



**InterSystems Prize**

MARTINEZ, ELENA R. ALLERGY
DOB: 08/15/1983 (42F) MRN: 4829301 FIN: 78234901

PCP: Dr. Patel, S.
Psychiatrist: Dr. Kim, J.

Insurance: Aetna PPO
Auth#: MH-20260198

Last Visit: 01/28/2026
Next Appt: 04/11/2026

Pharmacy: CVS #7832
BMI: 24.1 Wt: 142 lb

ALLERGY: Sulfa — Anaphylaxis Drug Interaction Alert (3) Unsigned Notes (7) Overdue: PHQ-9 screening (18 months) Lab Due: CBC w/ ANC (Clozapine monitoring)

Chart Review

Summary

Notes 247

Results 89

Orders 156

Medications 23

Problems 14

Allergies 3

Vitals

Immunizations

Encounters

03/14/2026 Psych F/U

01/28/2026 Psych F/U

12/05/2025 Psych F/U

11/14/2025 ED Visit

10/22/2025 Psych F/U

09/08/2025 PCP Visit

08/15/2025 Inpatient

07/30/2025 Psych F/U

06/18/2025 Psych F/U

05/02/2025 Psych Eval

04/11/2025 PCP Visit

03/01/2025 Psych F/U

... 62 more encounters

Documents

Consult Notes 18

Discharge Summ 4

External Records 31

Prior Auth 9

Scanned Docs 22

Letters 7

Quick Links

Care Plan

Referrals

Summary Progress Notes H&P Consults Discharge ED Notes Phone Nursing Therapy Social Work External

PSYCHIATRY PROGRESS NOTE

01/28/2026 14:32 — Dr. Kim, J. (Attending)

SUBJECTIVE:

42 y/o F with h/o MDD (recurrent, severe), GAD, PTSD (childhood trauma), presenting for medication management follow-up. "slightly better" since last visit. Continues to endorse low energy, difficulty concentrating at work, early morning awakening. Compliance with current medications. States she has been under increased stress at work due to recent layoffs. Sleep remains 3-4 times per night. Appetite fair. Denies substance use. PHQ-9 score: 14 (moderately severe depression - unchanged from ...)

Drug Interaction Alerts (3)
MODERATE: Sertraline + Lithium -> Serotonin syndrome risk. Monitor closely.
MILD: Sertraline + Sumatriptan -> Serotonin syndrome risk (additive).
MILD: Lithium + Ibuprofen -> Increased lithium levels. Monitor Li level.
Buttons: Acknowledge, Details

PSYCHIATRY PROGRESS NOTE

SUBJECTIVE:

Patient returns for f/u after starting lithium augmentation (600mg BID, started 11/14/2025). Reports mild nausea first few days, but has improved. Sleep still disrupted. Energy low. Functioning okay at work but "pushing through." No SI/HI. PHQ-9: 15.

Labs

Rx Renewal Request
CVS Pharmacy #7832 requests refill:
Sertraline 200mg tab #30
Buspirone 15mg tab #60
Buttons: Approve, Deny, Modify

(TSH), BMP WNL, TSH 2.1.

EMERGENCY

11/14/2025 02:47 — Dr. Walsh, T. (EM Attending)

CC:

42F brought by partner to ED with acute worsening of depression and passive SI (no plan, no intent). Denies access to firearms. Patient tearful, reports recent job stress, conflict with family. States she stopped taking sertraline "about a week ago" because "it wasn't helping and I just forgot to refill it." Also reports discontinuing buspirone at same time. Currently taking trazodone and prazosin.

PSYCHIATRY PROGRESS NOTE

10/22/2025 09:30 — Dr. Kim, J. (Attending)

SUBJECTIVE:

F/u for medication management. Patient reports mood slightly improved since sertraline increased to 200mg (from 150mg, 09/2025). However, still significant residual symptoms. Endorses persistent anhedonia, fatigue, poor concentration. Sleep disrupted - early AM awakening. PHQ-9: 16. Denies SI/HI.

Patient asks about "that nose spray" - referring to esketamine (Spravato). Discussed criteria, logistics, cost. Insurance may not approve without documented failure

PSYCHIATRY PROGRESS NOTE

09/08/2025 11:00 — Dr. Garcia, M. (PCP)

ROUTINE ANNUAL PHYSICAL - PCP NOTE (not psych)

...

MEDICATIONS REVIEWED: sertraline 150mg, trazodone 100mg, buspirone 15mg BID, prazosin 2mg, levothyroxine 50mcg, sumatriptan PRN, OCP.

Patient mentions she is "not sure sertraline is working anymore" - advised to discuss with psychiatrist.

Patient also mentions she tried "Wellbutrin once but it made my anxiety worse" - this is not documented elsewhere in chart.

INPATIENT PSYCHIATRY DISCHARGE SUMMARY

08/22/2025 16:00 — Dr. Okafor, N. (Inpatient Psych)

Active Medications (23)

- Sertraline 200mg tab PO daily
Lithium carbonate 600mg PO BID
Trazodone 100mg tab PO QHS
Buspirone 15mg tab PO BID
Prazosin 2mg cap PO QHS
Levothyroxine 50mcg PO daily
Sumatriptan 50mg PRN migraine
Drospirenone/EE (Yaz) PO daily
Ibuprofen 400mg PRN
Loratadine 10mg PO daily PRN

... 13 more medications

Active Problems (14)

- MDD, recurrent, severe
Generalized anxiety disorder
PTSD
Hypothyroidism
Migraine without aura
AUD, in remission
Insomnia
Vitamin D deficiency

... 6 more problems

Pending Actions

- PHQ-9 overdue (18 mo)
Lithium level DUE
TSH recheck DUE
7 unsigned notes
3 patient messages
Prior auth: esketamine

Recent Labs

- 12/05/25: Li 0.7 mEq/L
12/05/25: TSH 2.1
12/05/25: BMP WNL
09/08/25: A1c 5.4

**Psychiatric medication history is buried in EMRs.**

**50%**

Psychiatric patients are non-adherent

**50%+**

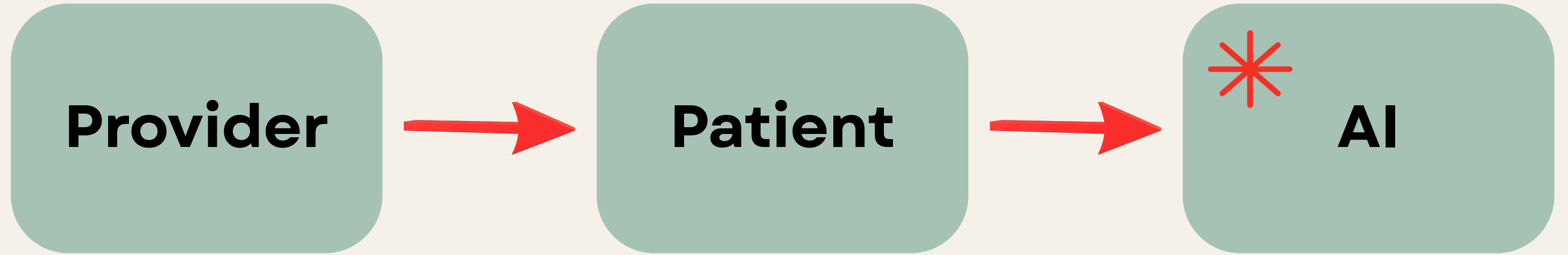
Switch medications every year

**80%+**

Of clinical data is unstructured text

# Why Does Existing AIs Fall Short?

**Existing AIs**



 **chronochart**



Existing AIs




 chrono**chart**



EMR Data  
InterSystems FHIR API



# Platform Architecture

 **chronochart**  
**Platform**

- **AI-Native Medication Timeline**
- **Patient Similarity Graph**



Structure Data for  
Clinicians and Pharmacies

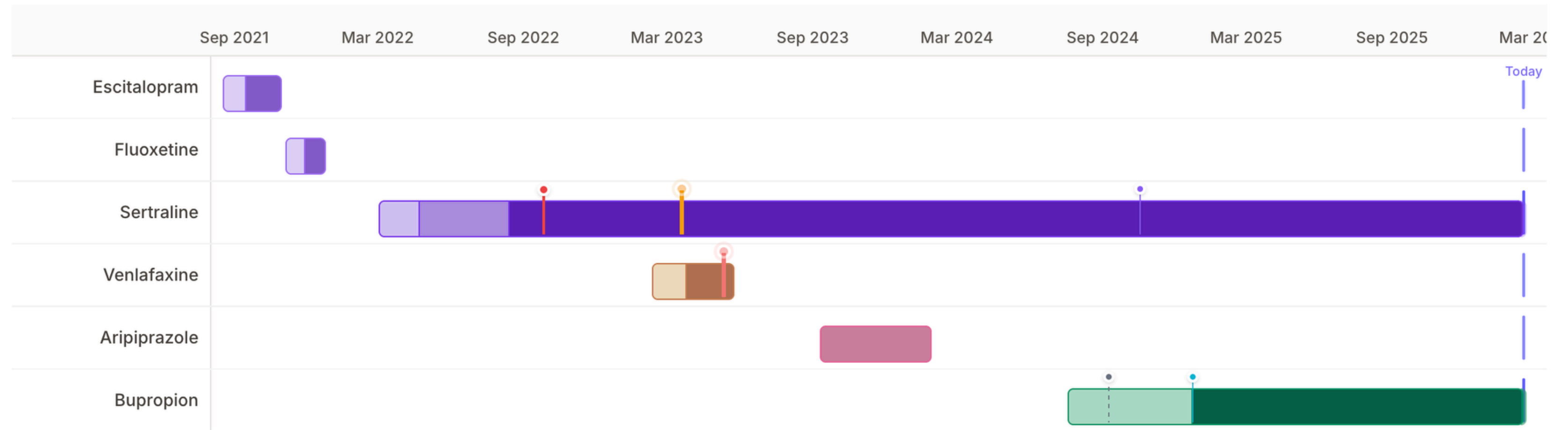
# Problem Solution Business Model

- All
- Atypical AP
- NDRI
- SNRI
- SSRI

DOSE INTENSITY: Low → High

(relative to each medication's own dose range)

Markers: Adverse effect Drug interaction Lab finding Adherence gap Clinical note



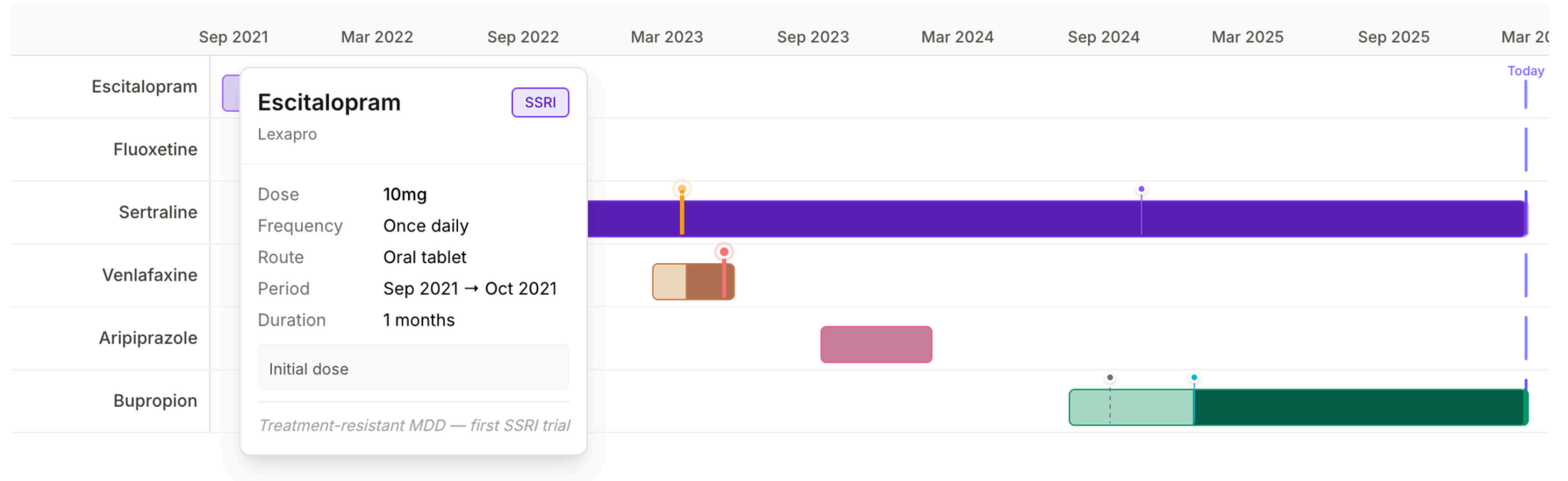
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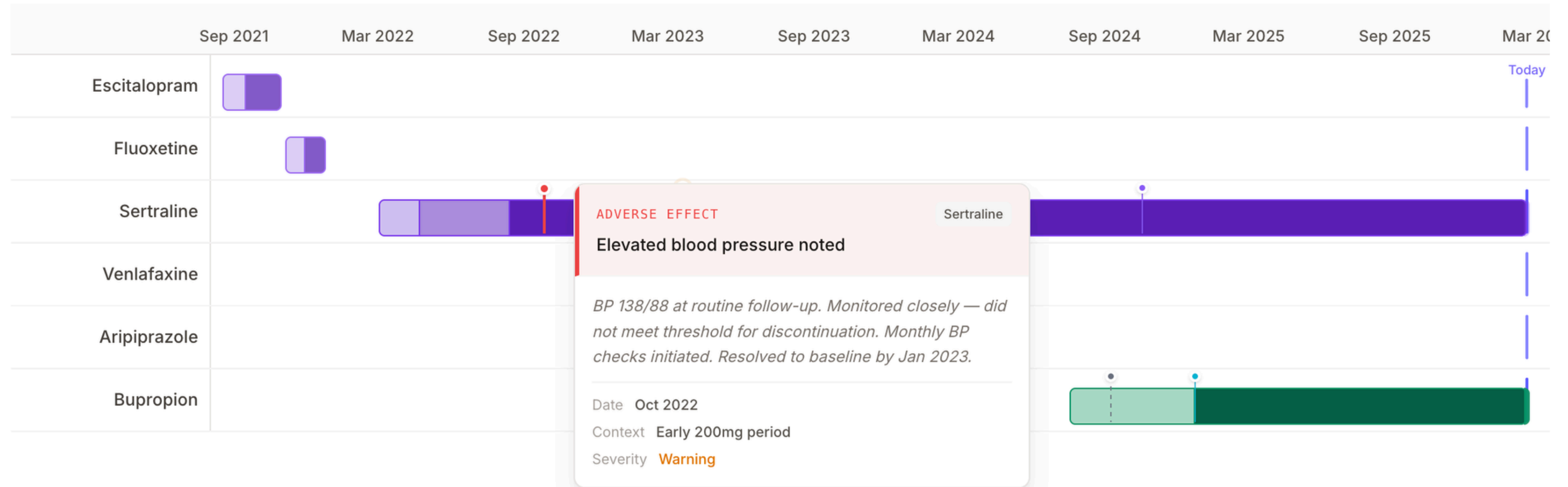
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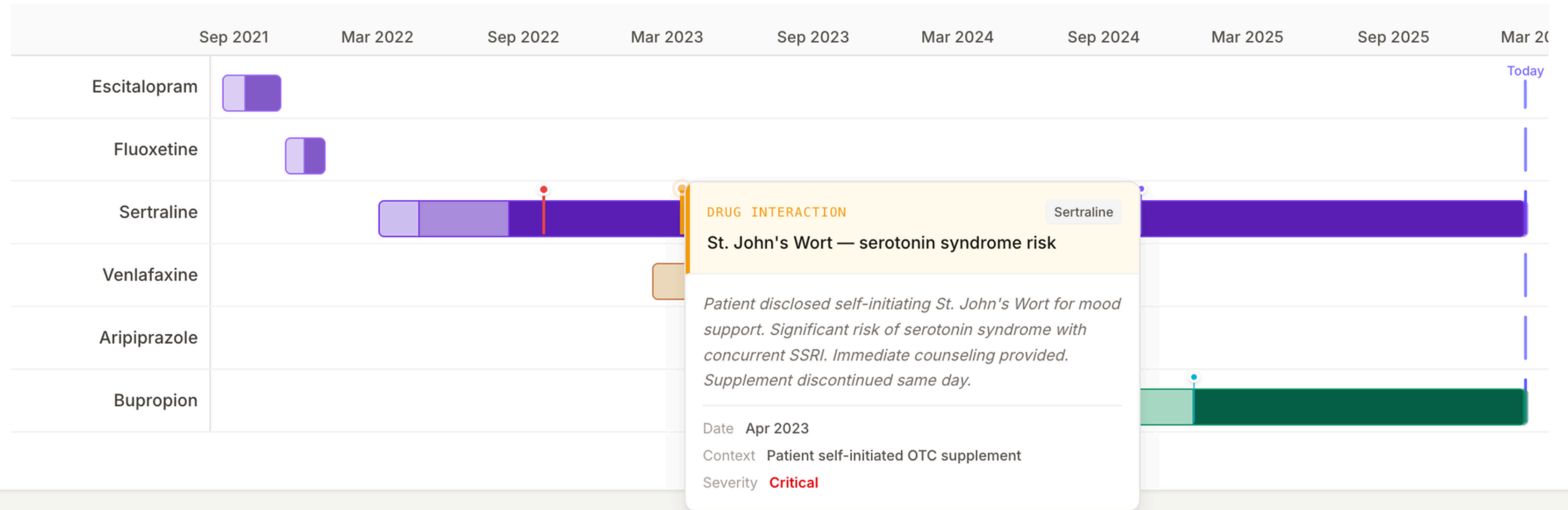
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# Patient Similarity Graph



# Patient Similarity Graph



Scarlett M. King x

Search by keyword...

KW

Selected Point

(25.822, -17.508)

Treatment-Resistant Depression With Complex History → Ssri Response With Residual Symptoms → Ssri Remission And Sustained Stability → Ssri Remission And Sustained Stability

## Scarlett M. King

Age (NUMERIC) : 26

Name (TITLE) : Scarlett M. King

Gender (CATEGORIC) : F

Diagnosis (CATEGORIC) : MDD

Risk\_flag (CATEGORIC) : No

Phq9\_latest (NUMERIC) : 3

Current\_status (CATEGORIC) : stable

Num\_medications (NUMERIC) : 2

Medication\_history (SEMANTIC) : Escitalopram 10mg full response. Remission achieved. Stable 12 months.

e3a99962-ff02-4cea-9d63-d005961bb408

- Home
- Map
- Layers
- 2.5D
- 2D
- Path
- Layers

- Select
- Lasso
- Magic Lasso
- Path
- Landmark
- Waypoint
- Clear Bags
- Delete Bags
- Journey
- Pages
- Settings

**Point Coloring**

Clusters

Bags

**Diagnosis**

COLORS FOR THIS CATEGORY

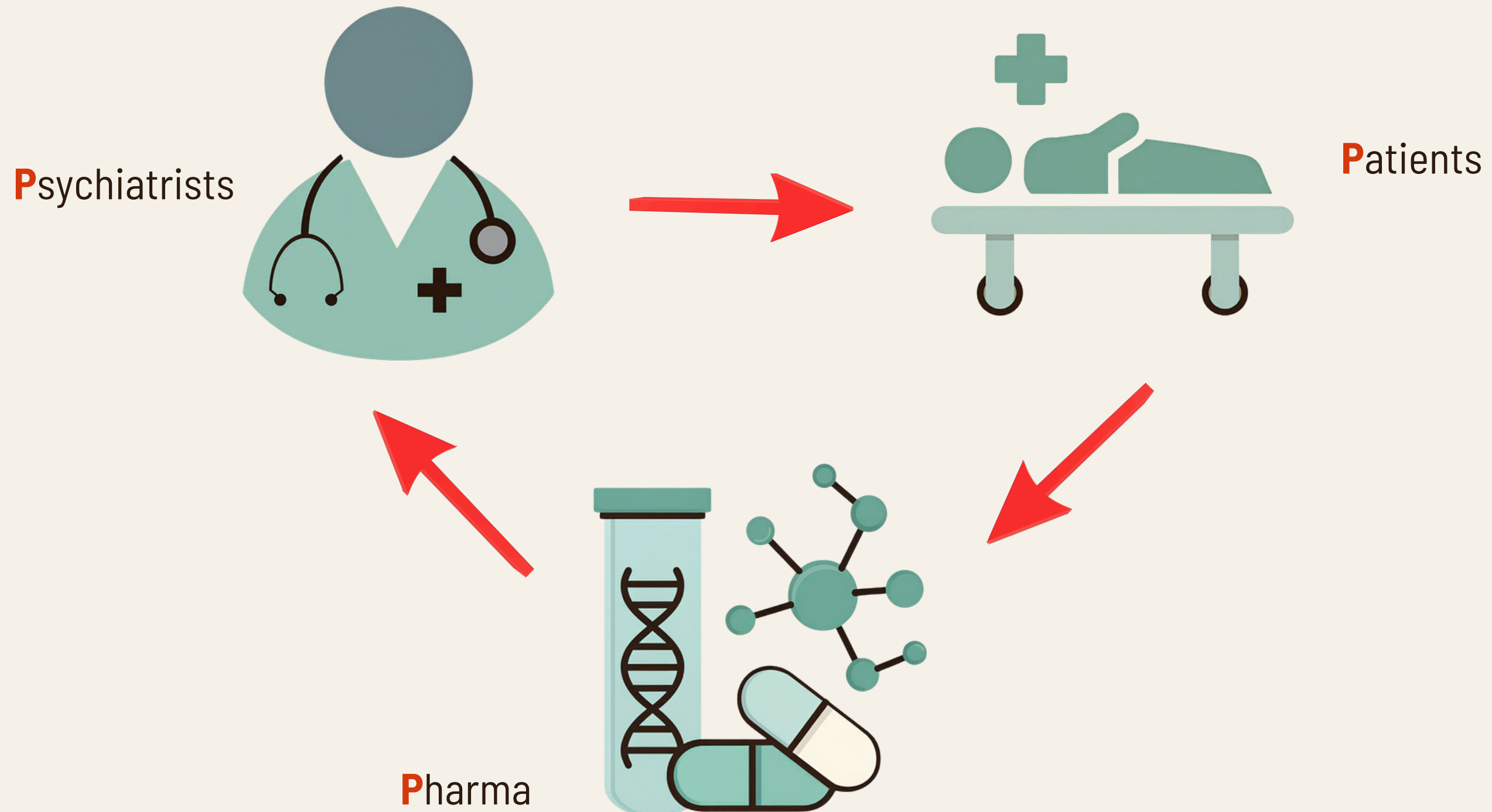
- GAD + MDD
- MDD
- MDD + ADHD
- MDD + Anxiety
- MDD + Bipolar II
- MDD + GAD
- Treatment-Resistant ...
- Treatment-Resistant ...

Current\_status

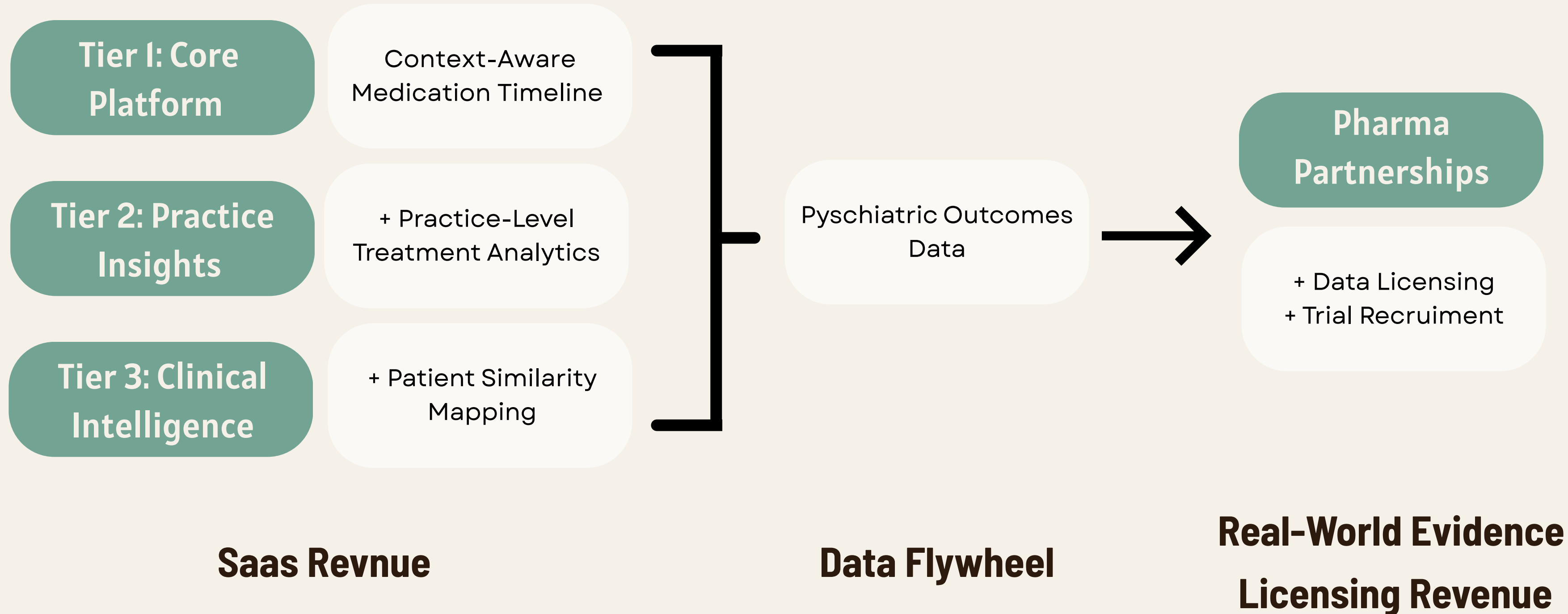
Risk\_flag

Gender

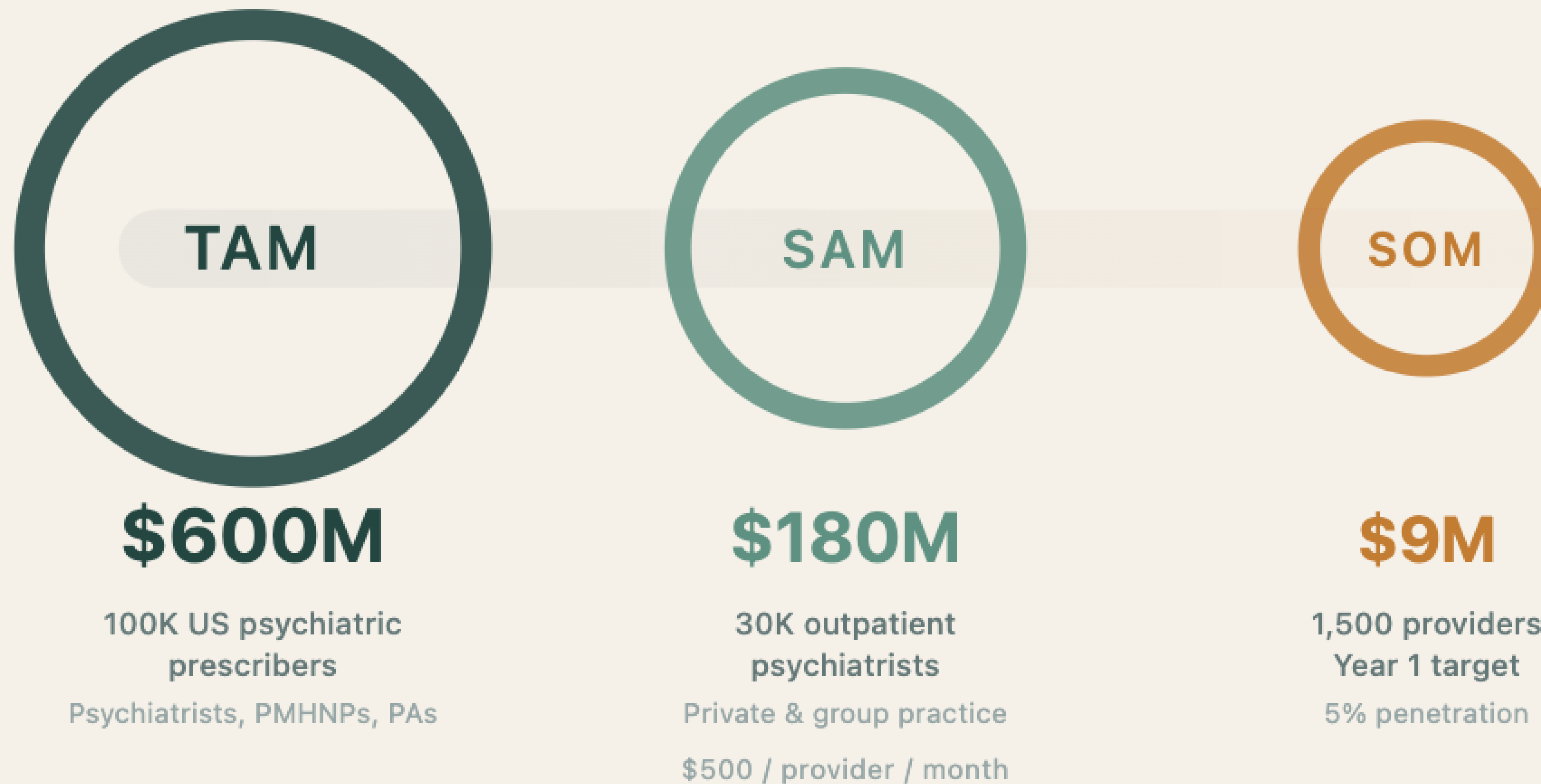
# STAKEHOLDERS: 3Ps



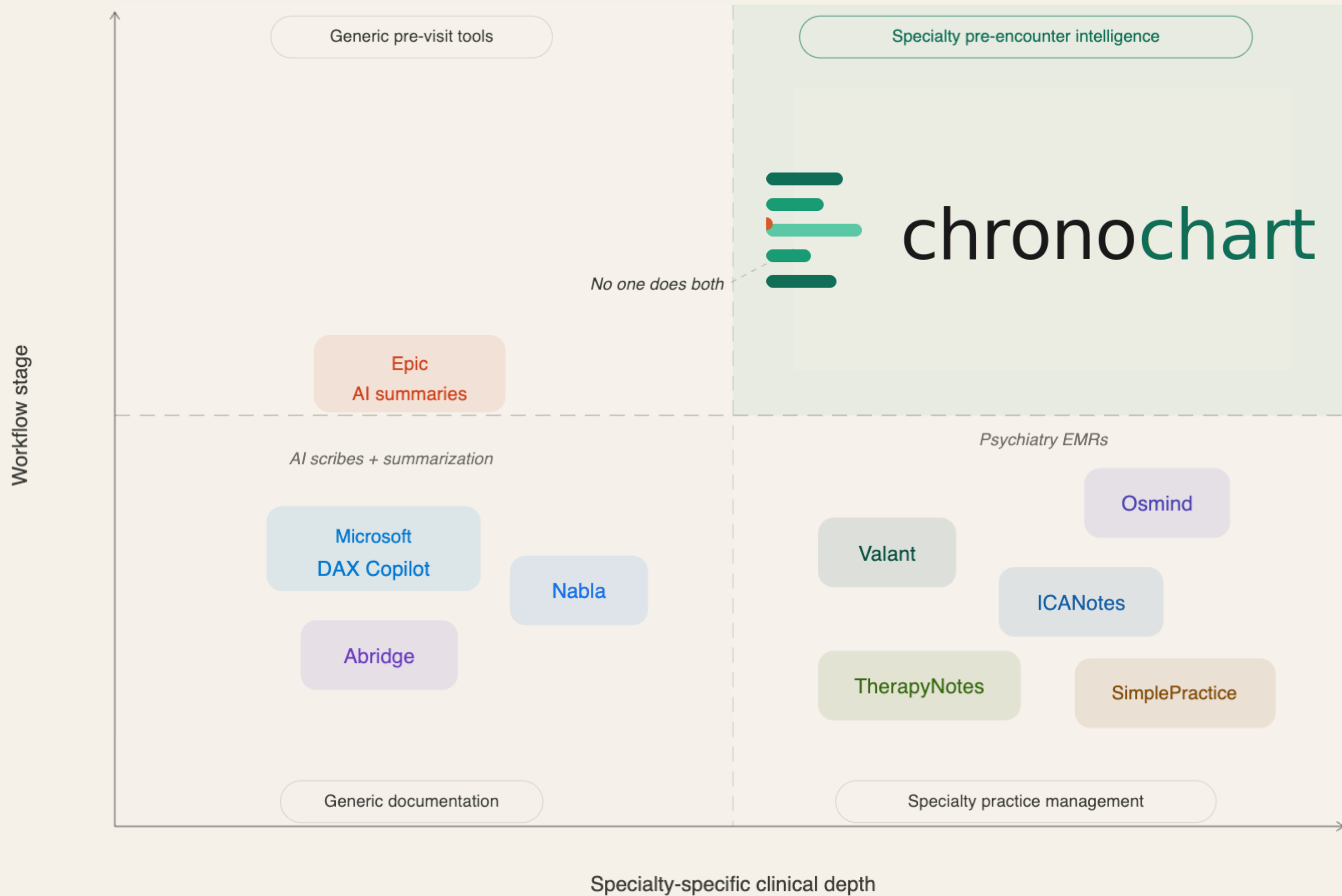
# REVENUE MODEL



# Total Addressable (TAM) Serviceable Addressable (SAM) Serviceable Obtainable Market (SOM)



# Competitive landscape





**Wilson Yeh**

3<sup>rd</sup> Year Medical Student  
UCLA



**Sunmin Kim**

Molecular & Cellular Biology  
Johns Hopkins University



**Ilya Shlyakhter**

Bioinformatician at  
GeneDx



**Bharath Vishal Ganesamoorthy**

Machine Learning Engineer at CVS Health  
Biomedical Engineering Graduate Student  
Columbia University



**Preetal Deshpande**

Bioanalytics at Moderna  
Bioengineering + Computer Science  
UC Berkeley



**IKishu Maharjan**

Computer Science Graduate Student  
Fitchburg State University

**InterSystems Prize**

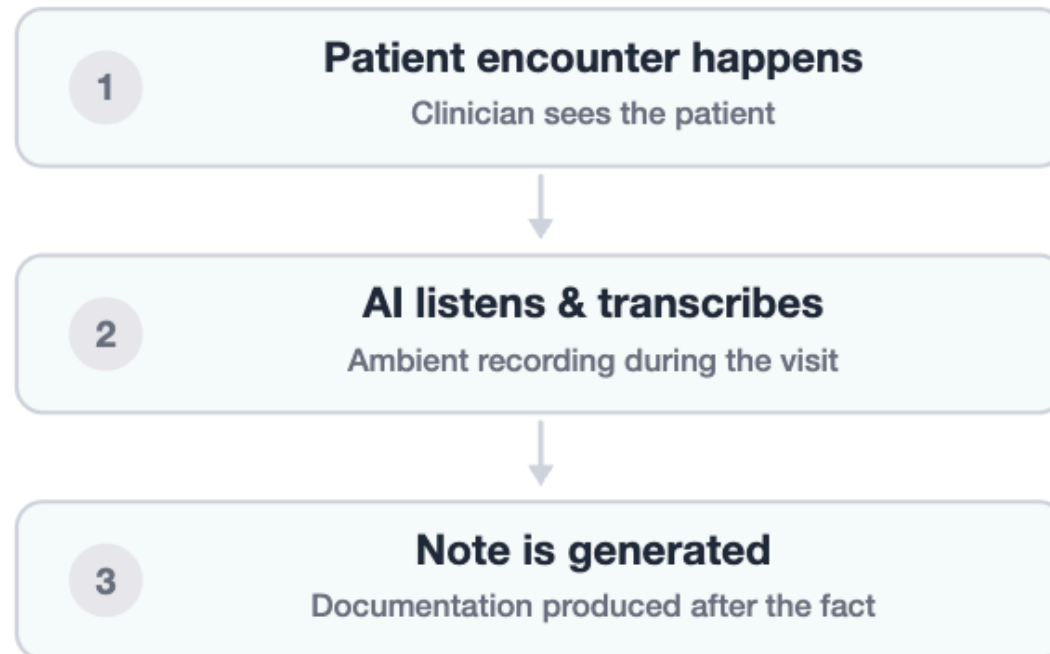
# Appendix

## Why Existing AI Falls Short

### EXISTING AI TOOLS

Abridge · DAX Copilot · Nabla

### Documentation & Scribing



### The Problem

**Clinician still enters the encounter blind.**  
No medication context. No history synthesis.

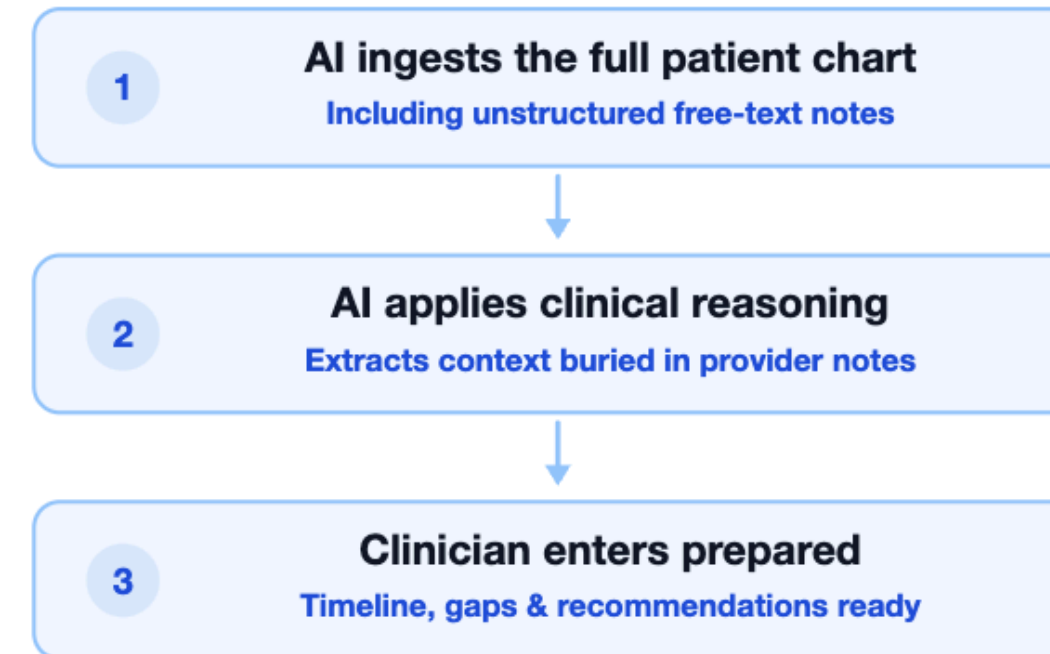
Post-Encounter

Records what was said

### OUR APPROACH

Pre-Encounter Clinical Intelligence

### AI Reasoning & Synthesis



### The Advantage

**Clinician walks in knowing the patient.**  
Faster decisions. Safer prescribing. Less burnout.

Pre-Encounter

Reasons about what matters