*primary studies - published, non RCT*

# Evaluating Long-Term Effectiveness of Cystic Fibrosis Modulator Therapies After Rapid Adoption: A Dual-Approach Study.

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### Study design (if review, criteria of inclusion for studies)

Retrospective cohort study, data from the US Cystic Fibrosis Foundation Patient Registry (2003-2016). Two approaches: i) within-subject comparisonsand ii) between

### Participants

Patients with CF in the U.S. Authors modeled data from 560 ivacaftor-treated individuals with the G551D variant. For between-subject comparisons, propensity scores to match the treated group with 2,800 untreated F508del homozygous individuals.

### Interventions

Ivacaftor

### Outcome measures

Long-term lung function.

### Main results

Results showed an initial average improvement in ppFEV1 in ivacaftor-treated children and adults (ranging from 4.54 to 6.53% predicted based on within-subject comparison of before vs. after ivacaftor initiation). There was a slower decline in adults, compared to children. These ivacaftor-treated cohorts experienced less decline relative to their F508del homozygous counterparts (between-group differences in treated vs. control ranged from 0.36 to 0.64% predicted). Both the within- and between-subject comparisons demonstrated similar levels of ivacaftor effectiveness. However, small differences between the two approaches were observed in younger individuals.

### Authors' conclusions

Ivacaftor was associated with improved ppFEV1 across all age groups, with the magnitude of improvement roughly 50% of that observed in clinical trials. The results support the need to account for modulator initiation bias and the use of within-subject analysis in future CFTR modulator effectiveness studies, but caution is advised in younger individuals due to developmental changes that may affect pre- and post-treatment comparability.

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### See also

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### Keywords

Aminophenols; CFTR Modulators; Genetic Predisposition to Disease; pharmacological_intervention; VX-770; ivacaftor;