

Cystic Fibrosis Pediatric Pharmacist Services provided at an Academic and Research Hospital

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Background

- Cystic fibrosis (CF) is a progressive, incurable inherited disease that causes thick mucus to form in the lungs, pancreas, and other organs
- CF patients with multiple comorbidities are on many high-risk medications that result in frequent issues of polypharmacy
- A pediatric pharmacist was integrated into the CF Clinic at UCSF Benioff Children's Hospital and Medical Center in July 2019
- Integration of a pediatric pharmacist allowed for development of individualized treatment care plans for patients by optimizing medications for safe, appropriate, and cost-effective for CF and non-CF medication therapy

Purpose

- To characterize the value of having a pharmacist in the pediatric CF clinic by demonstrating an improvement of medication adherence

Outcomes

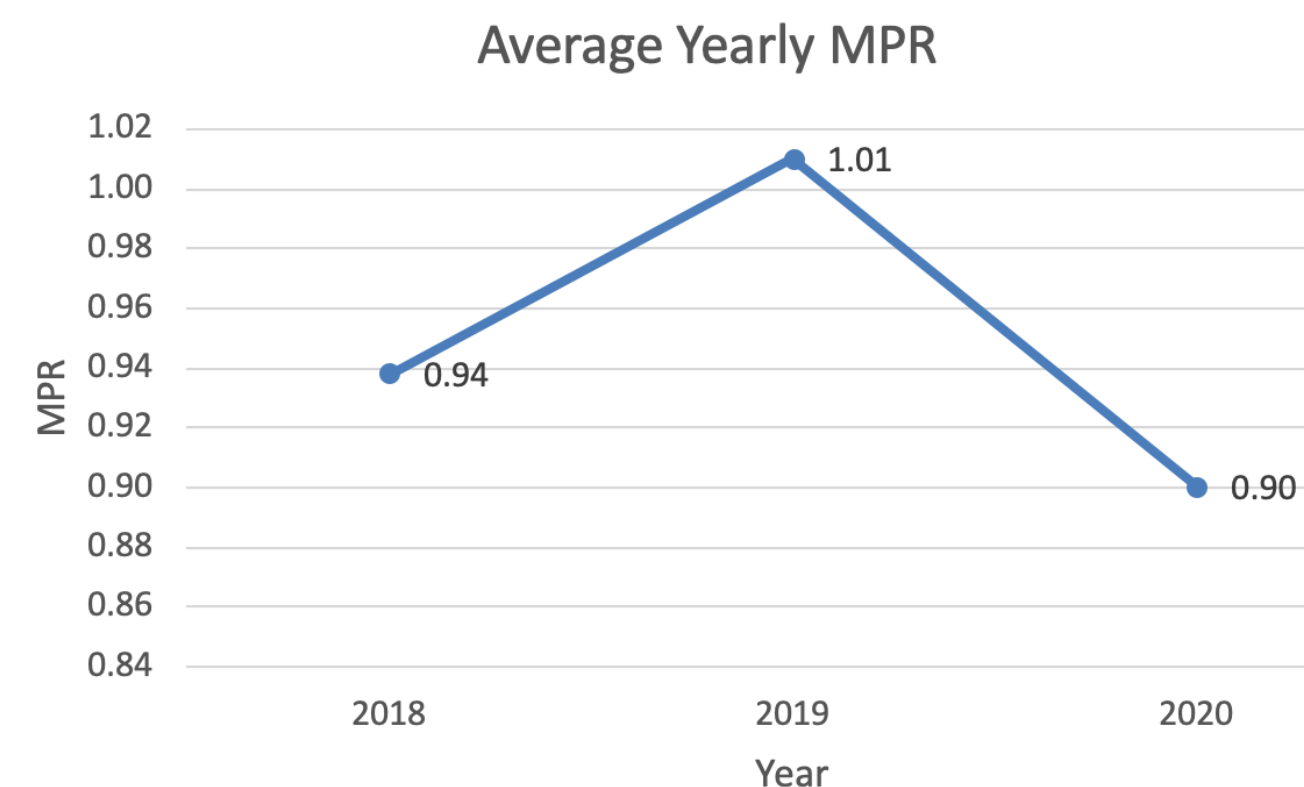
- Primary outcome**
 - Medication adherence by medication possession ratio (MPR)
- Secondary outcomes**
 - Total number of patient visits/encounters by pediatric pharmacist over the specific time period
 - Total number of drug tasks completed by the pharmacist during the first visit and following visits
 - Average time spent on prior authorizations (minutes)
 - Total number of prior authorizations, average duration of task start to end date (days)

Methodology

- Retrospective patient medical charts review and health insurance claims analysis from 1/1/2018 to 6/30/2020 of pediatric patients from the Cystic Fibrosis Center at UCSF were completed
- Pediatric pharmacist tasks and interventions, such as medication reconciliation, counseling, dose change, and prior authorization, were recorded by type of intervention and time spent
- Adherence to CFTR modulators (Kalydeco®, Orkambi®, Symdeko®, and Trikafta®) were measured using monthly and yearly medication possession ratio to analyze adherence before and after the implementation of Pharmacy Services in Pediatric CF Clinics

Results

1. Medication adherence by MPR (n=46)



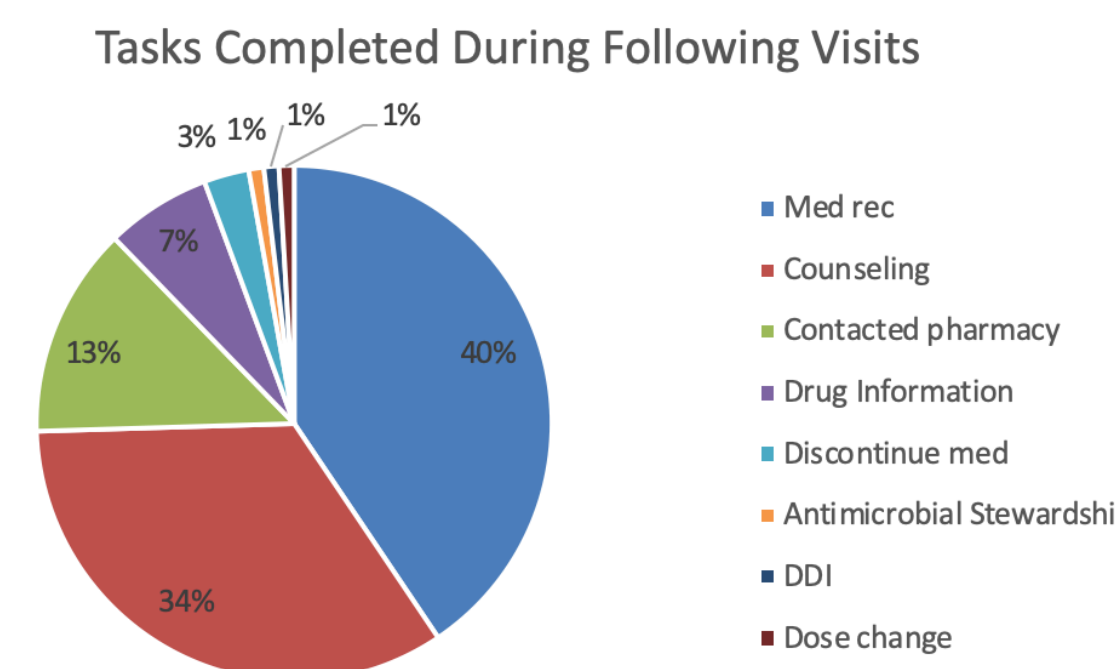
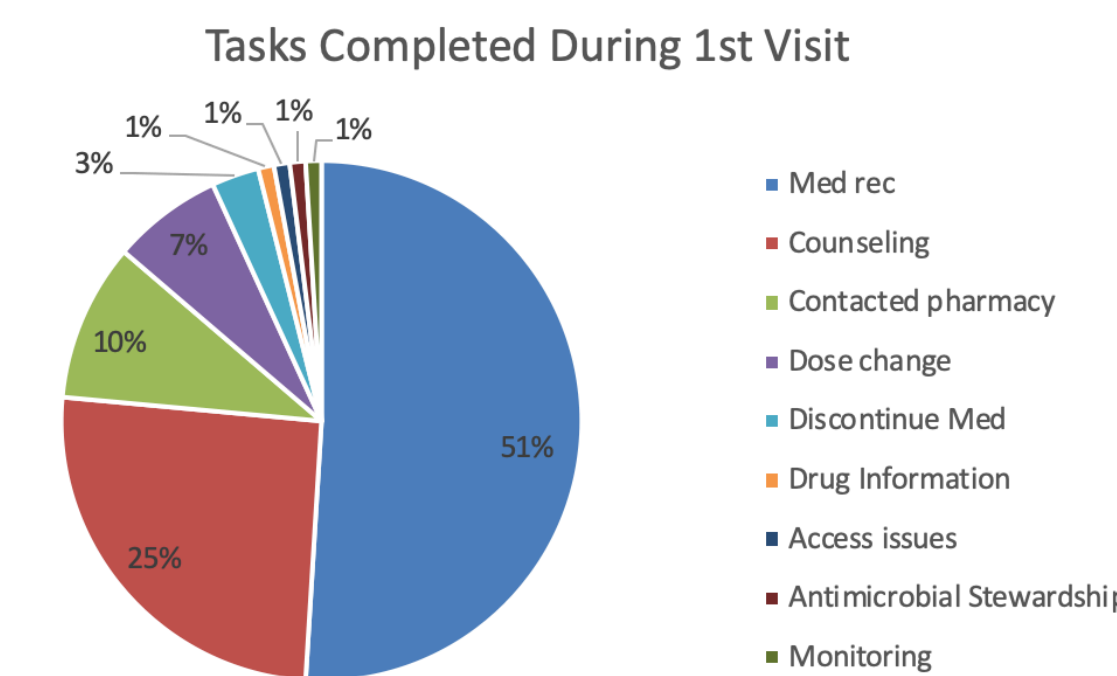
Patient medication adherence was measured by the average yearly MPR. There was an improvement in adherence from 2018 to 2019, but a decline in 2020. The pediatric pharmacist was integrated into the clinic in July 2019.

Upon further subanalysis, the average MPR was 103%, the highest out of yearly MPR results, from 7/12/2019 to 3/30/2020 when the pediatric pharmacist started in clinic to before the pandemic started.

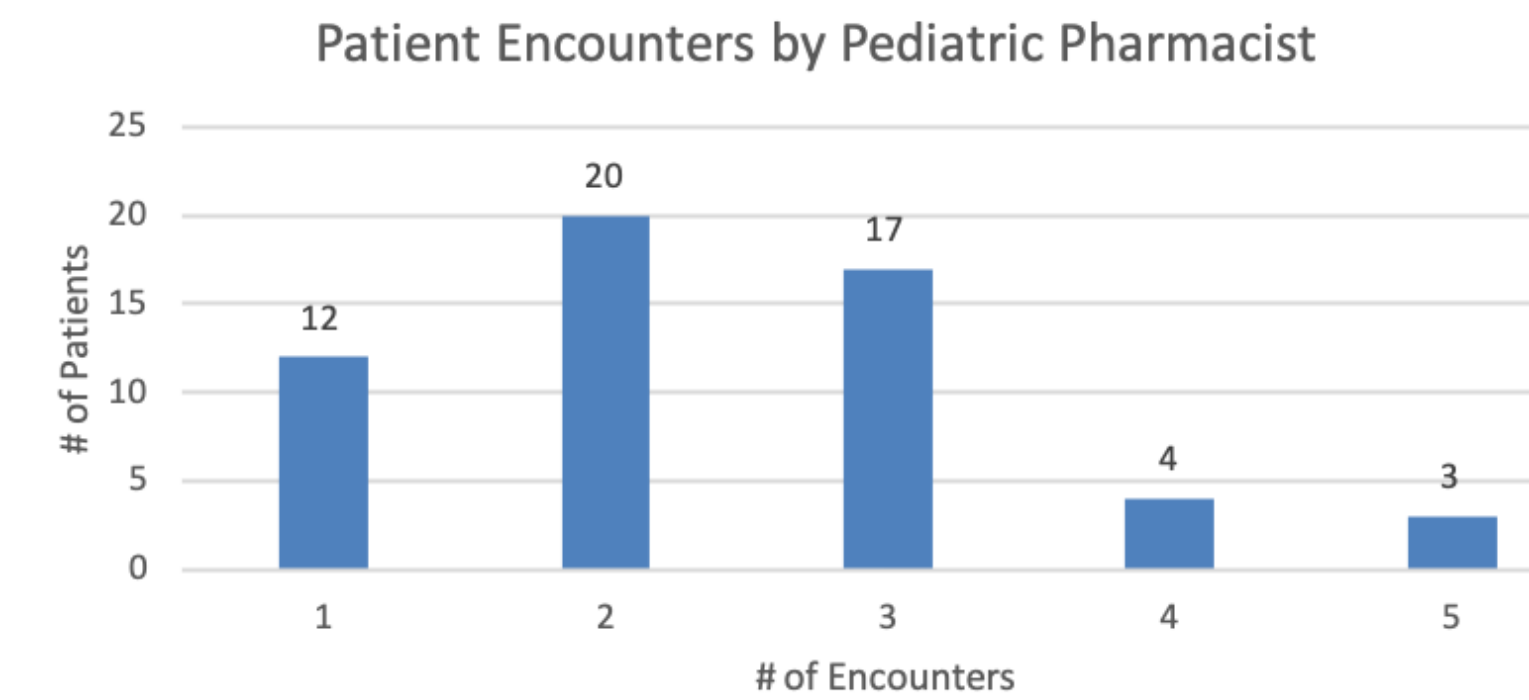
3. Total number of drug tasks completed during first visit and following visits

There were 102 drug tasks completed during the first visit. There were 106 drug tasks completed for a different drug for the following visits.

The top three tasks completed by the pediatric pharmacist for both first visits and following visits were medication reconciliation, counseling, and contacting pharmacy.



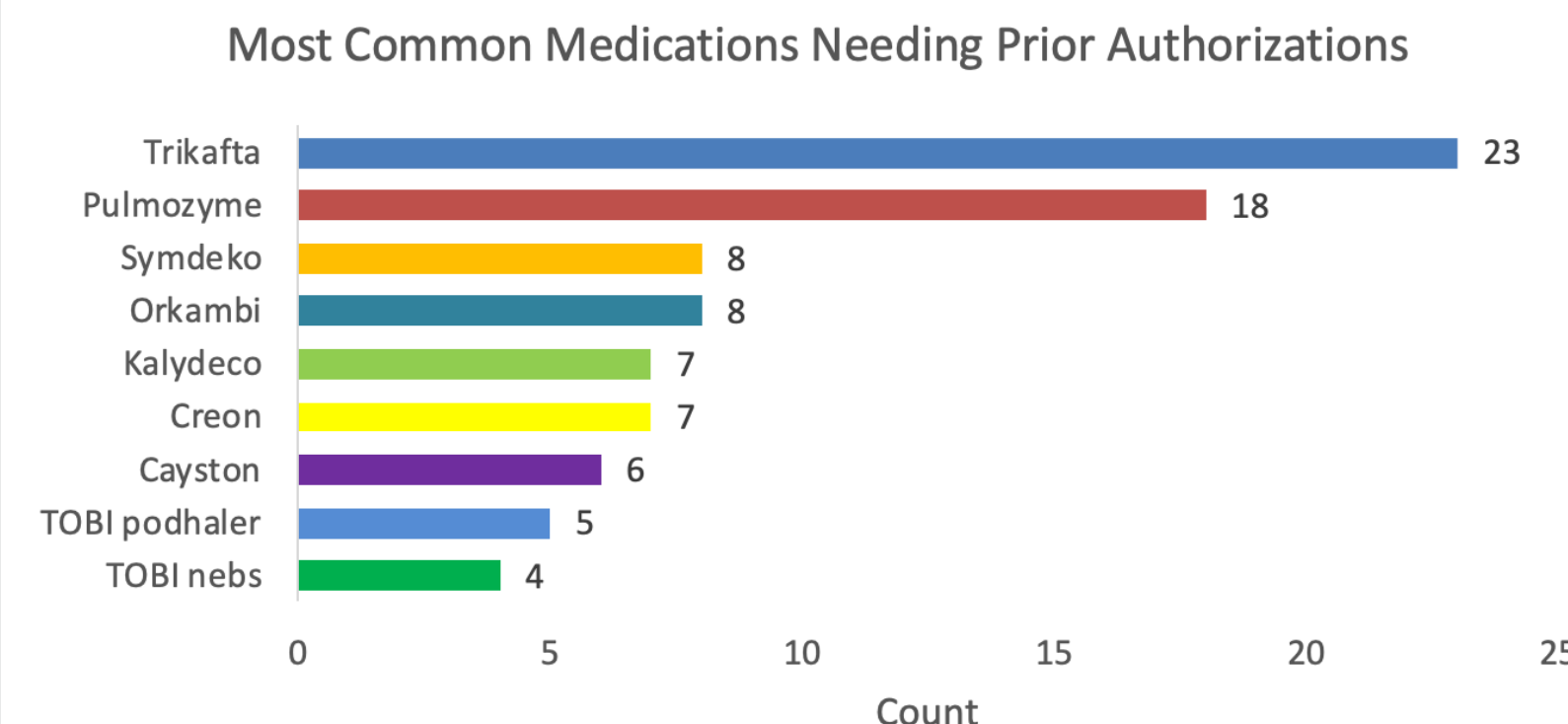
2. Total number of patient visits (N=56)



From 7/12/2019 to 6/30/2020, the pediatric pharmacist had 134 patient encounters/visits in the CF clinic with 56 patients. Most patients had 2 or 3 encounters with the pharmacist.

4. Prior Authorizations (PAs)

Total number of PAs	111
Average time spent on each PA	132 minutes
Average duration from start of PA task to PA approval date	64 days



Prior authorizations are major hindrances in receiving treatment in a timely manner. This study quantifies the time spent on completing PAs. The top four medications that required a PA were Trikafta®, Pulmozyme®, Orkambi®, and Symdeko®.

Conclusions

- This study quantifies the value of having a pediatric pharmacist in the pediatric CF Clinic
- The most common drug tasks included medication reconciliation, counseling, and contacting pharmacies
- The average duration from start of PA task to PA approval date was 64 days with an average of 132 minutes spent on each PA
- In the year that the pediatric pharmacist was integrated in the clinic, the patients' medication adherence slightly declined due to potential barriers with the pandemic and anticipation of PA approvals for Trikafta®
- It was found on further sub analysis that the average MPR was 103%, the highest out of yearly MPR results, from 7/12/2019 to 3/30/2020 when the pediatric pharmacist started in clinic to before the pandemic started demonstrating benefits from the pediatric pharmacist's interventions

Limitations

- Study end date did not complete a full calendar year
- Decline in adherence possibly due to the pandemic and anticipation of PA approvals for Trikafta®

Next Steps

- Future studies could continue to measure medication adherence to address this study's limitations
- An addition of a patient or patient guardian and provider satisfaction survey could further qualitatively measure the pharmacist's value in the pediatric CF Clinic

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