# Does Including Self-Identified Race in Spirometry Reference Equations Improve Ability of Predicted FEV$_1$ Values to Explain Chest CT Abnormalities, Dyspnea, or GOLD Classification?

STUDY DESIGN

- Retrospective study of data from healthy adults who never smoked in NAHNES and COPDGene cohort

- Race-neutral, race-free, and race-specific prediction equations generated for FEV$_1$

- Impact of these equations applied to people who smoke or have a history of smoking on their GOLD classification, chest CT phenotypes, and dyspnea

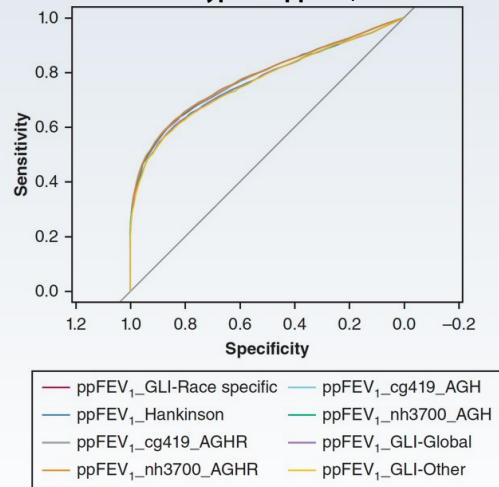## RESULTS

nh3700 Never-Smoking Healthy Cohort

■ White
■ Black
■ Mexican American
■ Other Hispanic
■ Multiracial
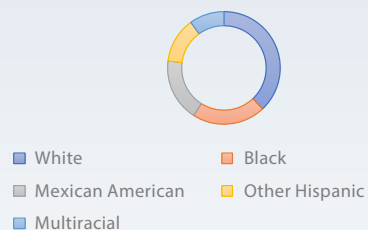
COPDGene Never-Smoking Healthy Cohort

ROC Curves: Abnormal Quantitative Chest CT Phenotypes vs ppFEV$_1$ Models

Sensitivity vs Specificity

— ppFEV$_1$_GLI-Race specific
— ppFEV$_1$_Hankinson
— ppFEV$_1$_cg419_AGHR
— ppFEV$_1$_nh3700_AGHR
— ppFEV$_1$_cg419_AGH
— ppFEV$_1$_nh3700_AGH
— ppFEV$_1$_GLI-Global
— ppFEV$_1$_GLI-Other

- **Race-specific equations showed <u>no advantage</u>** in models of chest CT phenotypes or dyspnea

- Race-neutral reference equations reclassified **19%** of Black participants into more severe GOLD classes

- **Race-neutral/race-free equations may improve model fit** for dyspnea symptoms relative to race-specific equations

Race-neutral/race-free reference equations may improve pulmonary disease diagnoses and treatment in populations highly vulnerable to lung disease relative to race-specific equations.