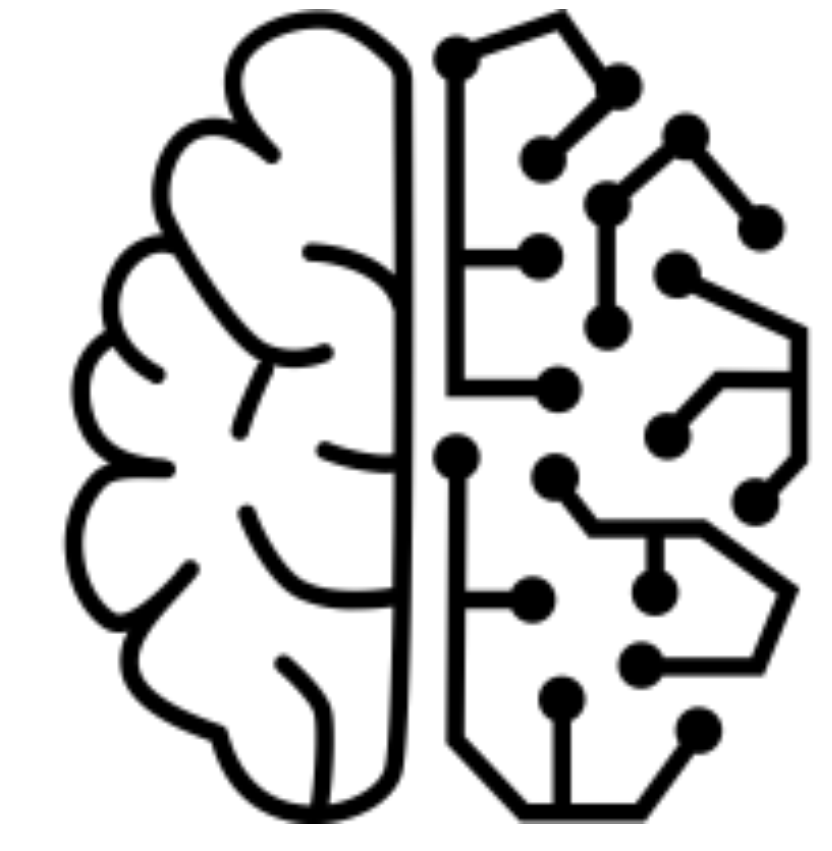


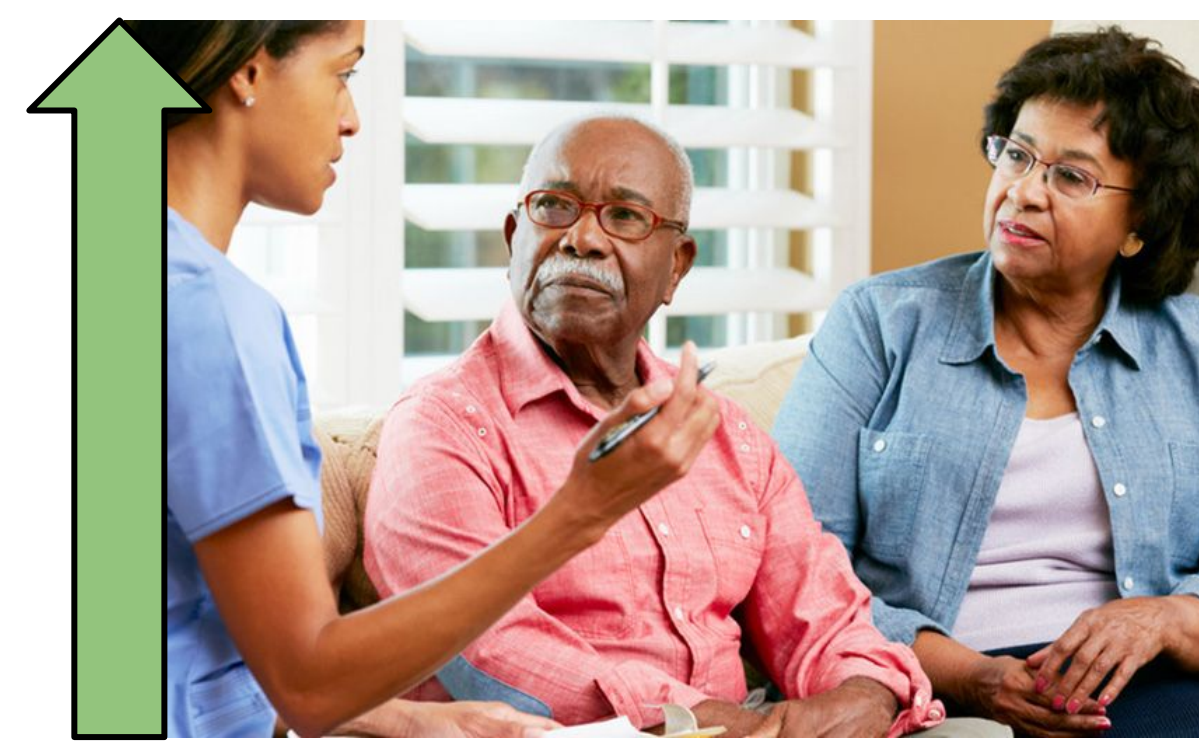
INTRO

End-of-life care not goal-concordant

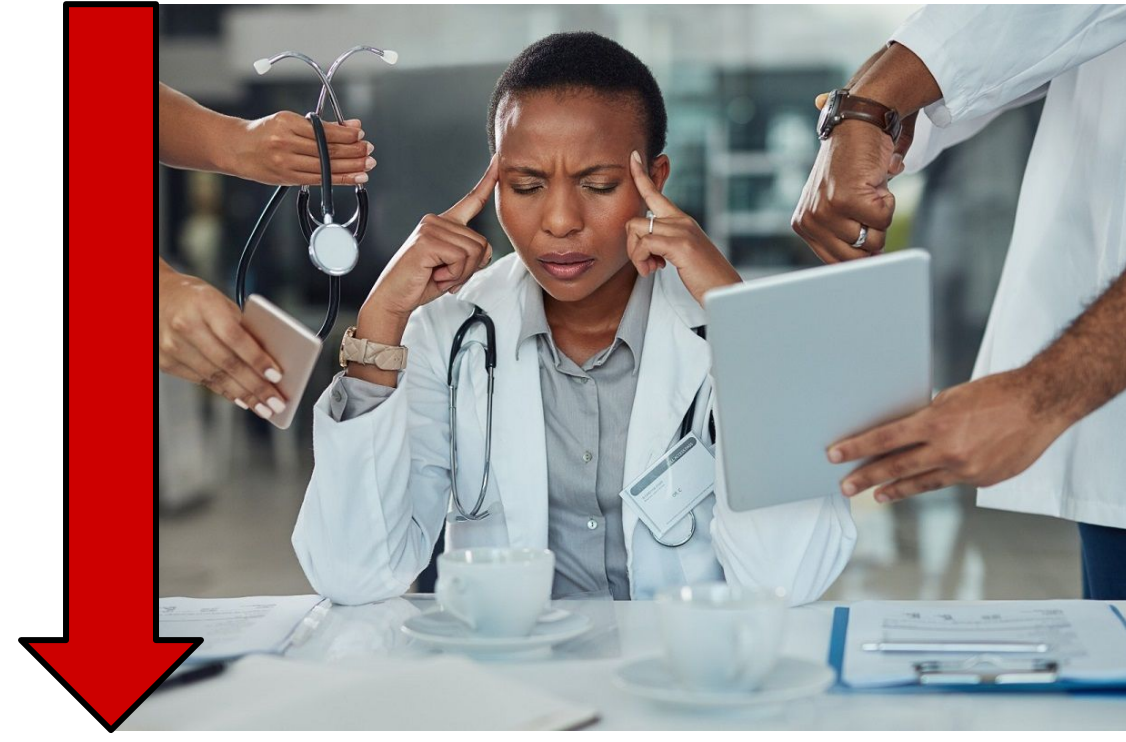


AI ACP Goals

- Few Advance Care Planning (ACP) conversations¹
- Bottlenecked by physician assessments of who would benefit most²
- Stanford's Serious Illness Care Program explored 2 AI models to identify high-risk patients for ACP conversations²



Increase precision ACP conversations



Decrease missed ACP opportunities
Decrease physician burden to trigger

RESEARCH QUESTION

VALIDITY: How well do the Epic and Stanford end-of-life models predict patients likely to die within 1 year among inpatient oncology patients, in comparison with clinician judgment (gold standard)?

EQUITY: Performance for patient subgroups (race/ethnicity, sex, intersection of race/ethnicity & sex)

METHODS

Population	Hospitalized oncology patients at Stanford from 8/15/2021 - 3/19/2022
Gold Standard	Clinician answer to "Would you be surprised if this patient passed away in 1 year"? ⁸
# Positive / Total	Not Surprised: 105 / 150 patients
Analysis	Epic and Stanford AI models versus clinical judgment



AI Model	Logistic Regression ³	Gradient-Boosted Tree ⁴
# Features	46	13,189
Features	Demographics (Age, Sex, Insurance Status), Labs, Comorbidities, Medications	Demographics (Age, Sex), Lab/Procedure Orders (done in last year)
Output	One-year mortality risk	One-year mortality risk
Threshold Flag	>45%	>25%
Date of Predictions	6/14/2021 (live predictions unavailable)	8/15/2021 - 3/19/2022

DISCUSSION

- Sensitivity: Stanford model outperformed Epic
- Specificity: Epic outperformed Stanford
- PPV: Both models > 80%, given high-risk population prevalence
 - For patients flagged by the models, >80% chance a clinician would agree the patient would pass away in 1 yr
- Equity: Epic model underestimates mortality for Hispanic Male patients, potentially decreasing access to quality end-of-life care

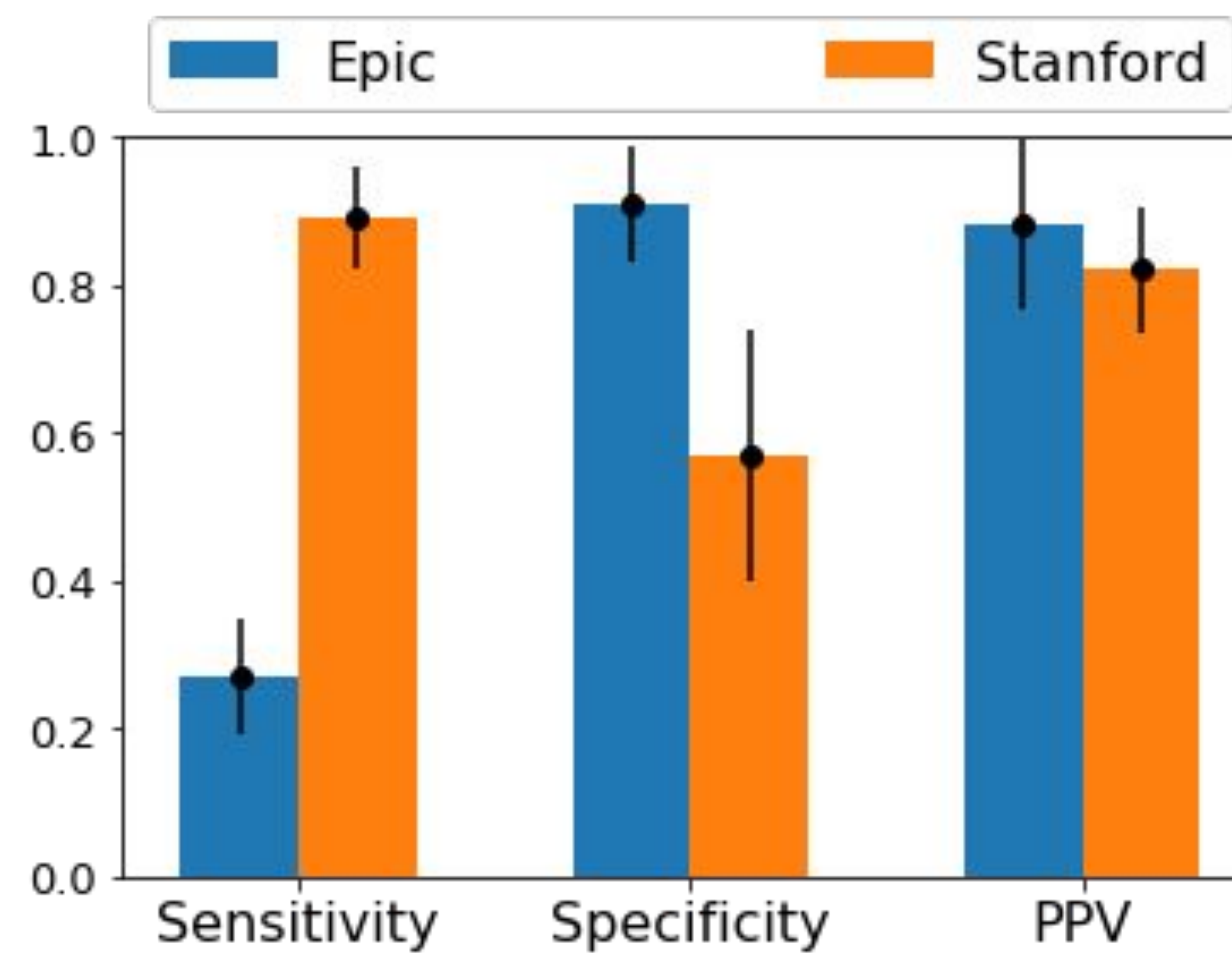
LIMITATIONS

- Race/ethnicity data in the EMR is often wrong⁵
- Large data losses (~50 patients dropped) when joining data
- Model predictions occurred up to 9 months before clinician assessments

Before using AI models, clinicians should ask for validity and equity data about model performance.



VALIDITY



EQUITY (Hispanic group, example)

