

PREDICTING DISCONTINUATION OF PSYCHOTHERAPEUTIC TREATMENT AFTER CHANGE IN ANTIDEPRESSANT PRESCRIPTIONS

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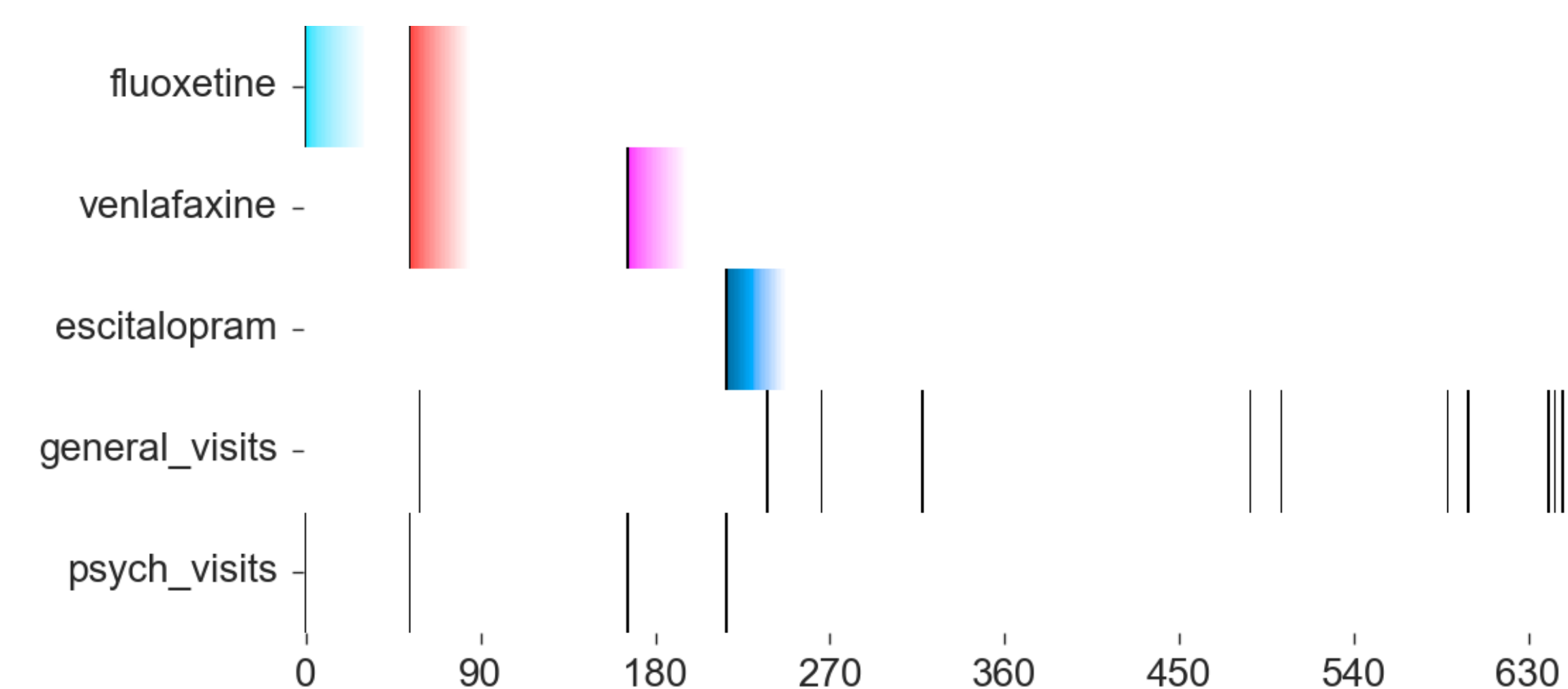
MOTIVATION

- ▶ Great differences in tolerability of antidepressant
- ▶ Patients often fail to return to follow-up visits after a change in antidepressant prescription.
- ▶ Reasons for dropout include:
 - a) poor motivation due to symptoms of depression
 - b) adverse effects
 - c) fail to perceive benefit
 - d) external factors: e.g. cost of therapy
- ▶ **Approach:** use machine learning on electronic health records (EHRs) to develop predictions or early treatment discontinuation

APPROACH

- ▶ **Outcome Definition:**
Discontinuation occurs if:
 - a) temporal interval shorter than expected (< 90 days)
 - b) patient not trying any psychiatric alternative (no psych CPT codes in the following 13 months after last prescription)

Patient Representation:

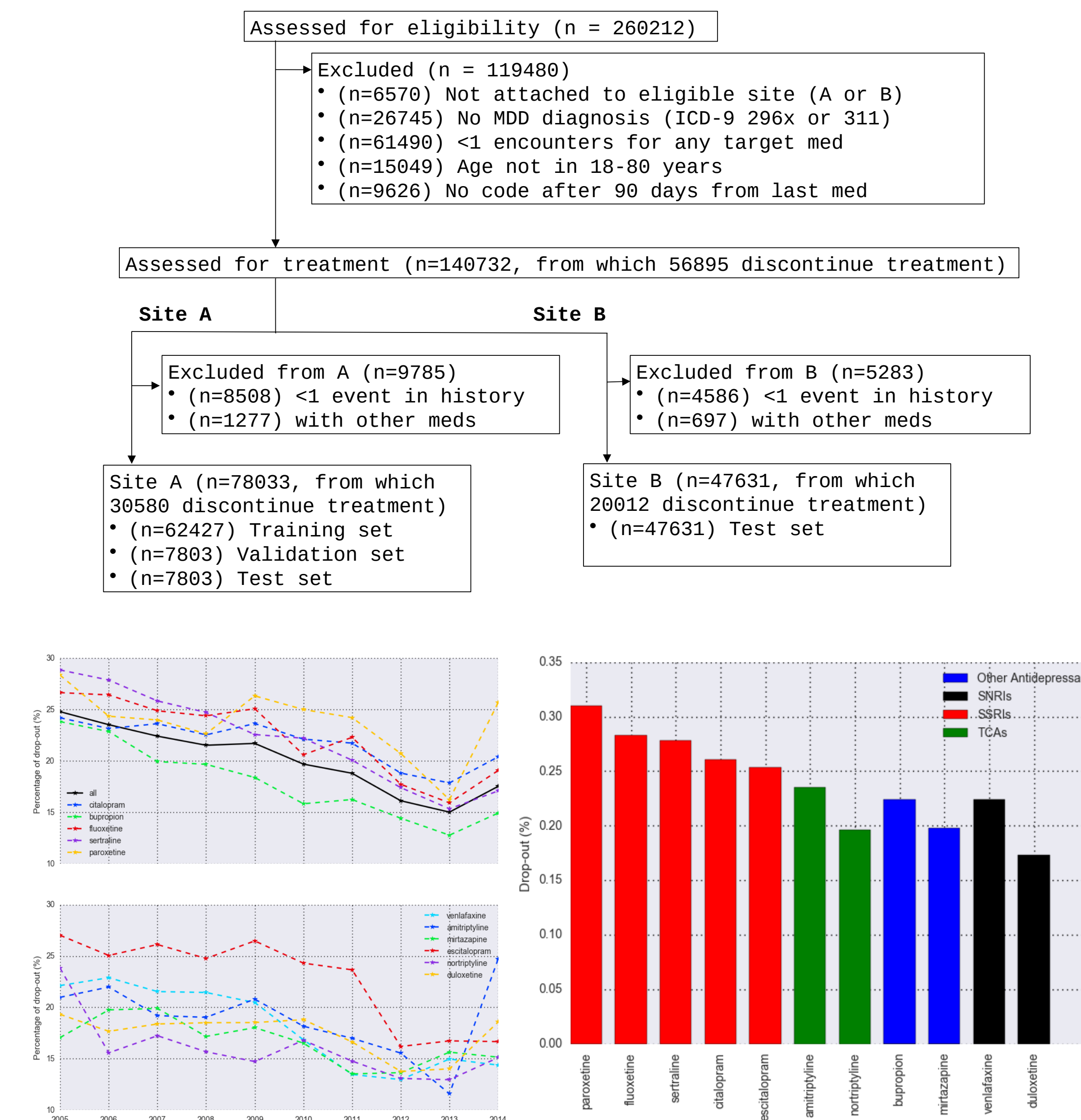


- ▶ Demographics + patient history: ICD9 codes, CPT lab tests, past medication prescriptions.
- ▶ Bag-of-codes representation: 23,949 codes to 7,859 codes by freq. thresholding.
- ▶ **Prediction Task:** we want to predict whether any change in antidepressant medication will entail patient dropout.
 - ▶ Binary classification tasks (11 meds)
 - ▶ Random forest
 - ▶ Logistic regression

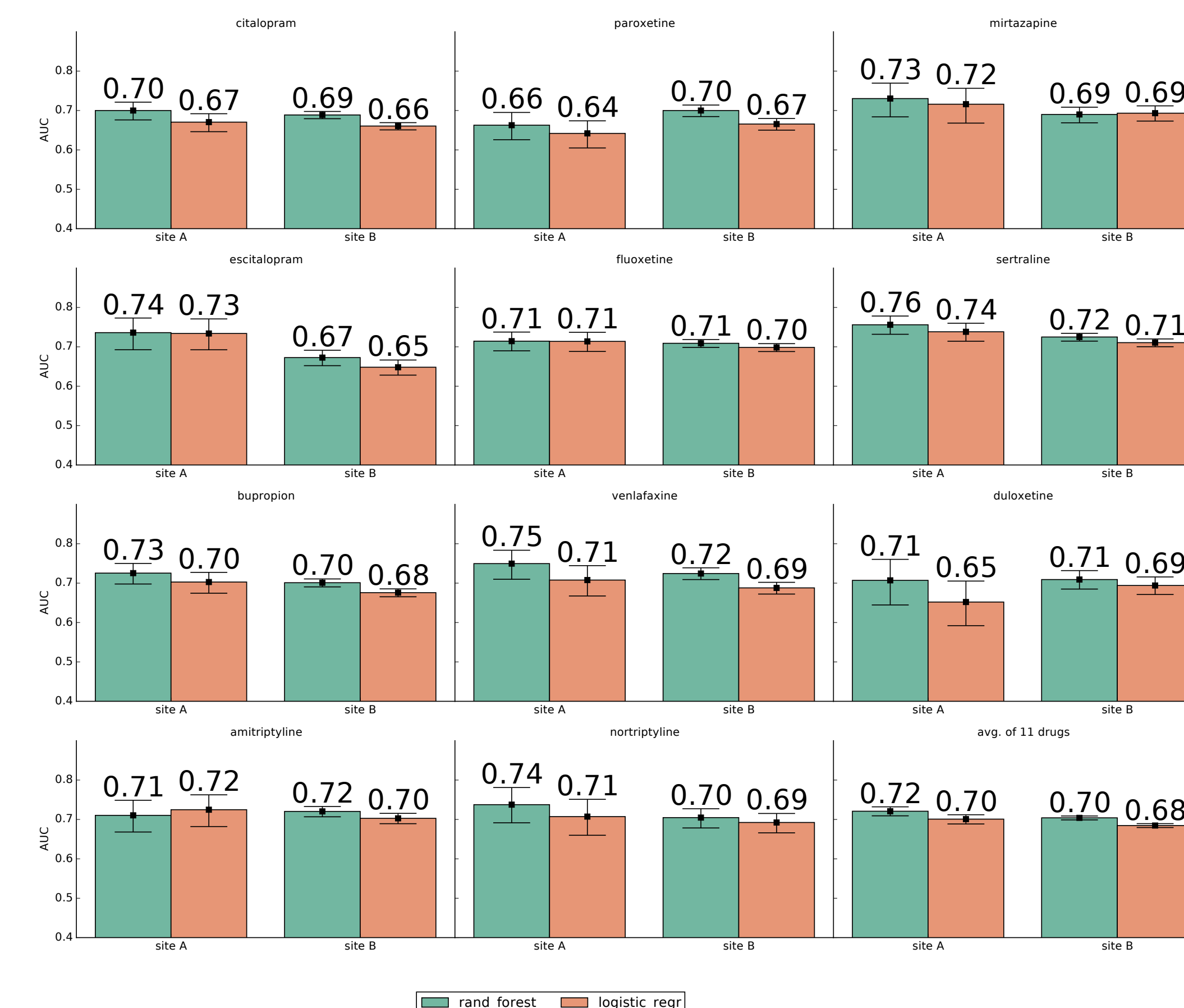
NEXT STEPS

- ▶ Incorporation of expert knowledge in models
- ▶ HCI-clinical trial to display recommendations in clinical practice

COHORT DESCRIPTION



EXTERNAL EVALUATION



RESULTS

