



Assessment of antibiotic choice in  
patients admitted with COPD  
exacerbation at risk for *Pseudomonas  
aeruginosa* infection

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# Disclosure Statement

- The speaker has no actual or potential conflict of interest in relation to this presentation.

# Learning Objective

- To identify antibiotic choices in patients admitted with an acute exacerbation of COPD, at risk for *Pseudomonas aeruginosa* infections, in a community health system.

# CoxHealth



Cox Medical Center South

650-bed community hospital



Cox Medical Center Branson

140-bed community hospital

# Background<sup>1,2</sup>

- COPD is currently the 4th most common cause of death worldwide
- AECOPD occur at a rate of 0.85-1.30 episodes per person per year

COPD: chronic obstructive pulmonary disease

AECOPD: acute exacerbation of chronic obstructive pulmonary disease

## Background<sup>3,4</sup>

*Haemophilus  
influenzae*

*Moraxella  
catarrhalis*

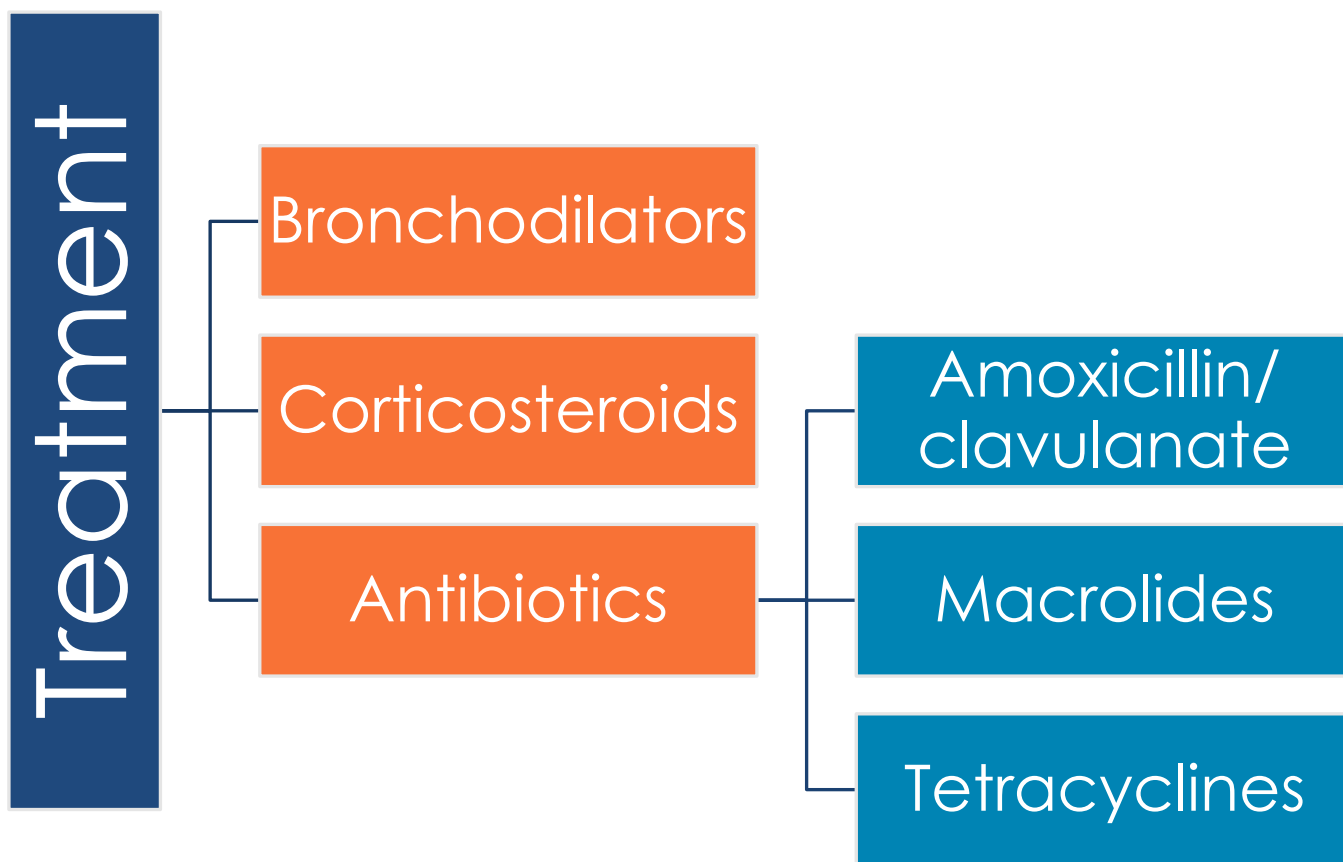
*Streptococcus  
pneumoniae*

*Haemophilus  
parainfluenzae*

*Pseudomonas  
aeruginosa*

Viruses

# Background<sup>1</sup>



## Background<sup>5,6</sup>

- Studies investigating risk factors for *P. aeruginosa* have had inconclusive results
- Studies on treatment choice and outcomes in these patients have not been performed



# Study Purpose

- To assess antibiotic choice in patients with AECOPD and risk factors for *P. aeruginosa*

# Study Objectives

## Primary Objective

- The percentage of patients with AECOPD and risk factors for *P. aeruginosa* that receive antipseudomonal antibiotics

## Secondary Objectives

- 30- and 90-day readmission rates at of patients with AECOPD and risk factors for *P. aeruginosa* based on antibiotic selection

# Design and Methods

Multicenter

Retrospective chart review from January 1, 2018 to December 31, 2018

Conducted from July 2019 to April 2020

IRB granted exempt status October 2019

# Inclusion Criteria

Admission to either Cox Medical Center South or Cox Medical Center Branson between January 1, 2018, to December 31, 2018

ICD10 diagnosis J44.1, chronic obstructive pulmonary disease with (acute) exacerbation

Age  $\geq 40$  years old

Treatment with  $\geq 1$  antibiotic for AECOPD

At least 1 risk factor for *P. aeruginosa*

# Inclusion Criteria

## *Pseudomonas* Risk Factors

Outpatient systemic steroid use for at least 90 days

Previous *P. aeruginosa* isolated in a sputum culture within 1 year

Previous use of at least one anti-pseudomonal antibiotic within 1 year

Hospitalization for any reason within 90 days

Frequent exacerbations ( $\geq 2$  exacerbations within 1 year)

# Exclusion Criteria

Admission to any intensive care unit

Outpatient treatment

Concurrent pneumonia

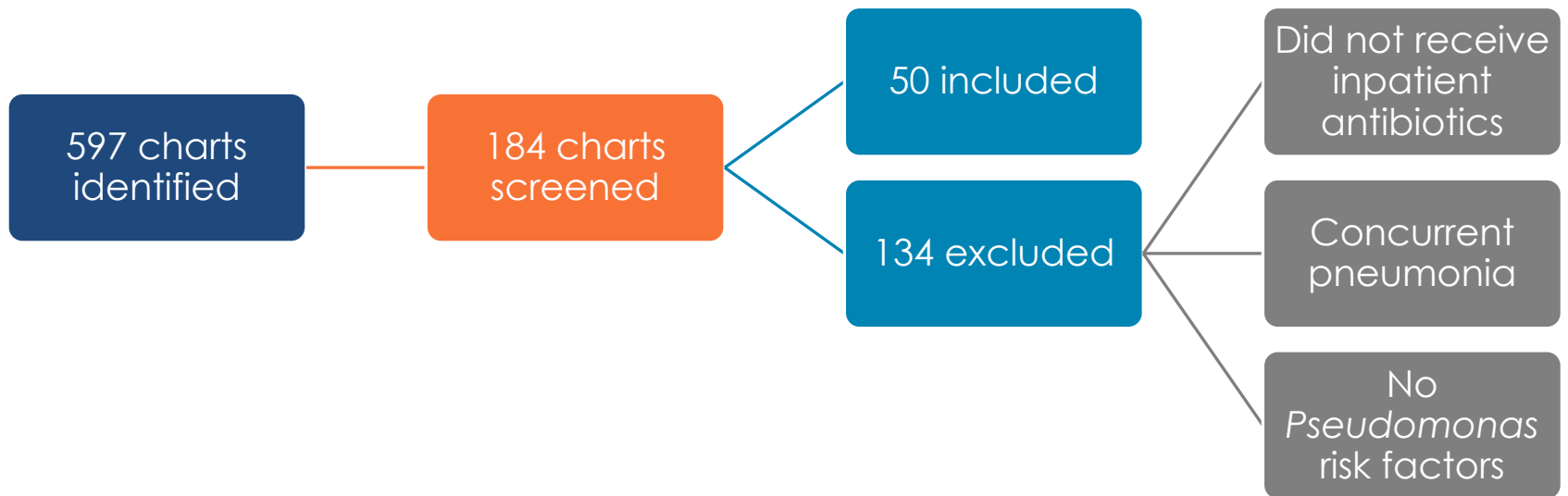
Cystic fibrosis

Active cancer

Active pregnancy

Outpatient prescription for antipseudomonal antibiotics for any reason other than AECOPD

# Methods



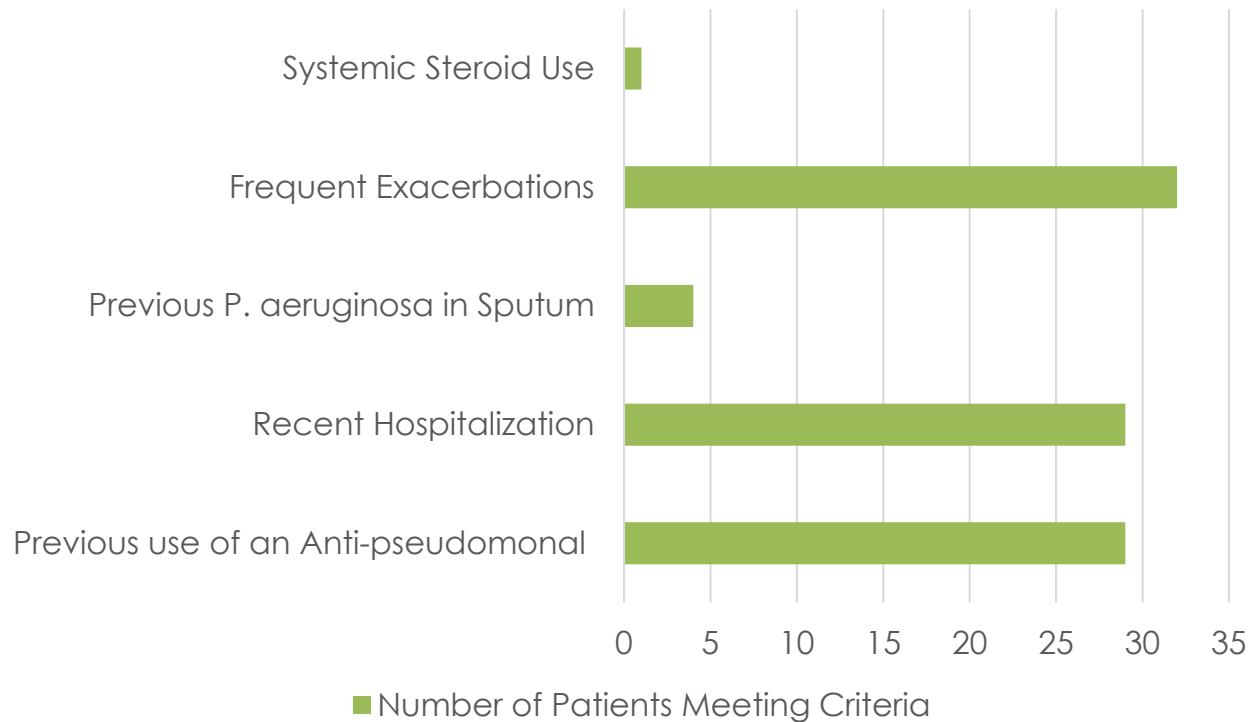
# Patient Characteristics

Characteristic	Result, n=50
Hospital: South, no., (%)	39 (78%)
Hospital: Branson, no., (%)	11 (22%)
Sex: male, no., (%)	19 (38%)
Race: Caucasian, no., (%)	49 (98%)
Age, mean, (SD)	67 years (10.4 years)
Length of stay, mean, (SD)	4.01 days (2.17 days)
Former smoker, no., (%)	25 (50%)
Current smoker, no., (%)	24 (48%)
FEV1/FVC data available, no., (%)	14 (28%)
FEV1/FVC, mean, (SD)	45.5% (15.2%)



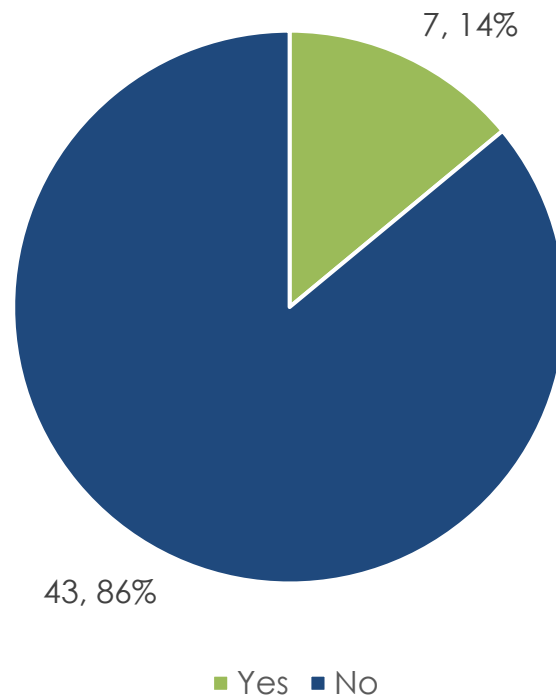
# Patient Characteristics

## Number of Patients Meeting Criteria



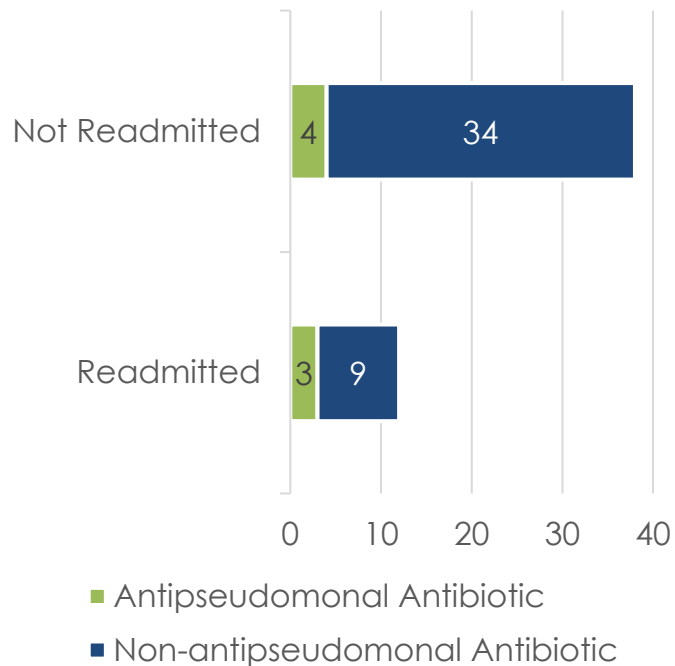
# Results – Primary Outcome

Receipt of Antipseudomonal Antibiotics

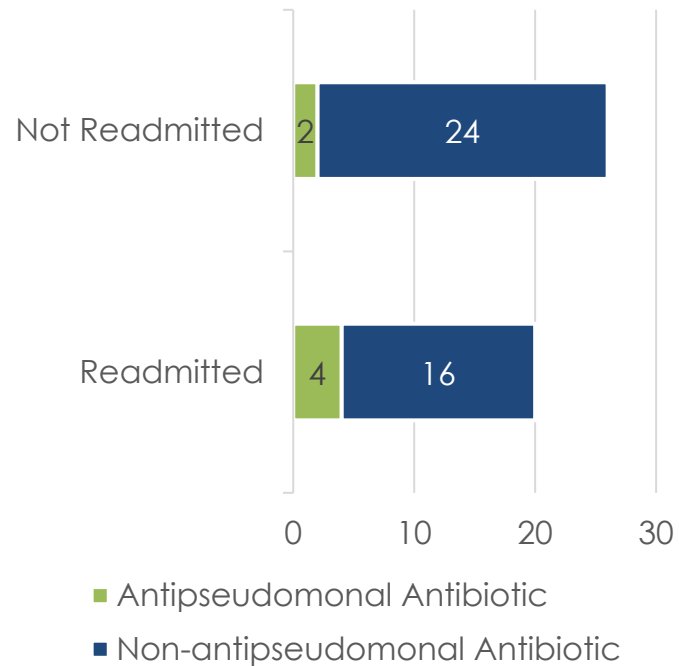


# Results – Secondary Outcomes

30 Day Readmissions,  
n=50



90 Day Readmissions,  
n=46



# Limitations

Retrospective

Only used  
CoxHealth  
records

Did not examine  
maintenance  
therapy

Bronchiectasis  
not examined

Most patients  
did not have  
known  
FEV1/FVC

# Conclusions

- Most patients with *P. aeruginosa* risk factors do not receive antibiotics to cover the organism
- Antibiotic choice appears to have no effect on 30- and 90-day readmission rates

## Future Direction

- Results will be discussed with CoxHealth Infectious Disease team and be presented at pertinent committees

# Acknowledgements

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# References

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