

# A Pharmacist-Led Intervention to Decrease Anaerobic Coverage for Hospitalized Patients with Community-Acquired Pneumonia

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## OBJECTIVE

To determine if a pharmacist-led workflow could increase adherence to community-acquired pneumonia (CAP) guideline recommendations to limit anaerobic coverage to patients with suspected lung abscess or empyema.

## BACKGROUND

- CAP is frequently mis-categorized as aspiration pneumonia, prompting the addition of anaerobic coverage to the antibiotic regimen.
- Metronidazole is often added to ceftriaxone in patients with CAP and a suspected or documented aspiration event.
- The 2019 American Thoracic Society and Infectious Diseases Society of America CAP guidelines recommend anaerobic coverage only for hospitalized patients with a suspected lung abscess or empyema.<sup>1</sup>

## METHODS

### Design:

- Observational, pre-post, single center study

### Inclusion Criteria:

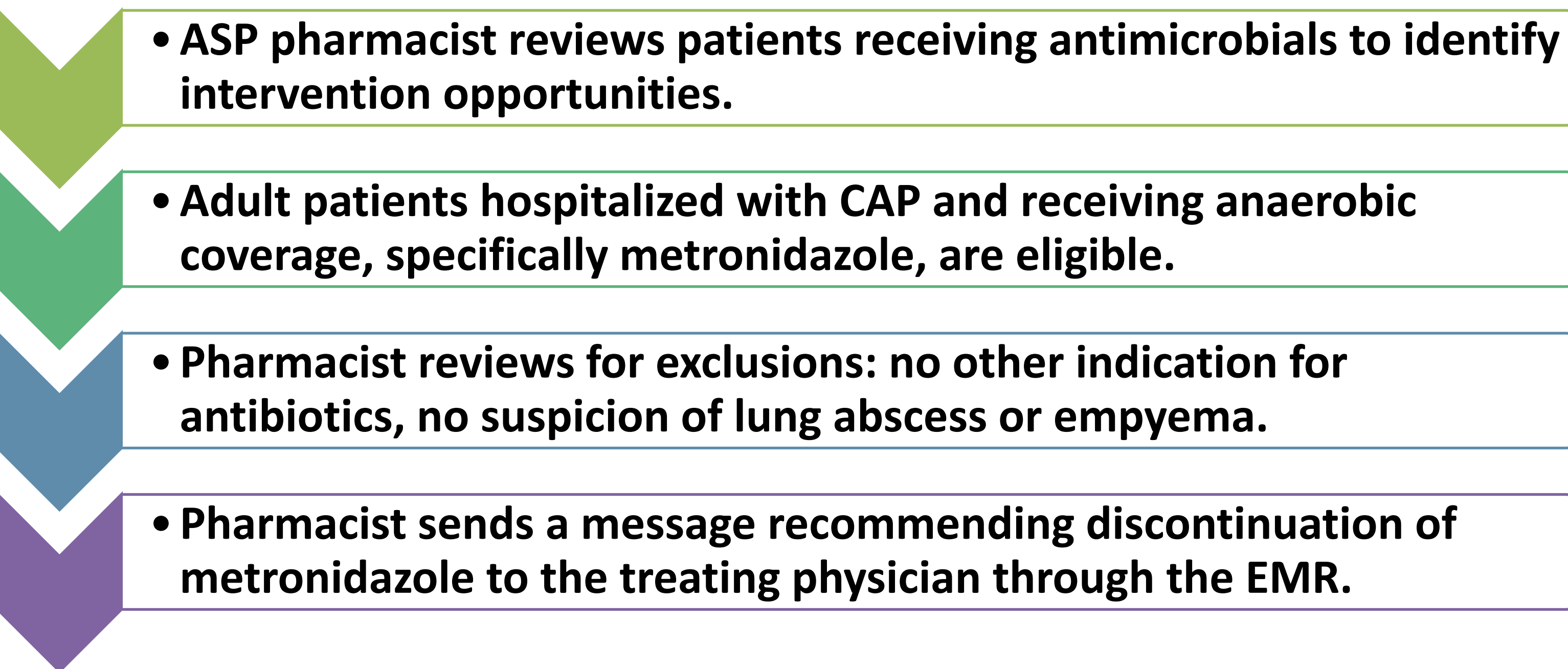
- Age  $\geq 18$  years
- Hospitalized with CAP and no other indications for antibiotics
- No suspected or confirmed lung abscess or empyema

### Intervention:

- The hospital antimicrobial stewardship program (ASP) approved a pharmacist workflow and guidance document that outlines criteria to evaluate appropriateness of anaerobic coverage for hospitalized patients with CAP.
- If anaerobic coverage is not indicated, the pharmacist recommends discontinuation of metronidazole.
- Workflow was implemented on October 3, 2019.

## METHODS

Figure 1. Pharmacist Workflow



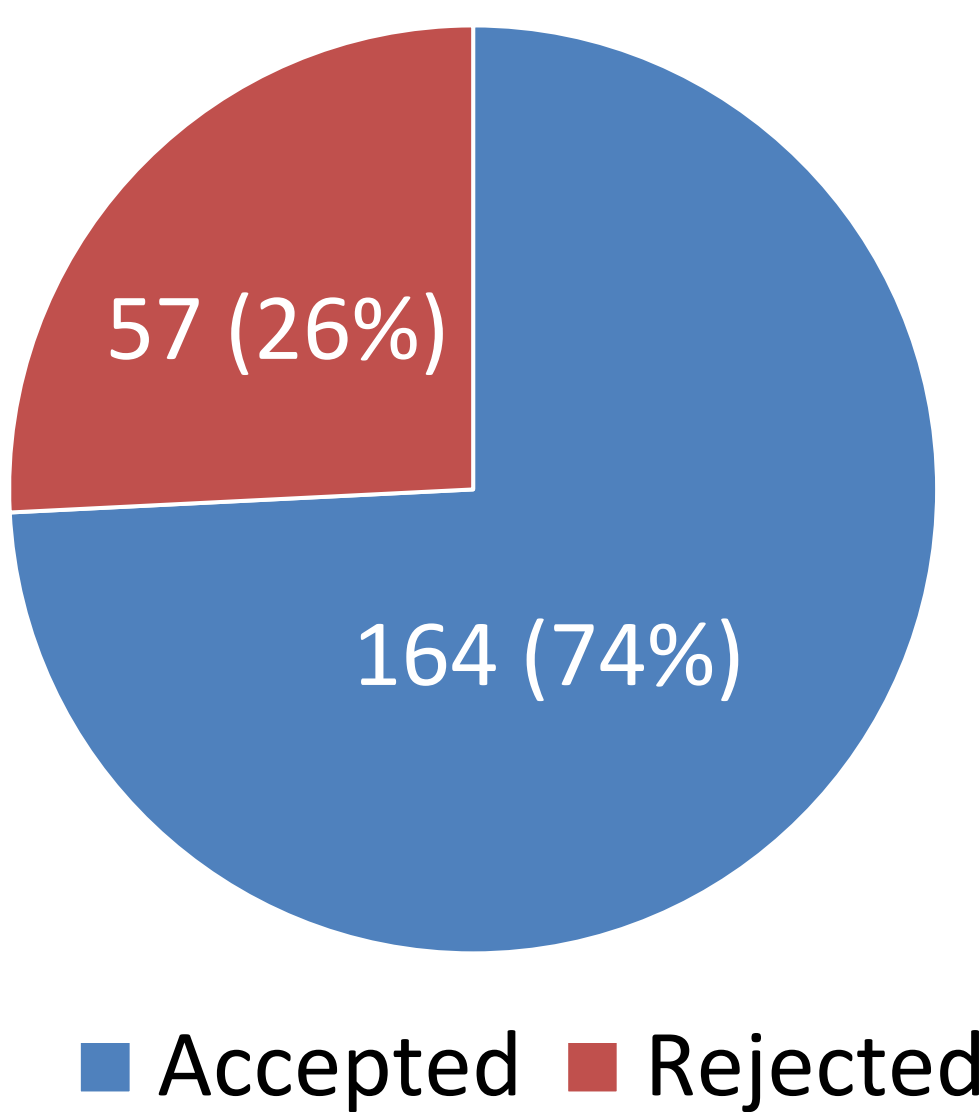
## RESULTS

- There were 221 interventions in 206 patients made by pharmacists during the study period (October 3, 2019 – March 31, 2020).

Table 1. Patient Characteristics (n=206)

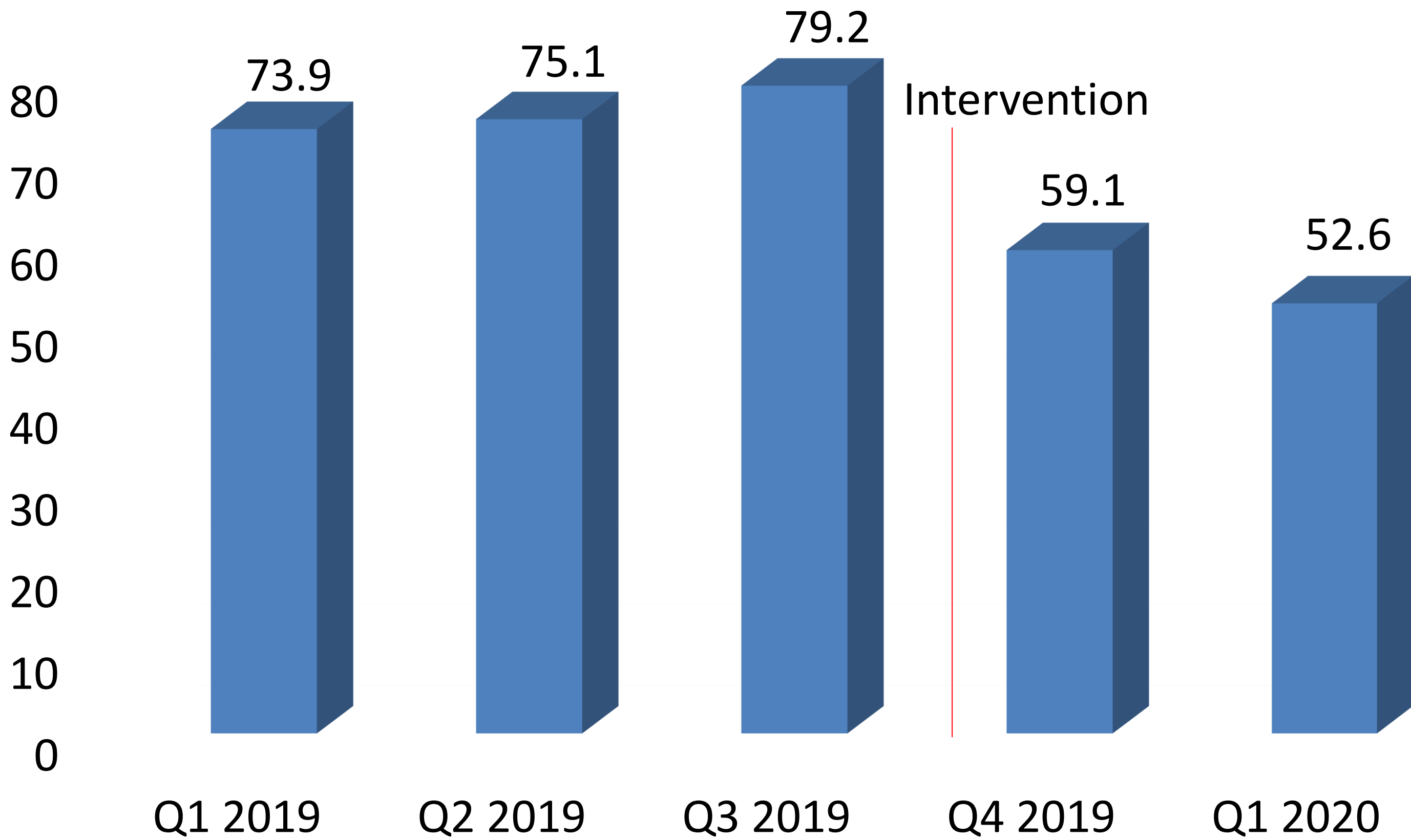
Age (years), median (range)	65 (18-96)
Male, number (%)	114 (55.3)
Chronic obstructive pulmonary disease, number (%)	34 (16.5)
Asthma, number (%)	22 (10.7)
Intensive care unit admission, number (%)	67 (32.5)
Invasive mechanical ventilation, number (%)	54 (26.2)
Respiratory culture, number (%)	
Normal flora	165 (80.1)
Yeast, not Cryptococcus	15 (7.3)
Blood culture result, number (%)	
No growth at 5 days	78 (82.1)
Staphylococcus epidermidis	8 (8.4)
Concomitant antimicrobials, number (%)	
Ceftriaxone	126 (61.2)
Vancomycin, intravenous	32 (15.5)
Levofloxacin	21 (10.2)
Cefazolin	16 (7.8)
Vancomycin, oral	12 (5.8)
Cefepime	7 (3.4)
Ciprofloxacin	7 (3.4)
Fluconazole	6 (2.9)
Sulfamethoxazole-trimethoprim	6 (2.9)
Azithromycin	4 (1.9)
Piperacillin-tazobactam	3 (1.5)
Clindamycin	2 (1.0)
Ampicillin-sulbactam	2 (1.0)
Amphotericin B	1 (0.5)
Days of antibiotic therapy, median (range)	7 (1-74)

Figure 2. Intervention Acceptance Rates



## RESULTS

Figure 3. Metronidazole DOT/1000 Patient Days



## CONCLUSION

A pharmacist antimicrobial stewardship intervention at our institution increased adherence to CAP guidelines and decreased unnecessary antibiotic exposure in CAP patients when anaerobic coverage was not indicated.

## REFERENCE

- Metlay JP, Waterer GW, Long AC, et al. Diagnosis and Treatment of Adults with Community-acquired Pneumonia. An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America. *Am J Respir Crit Care Med*. 2019;200(7):e45-e67.

## DISCLOSURES

Authors of this presentation have nothing to disclose regarding possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

This project has been approved by the Sanford Health Institutional Review Board.