

Antibiotic Use Among Patients with COVID-19

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Background

- Bacterial coinfection complicated approximately 31% of ICU managed SARS-CoV-1 patients¹
- However, limited evidence of bacterial coinfection in SARS-CoV-2
- Multi-hospital cohort (n= 1,700) from March 2020 to June 2020 found 84% of patients were treated with antibiotics²
 - Confirmed coinfection in only 3.5% of patients
 - Respiratory pathogen identified in only 1.7% of patients
- Systematic review found more than 90% of patients with COVID-19 received antibiotics³
 - Evidence of bacterial coinfection in only 7% of patients

Objectives

- Primary Objective:** Describe the percentage of patients with COVID-19 treated with ceftriaxone, cefepime, or piperacillin-tazobactam during hospitalization
- Secondary Objectives:**
 - Average day of antibiotic initiation
 - Average duration of antibiotic therapy
 - Number of positive respiratory cultures
 - Number of other positive cultures (non-respiratory)
 - Number of positive urinary antigen tests
 - Number of positive procalcitonin values (≥ 0.25 ng/mL)

Methods

- Retrospective chart review of patients with COVID-19 admitted to Ascension Via Christi, St. Francis
- Study Period: July 1, 2020 - September 30, 2020

Inclusion

- Adults ≥ 18 years old with COVID-19
- Admitted to:
 - Medical ICU or 5 North (COVID units)
- Treated with:
 - Ceftriaxone, cefepime, and/or piperacillin-tazobactam

Results

Figure 1: Patients Evaluated for Inclusion

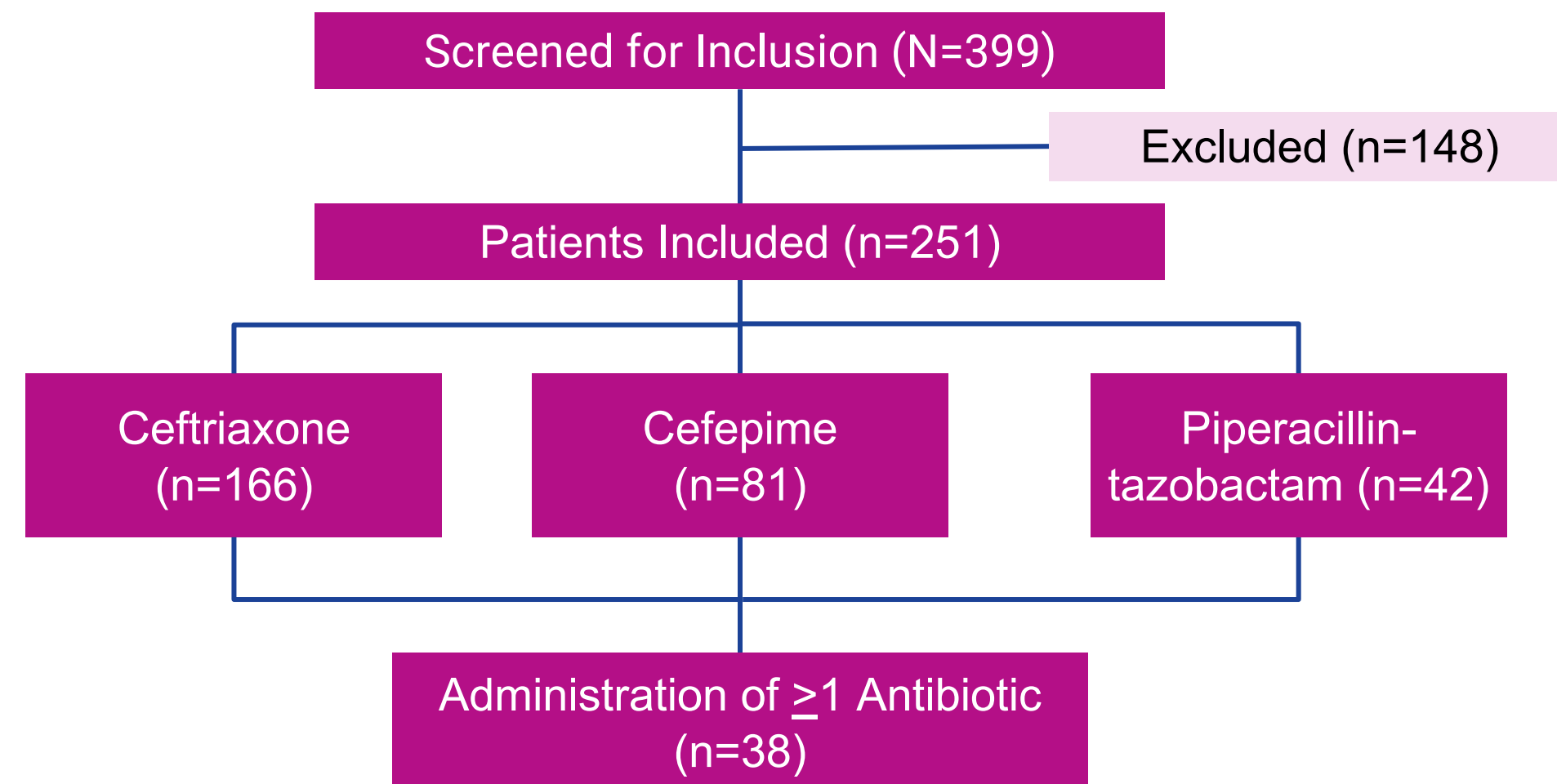
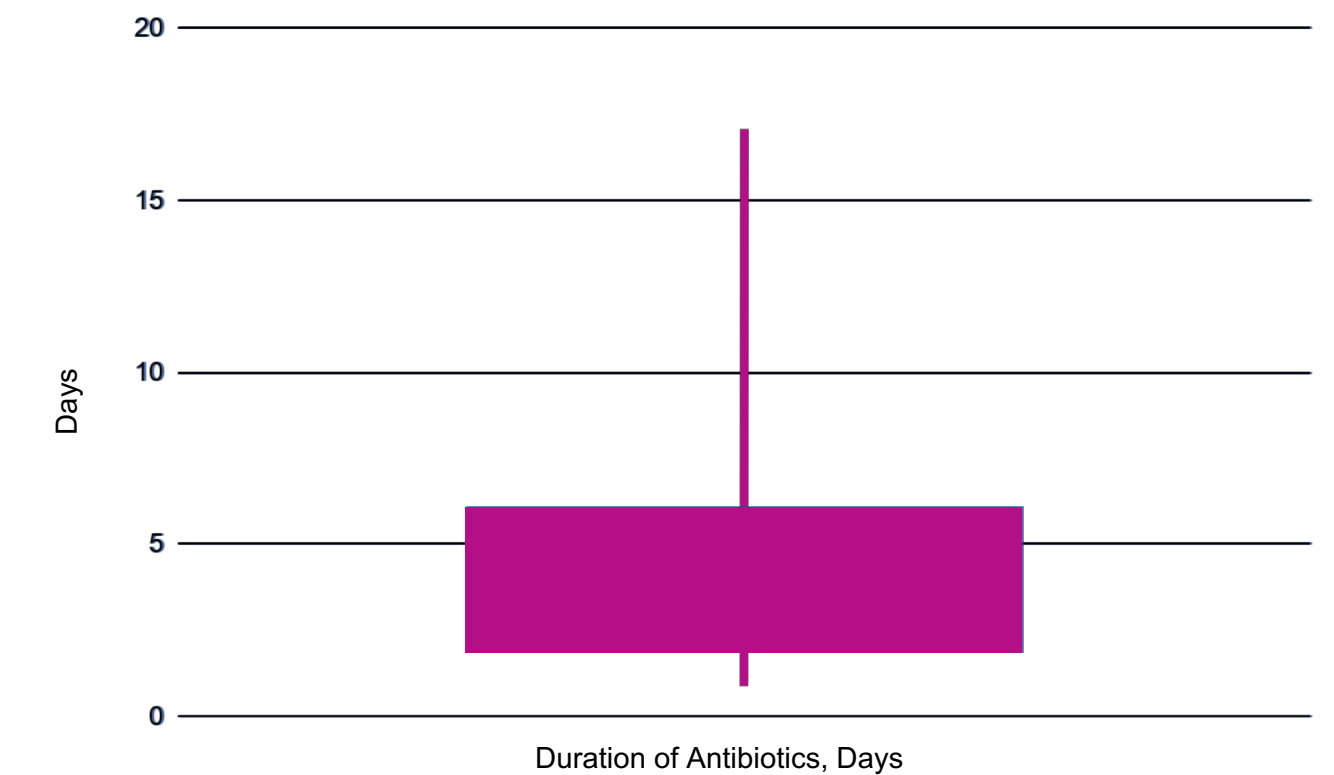


Table 1: Primary and Secondary Objectives

	Outcome	Result (n=251)
Primary Objective	Patients Treated, n (%)	
	Ceftriaxone	166 (57.4)
	Cefepime	81 (28.0)
	Piperacillin-tazobactam	42 (14.5)
Secondary Objectives	Day of Antibiotic Initiation, Mean (%)	1 (68.9)
	Duration of Antibiotic Therapy, Median (IQR)	5 (2-6)
	Positive Respiratory Cultures, n (%)	20 (7.9)
	Other Positive Cultures, n (%)	51 (20.0)
	Positive Urinary Antigen Test, n (%)	
	<i>Streptococcus pneumoniae</i>	0 (0.0) (n=18)
	<i>Legionella pneumophila</i>	0 (0.0) (n=19)
	Procalcitonin ≥ 0.25 ng/mL, n (%)	82 (48.0) (n=171)

Figure 2: Duration of Antibiotics



Limitations

- Single center, retrospective chart review
- Patients evaluated for inclusion based on hospital location
- Did not collect data on azithromycin, vancomycin, or remdesivir
- Respiratory cultures considered positive if any growth occurred

Conclusions

- Despite limited data, antibiotics routinely used for bacterial coinfection upon presentation with COVID pneumonia
 - Expedient initiation upon presentation for primarily viral etiology is likely unnecessary
- Need judicious use of antibiotics to prevent widespread resistance

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Disclosure

The authors of this research project have nothing to disclose concerning possible financial or personal conflicts of interest.

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