ each). However, there was no difference in the use of antibacterial therapy among the two groups ($p = 0.83$), mechanical ventilation rates ($p = 0.2$), and length of hospital stay ($p = 0.2$).

	No clinical pneumonia (N=83)	Clinical pneumonia (N=190)	P-value
Length of stay (days)	5 (3 - 8)	6 (4 - 10)	0.209
Intensive care unit	44 (36.1%)	73 (48.3%)	0.042
NIPPV	14 (11.5%)	31 (20.5%)	0.045
Mechanical ventilation			0.17
No	102 (83.6%)	112 (74.2%)	
Yes	19 (15.6%)	37 (24.5%)	0.207*
Chronic tracheostomy	1 (0.8%)	2 (1.3%)	
Vasopressors	23 (18.9%)	40 (26.5%)	0.136
Antibiotics	120 (98.4%)	149 (98.7%)	0.83
Nonsurvivors	14 (11.5%)	25 (16.6%)	0.233

*P-value obtained with a Bonferroni Chi-Square residual analysis.



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