

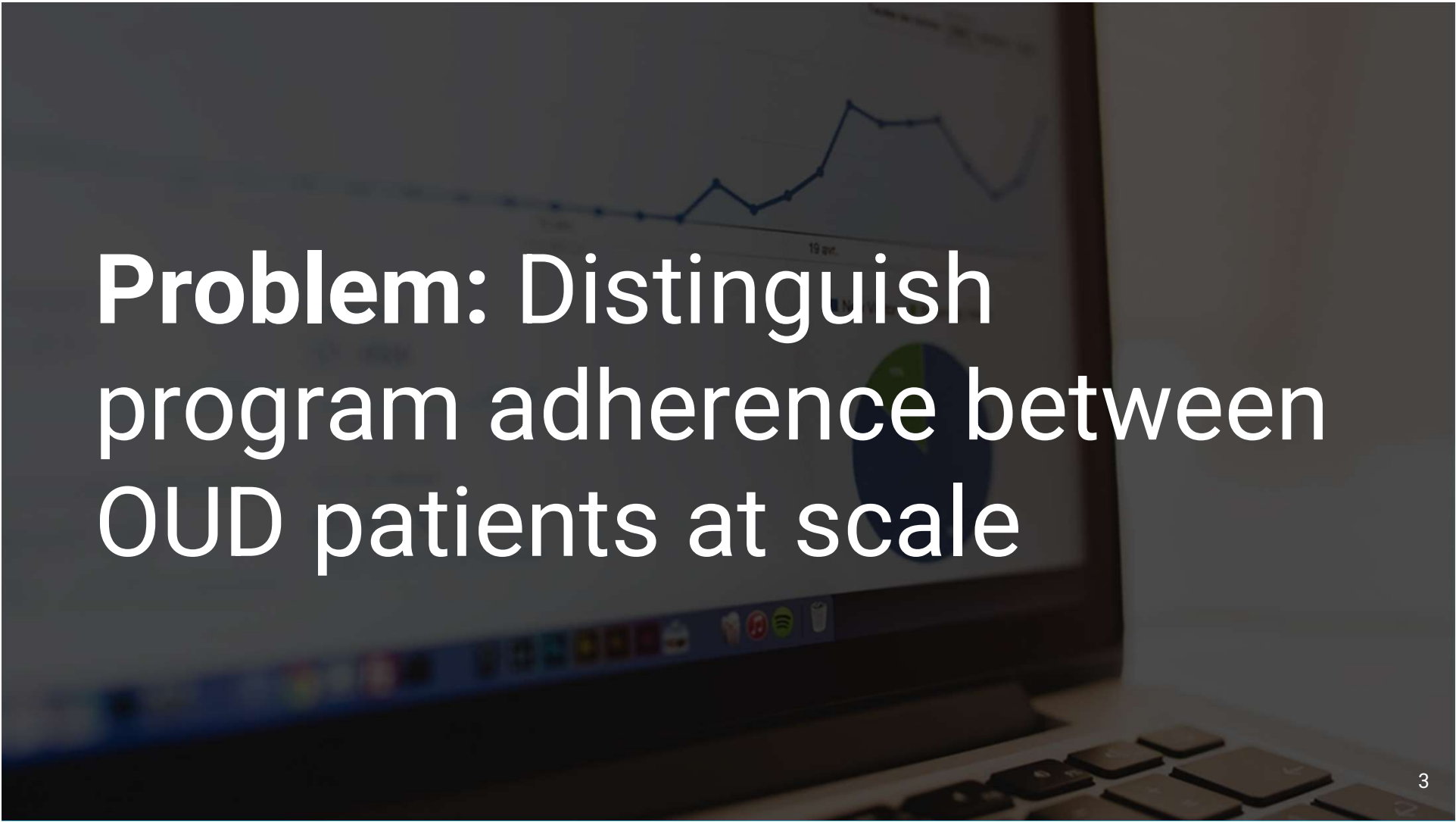
MATClinics

Standardized Measure of OUD Treatment Adherence

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MATClinics Context

- Est. 2016 with mission to provide high-quality/low-cost addiction treatment
- Office-Based Opioid Treatment (OBOT) – physician office environment
- Five locations in Maryland (eight by end of 2021)
- Services
 - Buprenorphine (typically Suboxone) prescribed for opioid use disorder
 - Medications for alcohol use disorder/cocaine use disorder as well
 - Counseling (individual/group/intensive outpatient)
 - Psychiatry
 - Case Management
- Payers: Medicare/Medicaid/CareFirst

A laptop screen is shown in a dark, dimly lit environment. The screen displays a line graph with two data series: a blue line and a green line. The blue line shows a general upward trend with some fluctuations, while the green line is less distinct. The text '19 apr.' is visible on the screen. Overlaid on the screen in large, white, sans-serif font is the text: 'Problem: Distinguish program adherence between OUD patients at scale'.

**Problem: Distinguish
program adherence between
OUD patients at scale**

OUD – Treatment Trajectory and Measurement

Opioid addiction is a chronic, relapsing disorder

- Most patients discontinue treatment for opioid use disorder
- Many patients follow a repeating cycle of readmission and discontinuation
 - Vulnerability may last a lifetime
- Most patients continue using drugs during or after treatment
 - 48% - 75% of patients continue daily or weekly drug use (Marsden et al., 2009; Termorshuizen et al. 2005)
- Providers may not always be the best at predicting patient outcomes (Symons et al., 2019)

OUD Intra-Treatment Measurement

Standardized and validated measures of patient stability/adherence are missing

As a result:

1. Treatment resources are not optimally allocated/targeted (70% of MATClinics patients are stable and visit monthly or less frequently)
2. Lack of standardization leads to inconsistent treatment
 - a. Particularly concerning in time-constrained environments with mid-level providers
3. Difficult to identify dynamic (longitudinal) changes in trend
 - a. Cross-sectional endpoints may mask important trend changes
 - b. Text based toxicology lab results are difficult to interpret longitudinally



Solution

MATClinics utilized predictive analytics to develop a validated modeling framework to predict “Treatment Adherence” at a patient’s next appointment

OUD Treatment Adherence: Data

Data from multi-location OBOT setting:

- >3,000 unique patients
- >50,000 appointments
- Data types: urine drug samples (buprenorphine, opioids, cocaine, amphetamines, etc.), appointment records

Treatment Adherence at next appointment (prediction target):

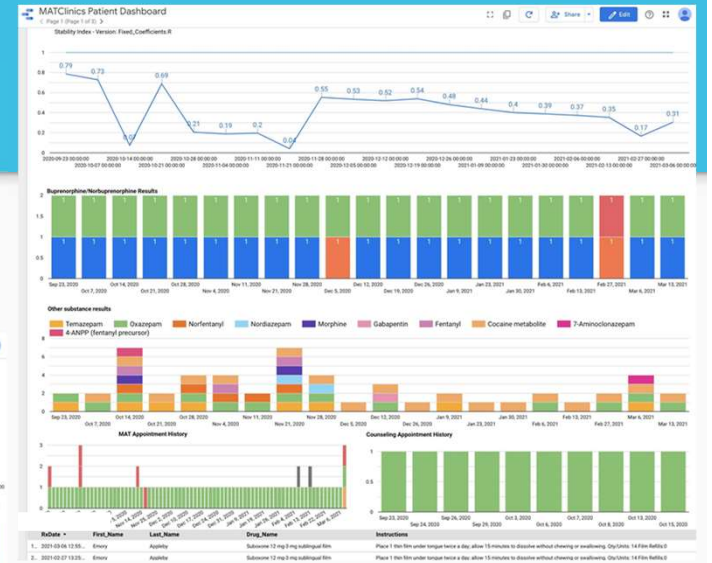
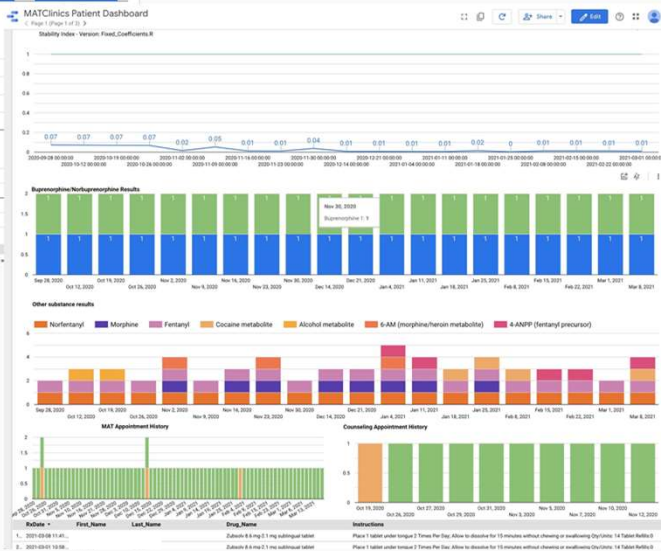
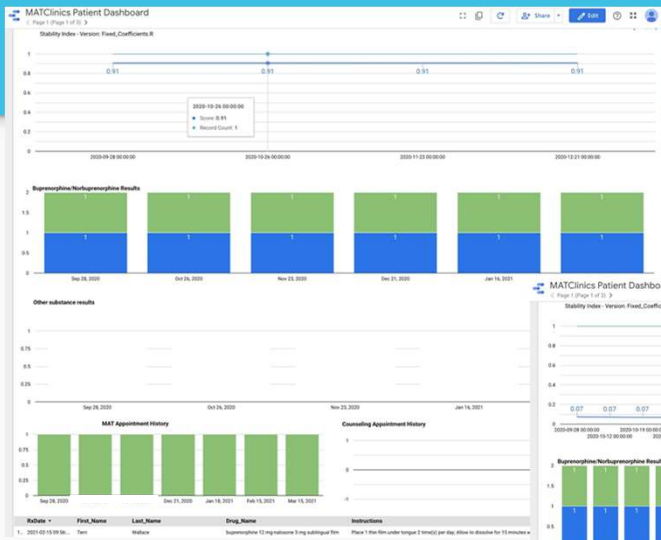
- Opioid negative urine sample
- Norbuprenorphine positive urine sample
- No evidence of buprenorphine adulteration

A person's hands are shown typing on a laptop keyboard. Overlaid on the scene is a futuristic digital dashboard with various data visualization elements such as bar charts, line graphs, pie charts, and circular gauges. The dashboard is semi-transparent and appears to be floating above the laptop. The overall color scheme is dark blue and black, with white text for the title.

Deployment

MATClinics produced a dashboard to help its staff and providers recognize which patients need more attention & resources

Longitudinal Dashboard





Consumer Choice

Healthcare in the US
prevents competition
based on price

Behavioral health
providers should be
judged on standardized
quality measures

Portability

Input variables used in our model are collected by all OUD treatment programs

- Toxicology results (standard OUD panel)
- Appointment records

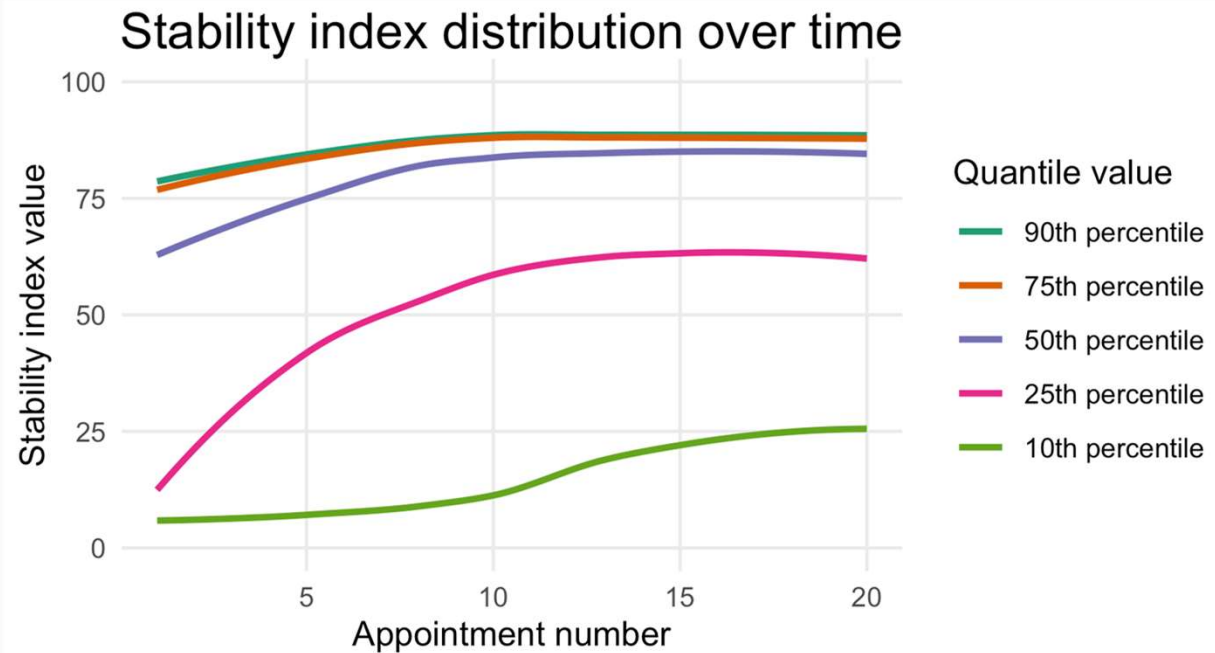
Every treatment provider that prescribes buprenorphine to treat OUD can deploy this method

- At the very least, our results demonstrate the bottom of the range of what is possible
 - Other methodologies might be superior
 - Payers/Employers should expect all treatment providers to quantify the stability of each patient at each appointment

Quality comparison across programs

Program Evaluation:
Is the MATClinics' profile demonstrative of high-quality treatment?

Could be used to compare treatment efficacy



What's left to do?

- **Expect more from treatment providers** – An objective, validated, standardized, portable outcome measure for OUD treatment should set the floor on expectations
- **Encourage research that compares outcomes between programs** – Some programs will be more effective than others. Let's try to understand what works best to improve outcomes
- **Remember retention** – Program-level scores could be manipulated unless retention is incorporated into program comparisons
- **Engage with a payer to look at claims** – If our scores are correlated with overall healthcare spend (we think they are), the scores could help payers anticipate poor health outcomes and higher individual costs in a much more generalizable way

Contact

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