

## **Evaluation of Outpatient Telephone Prescribing of Antibiotics for Acute Pulmonary Exacerbation in Children with Cystic Fibrosis**

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**Background:** People with cystic fibrosis (CF) often suffer from pulmonary exacerbations, which result in permanent loss of lung function, worse quality of life, and shortened survival. Acute pulmonary exacerbations (APE) are recurrent, flares of lung infection.<sup>1,2</sup> Common bacterial pathogens include methicillin-sensitive *Staphylococcus aureus* (MSSA), methicillin-resistant *Staphylococcus aureus* (MRSA), *Stenotrophomonas maltophilia* (SM), *Pseudomonas aeruginosa* (PA), and *Haemophilus influenzae* (HI).<sup>3</sup> Although there is currently no standard outpatient management for APE, treatment typically includes oral (and/or inhaled) antibiotic and increased airway clearance therapy.<sup>2</sup>

**Purpose:** This study aims to evaluate the appropriate use of outpatient antibiotics provided via a telephone encounter in patients with APE of CF.

**Methods:** This is a single-center, retrospective chart review conducted at Cardinal Glennon Children's Hospital (CGCH). Potential subjects were identified using the CGCH CF clinic patient list, which contains 108 pediatric patients. Patients were included if they were enrolled at the CGCH CF clinic and treated outpatient for an APE during May 1, 2017 to May 1, 2022. Excluded patients were those that received an eradication antibiotic for *Pseudomonas aeruginosa* or were diagnosed with cystic fibrosis transmembrane conductance regulator related metabolic syndrome. Data from the patients' most recent antibiotic exposure was collected from their electronic medical record. Descriptive statistics were used to report age, gender, microbiology results, and antibiotic regimen. The appropriateness of the antibiotic regimen was evaluated using selection and dosing recommendations created by a CF specialty pharmacist.

**Results:** Out of 108 patients enrolled at CGCH CF clinic, 82 (75.9%) patients had an APE and 72 (87.8%) patients that had an APE met inclusion criteria. Patient demographics of those included in the study are as follows: the median (IQR) age is 9 (8) years, 36 (50%) are male, 60 (83.3%) are on highly effective modulator therapy, and 38 (58.5%) respiratory cultures resulted in single organism growth of MSSA. Results showed that 37 (51.4%) encounters resulted in no errors, 26 (36.1%) resulted in drug-related errors, and 9 (12.5%) resulted in dosing-related errors. The pharmacist was involved in 48 (66.7%) of the encounters, with the majority of prescriptions resulting in no errors. There was no involvement of the pharmacist for 24 (33.3%) encounters, with 13 (54.1%) resulting in errors. Despite prescribing errors, the patients' symptoms resolved in 54 (75%) encounters.

**Conclusion:** Most patients experienced a resolution of their symptoms despite almost half being provided an inappropriate antibiotic regimen via a telephone encounter. When pharmacists are involved in outpatient antibiotic prescriptions for APEs, medication errors may be reduced.

References:

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