

# Adherence to Pulmozyme Treatment among Commercially Insured Patients with Cystic Fibrosis

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## Background

Adherence to therapy for chronic conditions in general is low.

Data on medication adherence in cystic fibrosis (CF) patients are limited.

### Objectives:

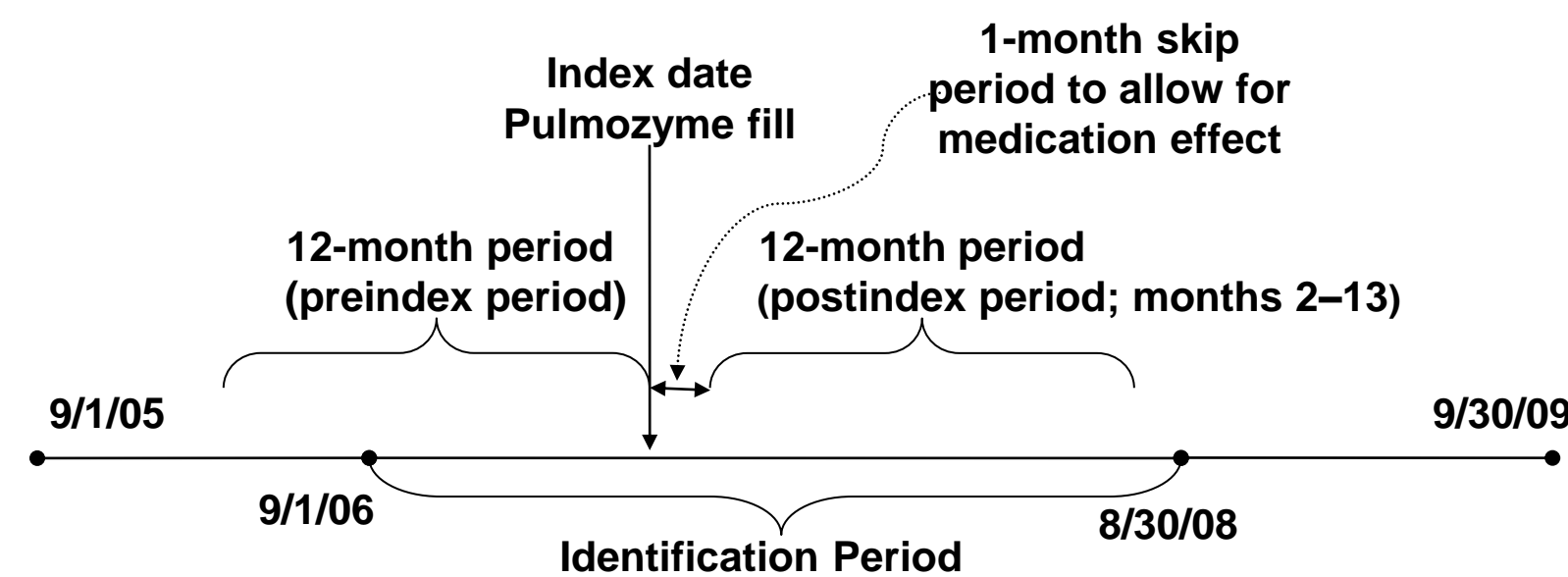
- Describe adherence to Pulmozyme® (dornase alfa) therapy, which is indicated to improve pulmonary function and reduce the risk of respiratory exacerbation in patients with CF.
- Examine the impact of adherence on health and economic outcomes.

## Methods

Retrospective cohort analysis of Thomson Reuters MarketScan administrative claims database.

Index date defined as first observed use of Pulmozyme between 9/1/06 and 8/30/08.

**Inclusion criteria:** CF (defined by presence of ICD-9-CM code of 277.0); AND ≥5 years old; AND treated with Pulmozyme; AND continuously enrolled for pre- and postindex periods.



**Outcomes:** Pulmozyme adherence, total postindex healthcare charges, and postindex respiratory exacerbation charges.

Adherence defined by medication possession ratio (MPR): ratio of days supply actually filled over days in study period (e.g., 200 days supply/365 days = 0.548)

Respiratory exacerbation defined as inpatient or outpatient claims with a diagnosis of hemoptysis, pneumothorax, acute asthma, acute respiratory infection, pneumonia /influenza, acute respiratory failure /pulmonary insufficiency, or bronchospasms

## Results

### Characteristics of 907 patients with CF treated with Pulmozyme

<b>Age, mean (SD), y</b>	19.5 (11.5)
<b>Female, no. (%)</b>	445 (49.1)
<b>Usual-care physician specialty, no. (%)</b>	
Pulmonology	327 (36.1)
Primary care	266 (29.3)
Gastroenterology	27 (3.0)
Otolaryngology	23 (2.5)
Other*	133 (14.7)
Unknown	131 (14.4)

\* All individual specialties are <2%.

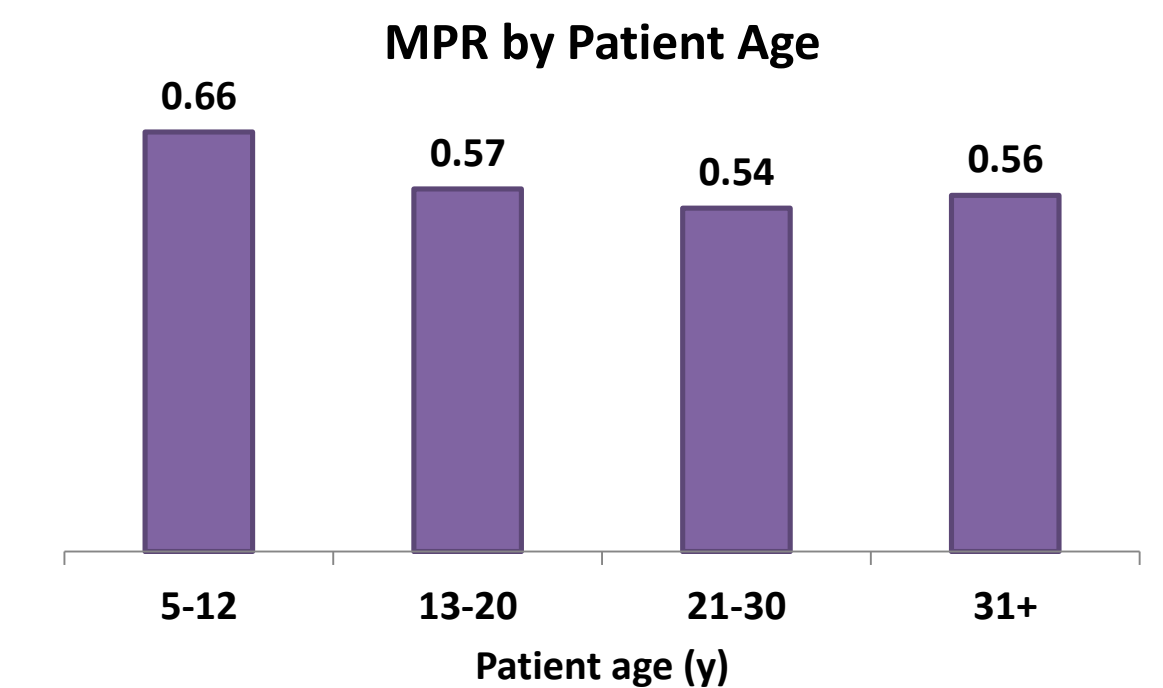
### Baseline Comorbidities and Medication Use in 907 patients with CF treated with Pulmozyme

Comorbidity	No. (%)
Diabetes	154 (17.0)
Pancreatic insufficiency	734 (80.9)
<i>Pseudomonas</i> infection	705 (77.7)
Gastroesophageal reflux	65 (7.2)
Chronic sinusitis	215 (23.7)
Malnutrition or failure to thrive	65 (7.2)
Osteoporosis	16 (1.8)
Allergic bronchopulmonary aspergillosis	16 (1.8)
<b>Medication used (in conjunction with Pulmozyme)</b>	
Inhaled antibiotics	527 (58.1)
Inhaled steroids (including steroid combination)	486 (53.6)
Hypertonic saline	187 (20.6)

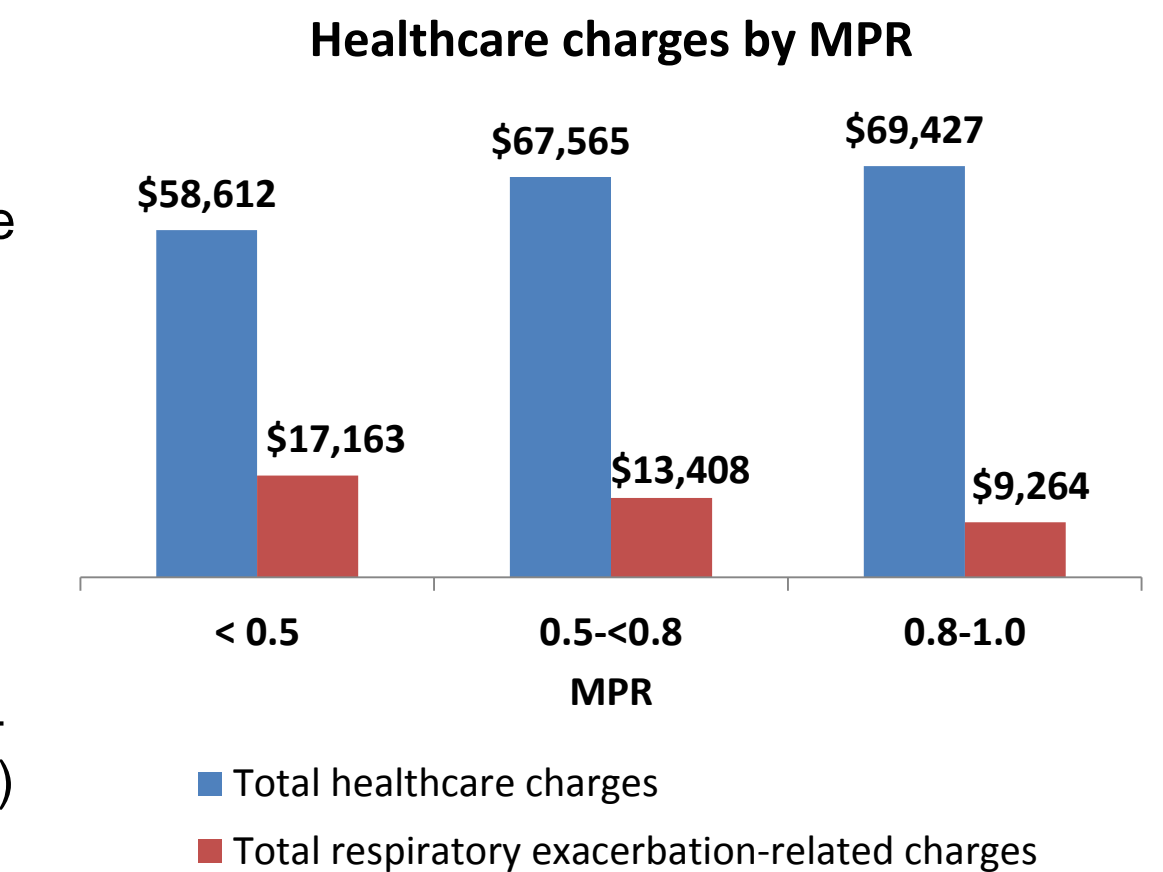
Mean MPR across all groups was 0.59.

MPR varied by age, with greatest adherence at ages 5-12 ( $P < .001$ ).

MPR also varied by season: highest adherence in fall and winter (0.61), lowest adherence in summer (0.56).



No statistically significant difference in total annual healthcare charges across 3 adherence levels



Annual respiratory exacerbation related charges were \$17,163 in patients with MPR <0.5 and \$9,264 in those with MPR ≥ 0.8 ( $P = 0.048$ )

## Conclusions

- CF patients in a commercially insured population had a mean Pulmozyme MPR of 0.59.
- The Cystic Fibrosis Foundation recommends that all individuals with CF receive appropriate therapies. While improved medication adherence may not reduce total healthcare charges, it is likely to lead to better quality of care for patients with CF.

Limitations:

- Clinical measures of severity of illness (e.g., lung function) are not available in claims data, so results were not able to be adjusted for severity.
- MPR is an imperfect proxy for actual medication use.

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