



# Infectious Diseases Consultation and Procalcitonin-Guided Limits Antibiotic Use in COVID-19

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## Introduction

Antimicrobial stewardship continues to be a central challenge of the COVID-19 pandemic. Empiric antibiotic therapy is offered in 56.6%-74.6% of inpatients with COVID-19, with microbiologically confirmed bacterial pneumonia reported in only 3.5%-16% of cases.

## Purpose

An Infectious Diseases (ID) consultation was obtained on most patients at our institution throughout the COVID-19 pandemic. We report a significant reduction in antibiotic use among COVID-19 patients in the setting of near-universal ID consultation.

## Methods

We evaluated the electronic medical records of 1346 patients with COVID-19 from March 2020 – May 2021 at four hospitals in northwest Ohio and southeastern Michigan with ID consultant availability. We assessed the inclusion of an ID consultant, antibiotic indication, initiation, and discontinuation, PCT levels, radiologic images, and changes to therapy decisions. A chi-square test of independence and simple logistic regression were conducted to determine the relationship between PCT levels and antibiotic discontinuation.

## Results

Of 1346 patients with a confirmed COVID-19 diagnosis, 64.6% (870/1346) received antibiotics on admission. The most common diagnosis associated with initial antibiotic administration was bacterial pneumonia (692/870, 79.5%). An ID consultation was obtained on 97.8% (677/692) of the patients that received antibiotics for suspected bacterial pneumonia. In 48.1% (326/677) of these patients, antibiotics were discontinued within 48 hours of ID consultation. A significant difference was noted between PCT levels and antibiotic discontinuation ( $p < .01$ ). The odds of discontinuing antibiotics for the upper (PCT > 0.51) and middle (PCT = 0.26-0.50) groups were 0.22 and 0.37, respectively, when compared to the lower (PCT ≤ 0.25) group.

## Discussion

At our institutions, 64.6% of patients with COVID-19 initially received antibiotics either in the emergency department or as part of an admission order set for the indication of a bacterial pneumonia co-infection. Consultation of an ID specialist subsequently led to a discontinuation of antibiotics in nearly half of COVID-19 patients that were evaluated and deemed not to have bacterial pneumonia.

## Conclusion

The initial PCT level appears to have informed the decision of ID consultants at our institution to discontinue antibiotic therapy. The inclusion of an ID specialist is an effective antimicrobial stewardship intervention in the care of COVID-19 patients.

## References

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