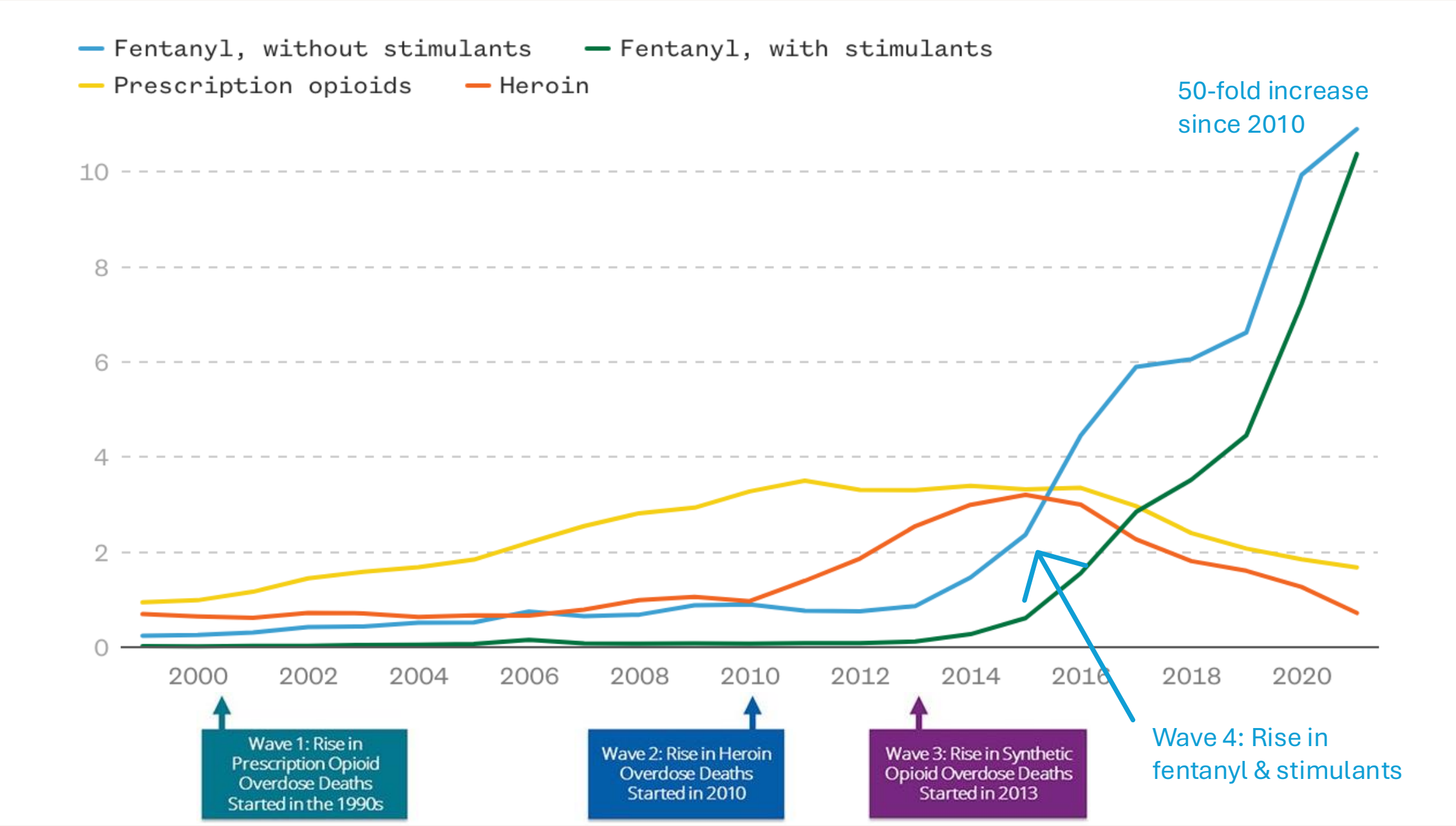


Performance of a Computable Phenotype to Identify Patients with Stimulant Use Disorder.

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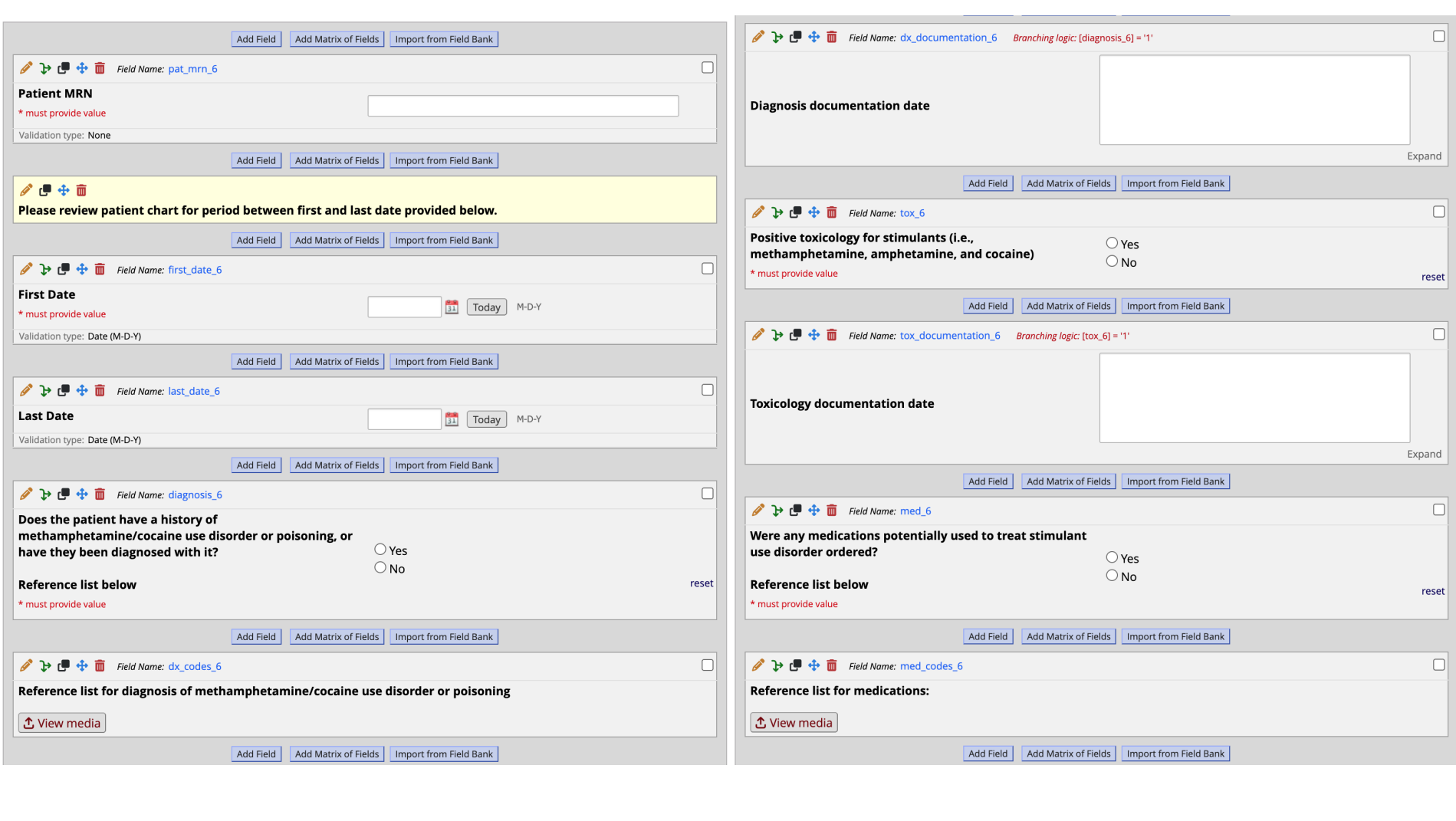
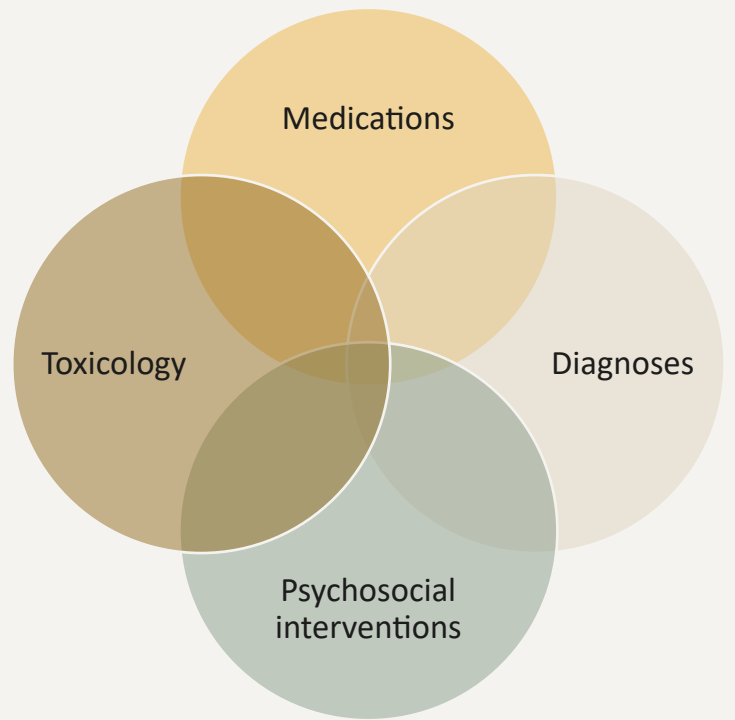
PURPOSE

- Stimulants (e.g., methamphetamine and cocaine) are the second most abused substance in the US (30% lifetime prevalence)
- Prevalence of stimulant use is twice as high when using self-report and toxicology, compared to either documentation alone
- Our current understanding of treatment outcomes among those with StUD is limited by the lack of validated methods to identify StUD using real-world data.



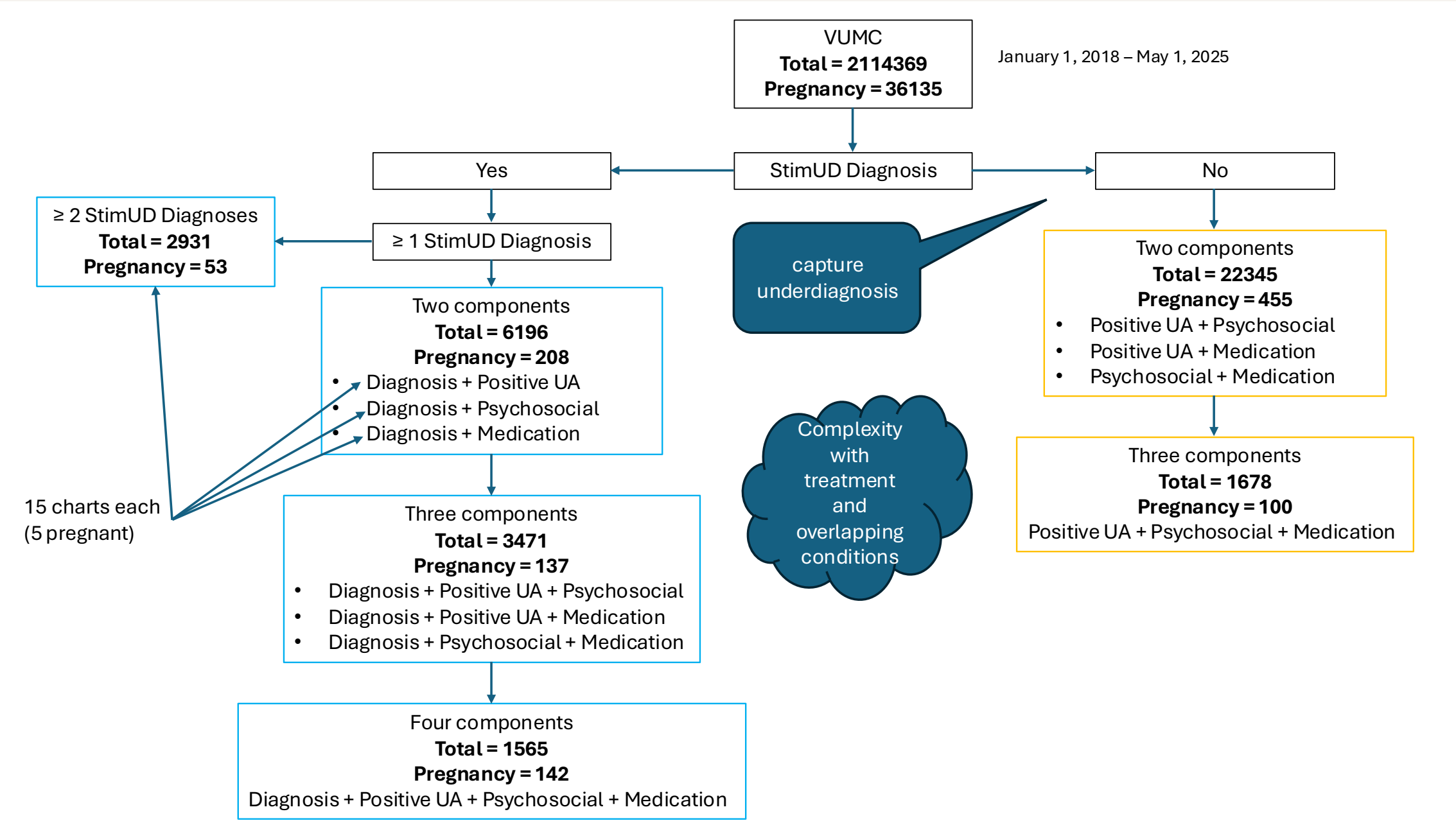
METHODS

- Develop and validate a computable algorithm to accurately identify patients with StUD
- Vanderbilt University Medical Center (January 1, 2018-May 1, 2025)
- Clinician (MDs in Addiction) medical record review (gold standard)
- Indicators: medication potentially use to treat StUD, positive toxicology, diagnosis, or psychosocial intervention
- Performance: sensitivity, specificity, positive predictive value, and negative predictive value



RESULTS

- 95271 patients with at least 1 documented indicator of StUD
- Positive Predictive Value (true positives / true positives + false positives)
 - StUD with diagnosis
 - 2 diagnosis only = 50%
 - ≥ 1 components = 56%
 - ≥ 2 components = 63%
 - ≥ 3 components = 68%
 - all 4 components = 67%
 - No StUD diagnosis
 - ≥ 2 components = 23%
 - ≥ 3 components = 43%



15 charts for each algorithm, with 5 being pregnant (195 charts total, in duplicate)

Computable algorithm	Sensitivity	Specificity	PPV (95% CI)
StimUD Diagnosis			
1 Diagnosis Only			
≥ 2 Diagnoses Only			
Two components (≥ 1 of each)			
Diagnosis + Positive UA			
Diagnosis + Psychosocial			
Diagnosis + Medication			
Three components (≥ 1 of each)			
Diagnosis + Positive UA + Psychosocial			
Diagnosis + Positive UA + Medication			
Diagnosis + Psychosocial + Medication			
Four components (≥ 1 of each)			
Diagnosis + Positive UA + Psychosocial + Medication			
No StimUD Diagnosis			
Two components (≥ 1 of each)			
Positive UA + Psychosocial			
Positive UA + Medication			
Psychosocial + Medication			
Three components (≥ 1 of each)			
Positive UA + Psychosocial + Medication			

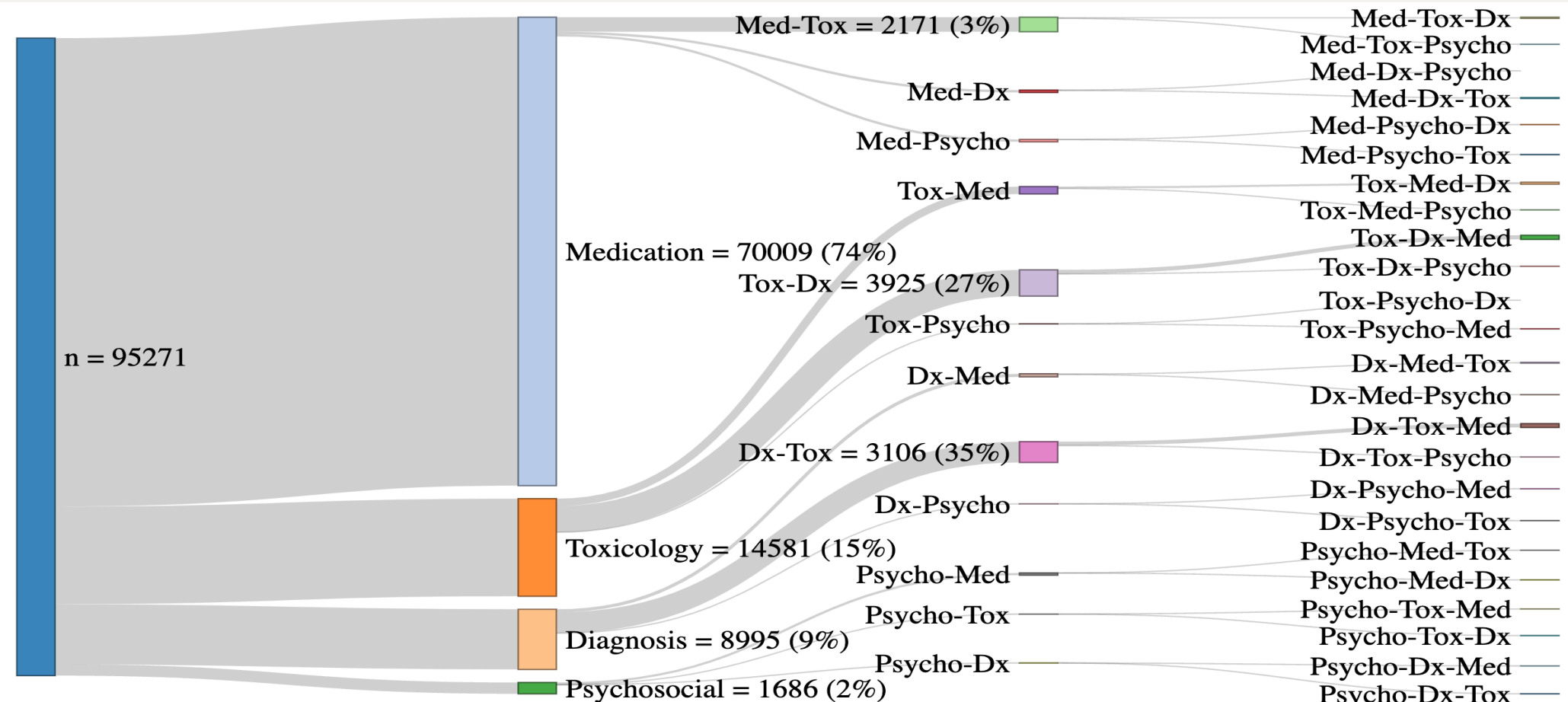


Figure 1. Sequence of StUD indicators progress left to right with colored columns showing number of patients. For example, 27% of patients who first had a positive toxicology for stimulants went on to receive a diagnosis for StUD. Similarly, 35% of patients who first received a diagnosis for StUD had a subsequent positive toxicology.

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