Evaluation of Antibiotic Selection in Patients Hospitalized with COVID-19 at DHMC

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Introduction

The first confirmed case of the coronavirus disease 2019 (COVID-19) in the U.S. was reported on January 31, 2020 from Washington State. Today, there has been over 27.9 million cases with ~490K deaths. The emergence and subsequent pandemic caused by the SARS-CoV-2 virus led to a surge in antimicrobial therapy. Patients presenting with COVID-19 have a clinical phenotype like bacterial respiratory infections, which can result in the use of broad-spectrum antibiotics that do not improve recovery from the viral illness and may result in unintended harm to the patient from antibiotic side effects and selection of resistant bacteria.

In this project, we performed a retrospective chart review to evaluate choices in hospitalized COVID-19 positive patients at DHMC between March and end of July.

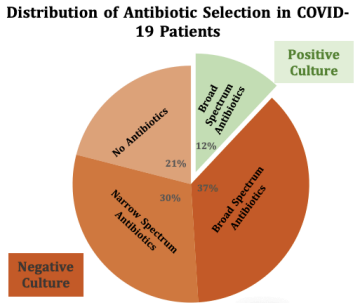
Method

- Retrospective Chart Review of 33 COVID-19 patients hospitalized at DHMC
- Data was reviewed and collected on Microsoft Excel
- Data was analyzed using Microsoft Excel and R

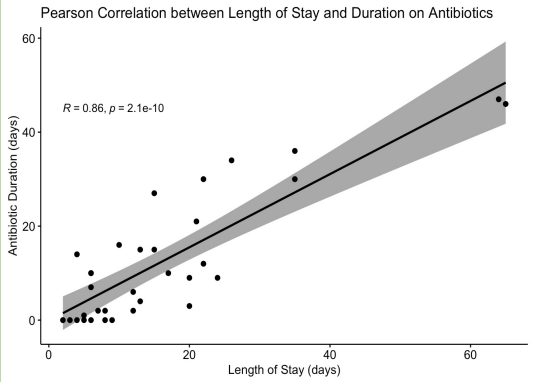
Patient Demographics

Age median (IQR)	65 (53-70)
Sex, No. (%)	
Female	16 (48%)
Male	17 (52%)

Results and Main Findings

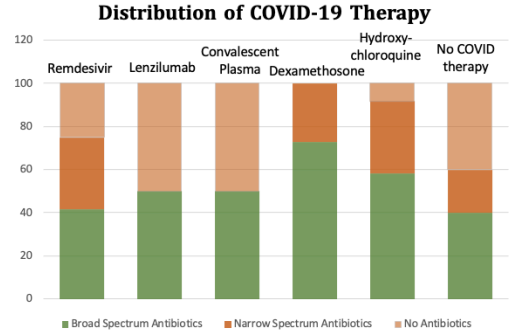


- Broad Spectrum Antibiotics – Anti-MRSA and Pseudomonal Coverage
- Narrow Spectrum – Community Acquired Pneumonia Coverage

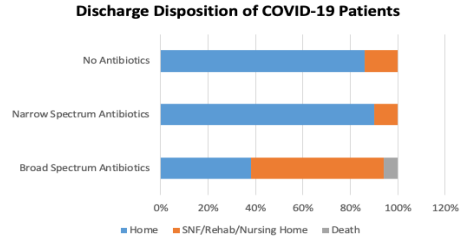


	Length of Stay (days)	Mean Antibiotic Duration (days)
Broad Spectrum Antibiotics	20.5	30
Narrow Spectrum Antibiotics	7.5	6.5
No Antibiotics	5	0

- Patients given Broad Spectrum Antibiotics were more likely to present with comorbidities, larger BMI, and symptoms of fever, chills, cough, SOB, fatigue and headaches
- There was no statistically significant correlation for vitals including temperature, heart rate, systolic blood pressure and respiratory rate on admission amongst all three groups.



- Statistically significant strong correlation between length of stay and duration of Antibiotics prescribed
- Those on broad spectrum antibiotics were on antibiotics longer and much more likely to stay longer in the hospital compared to the other group.



CXR Findings On Admission

	All patients	Broad Spectrum Antibiotics	Narrow Spectrum Antibiotics	No Antibiotics
			No (%)	
Normal	6 (18%)	1 (6.3%)	0	5 (71%)
Abnormal				
Innfiltrate	2 (6%)	1 (6.3%)	1 (10%)	0
Consolidation	24 (73%)	14 (88%)	8 (80%)	2 (29%)
Ground-glass opacity	1 (3%)	0	1 (10%)	0
effusion	6 (18%)	5 (31%)	1 (10%)	0

- Having a normal CXR was predictive of getting no antibiotics (p=0.005)
- Those prescribed Broad-Spectrum antibiotics seemed to be more likely to present with consolidation; however, this correlation did not show statistical significance.

Limitations

- Small sample size
- Evolving recommendations on evaluation and management of COVID-19 patients

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