

Changing face of pediatric pulmonary exacerbations in CF



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BACKGROUND

- Availability of CFTR modulator therapy down to younger ages coupled with the COVID-19 pandemic led to a remarkable decrease in pulmonary exacerbations (PE_x) requiring hospitalization among children with CF
- We wondered whether the demographic and clinical profiles of children with CF being hospitalized for exacerbations in 2022 differed from those admitted in 2018 (pre-elexacaftor/tezacaftor/ivacaftor [ETI] therapy and pre-COVID pandemic)

STUDY OBJECTIVE

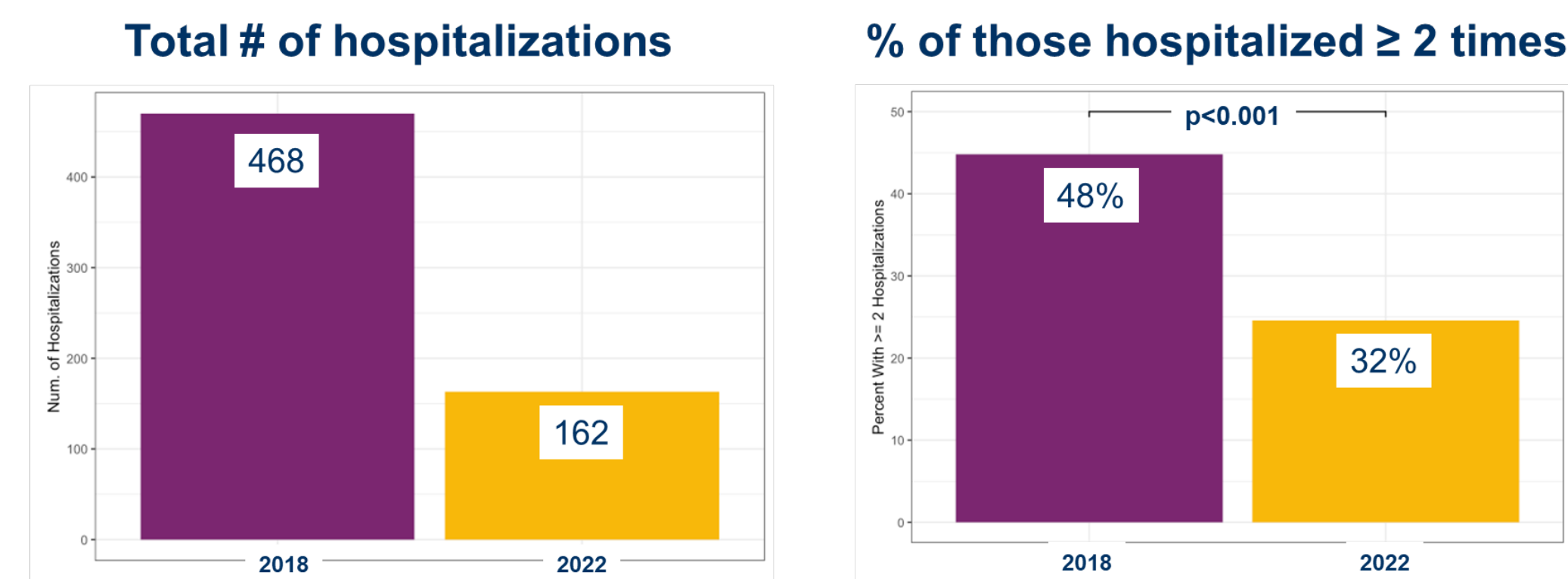
Determine the demographic and clinical characteristics of children with CF who are now requiring hospitalization for PE_x

METHODS

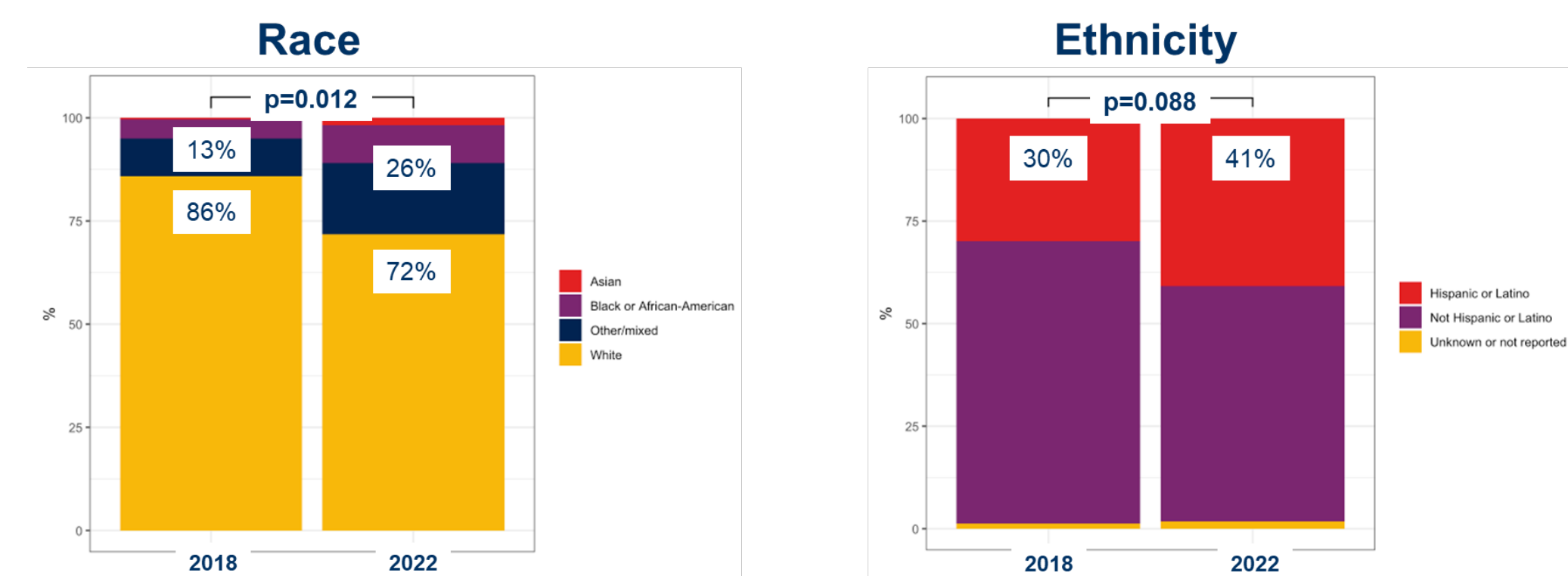
- Retrospective medical chart review at five U.S. pediatric sites
- Data from all children with CF (ages from birth and older) who were **hospitalized** and received **IV antibiotics** for treatment of PE_x in 2018 and 2022
- Four elements in REDCap: demographics, admissions, microbiology, inpatient medications

RESULTS

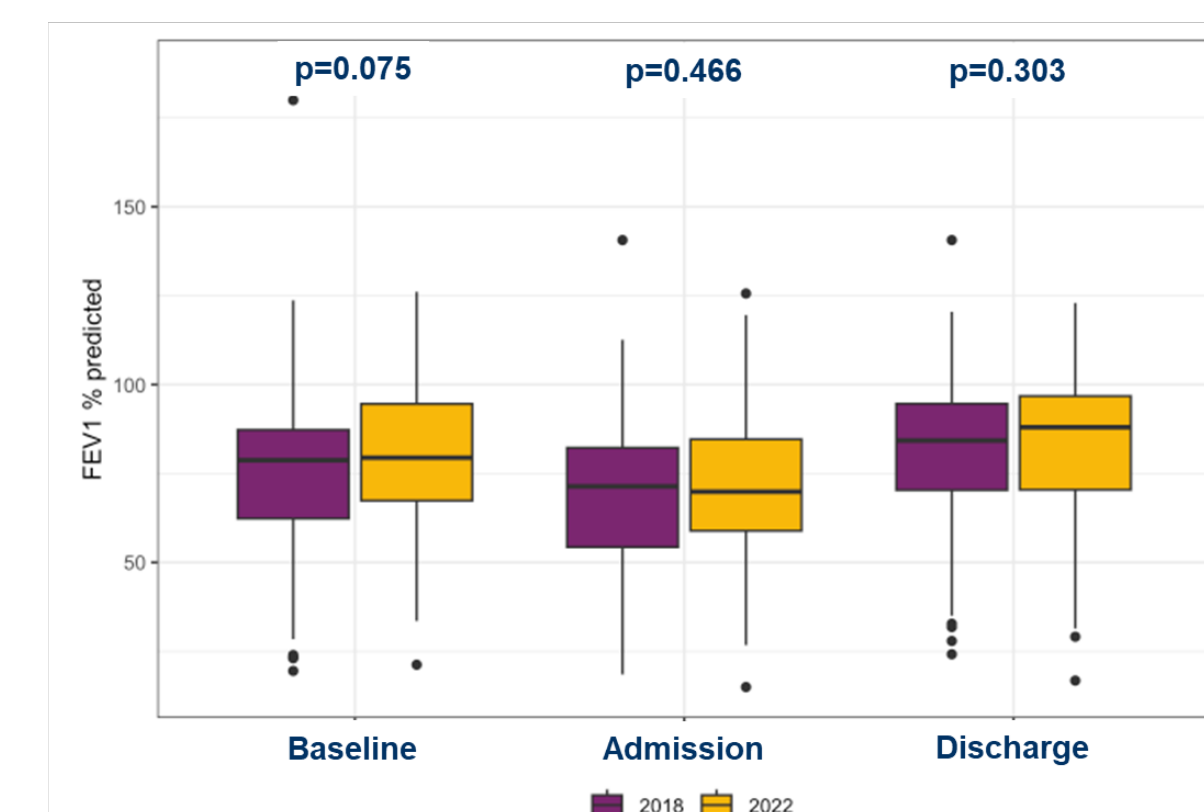
Hospitalizations decreased >60% from 2018 to 2022 across our 5 pediatric sites



Significant racial differences among those hospitalized in 2022 compared with 2018

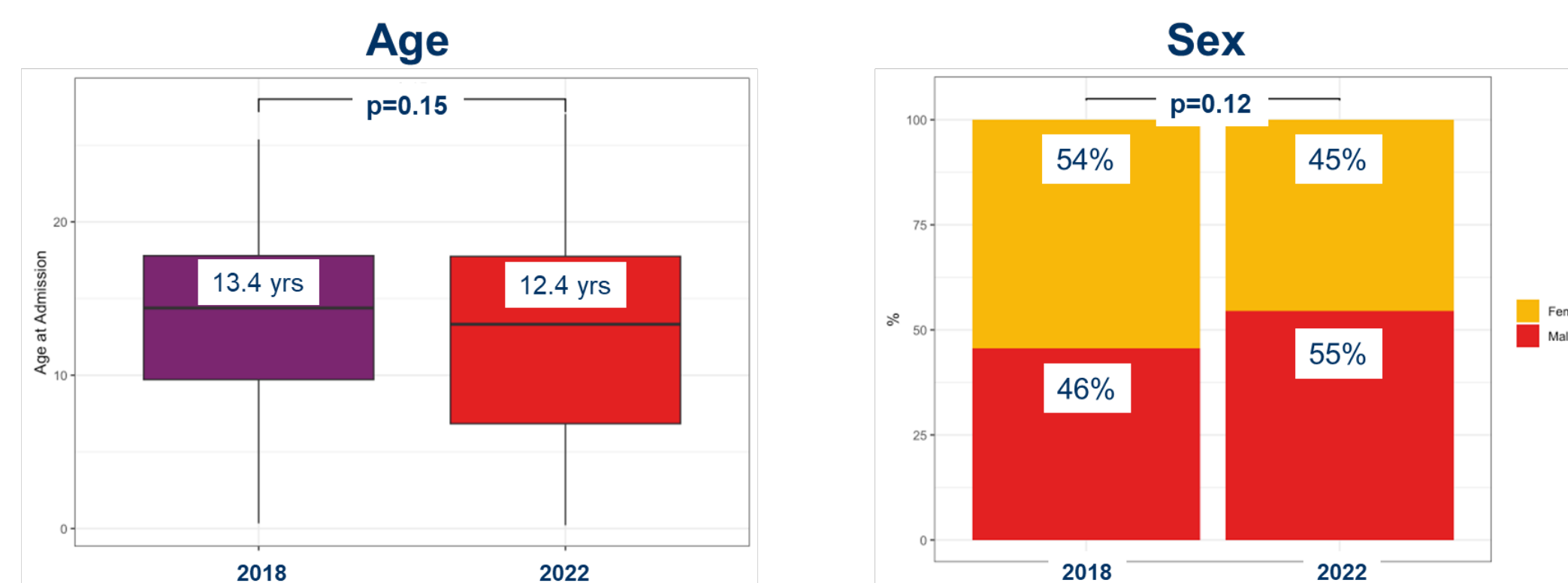


Changes in lung function were similar in 2018 and 2022

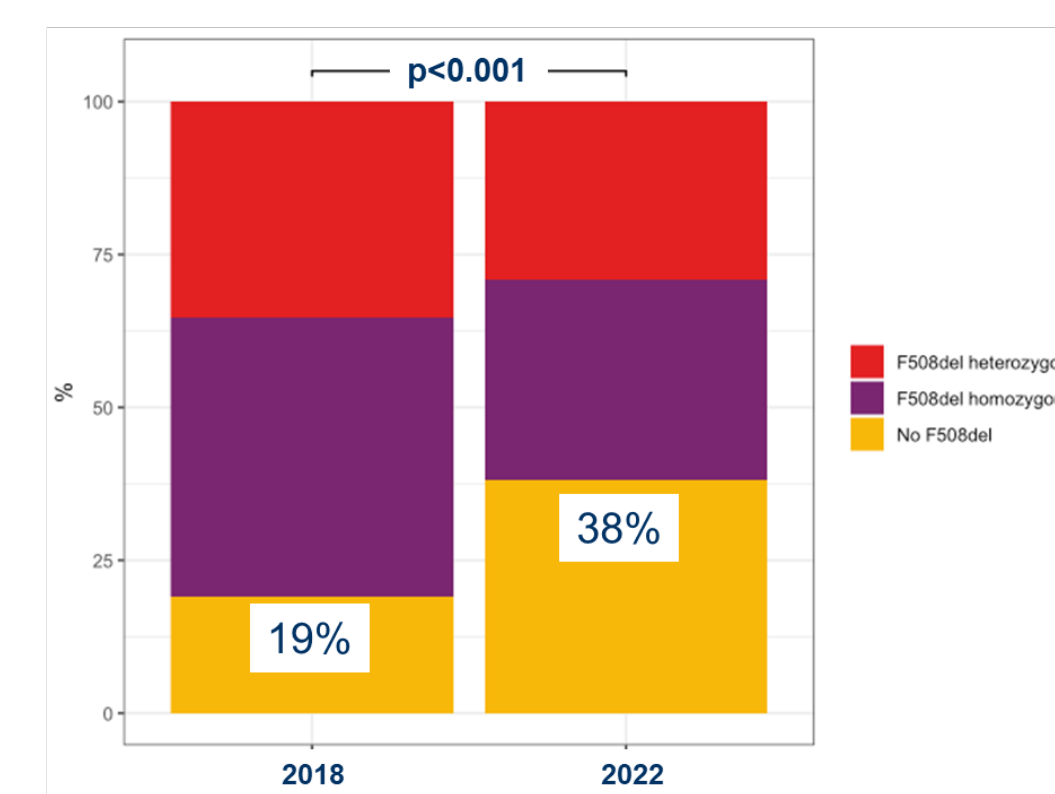


- Trend towards better baseline lung function among those hospitalized in 2022 vs 2018
- No difference in the % improvement in FEV1 between those hospitalized in 2018 (12%) and those hospitalized in 2022 (14%)
- No differences in proportion of individuals who returned to ≥ 90% or ≥ 100% of baseline ppFEV1

No age or sex differences among those hospitalized in 2022 compared with 2018



Children hospitalized in 2022 were more likely to have two non-F508del mutations



Other salient study findings

- Lengths of hospitalizations were similar in 2018 and 2022 (mean 11 days vs 10 days, p=0.2)
- No differences in the percentages of those hospitalized infected with *P. aeruginosa* and methicillin-susceptible *S. aureus* between 2018 and 2022
- Lower percentage of hospitalized children in 2022 (5.5%) were infected with methicillin-resistant *S. aureus* (MRSA) than in 2018 (14%) (p=0.018)
- Higher percentage of hospitalized children in 2022 (52%) were on a CFTR modulator therapy than in 2018 (34%) (p<0.001)

STUDY LIMITATIONS

- Variable practice patterns across sites (diagnosis & treatment)
- Lacking treatment adherence data, particularly around the use of CFTR modulator therapies
- Lacking measures of mental and social health

CONCLUSIONS

- Reduction in hospitalizations likely reflects the benefit of ETI therapy, as a higher percentage of children hospitalized in 2022 had 2 non-F508del mutations and were not eligible for ETI
- Higher percentage of those hospitalized in 2022 identified as being from minority racial backgrounds, further highlighting the importance of health equity efforts in CF
- Lower percentage of children hospitalized in 2022 were infected with MRSA, concurrent with decreased rates of MRSA community infections in 2022

ACKNOWLEDGEMENT

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