

PREDICTIX

AI Mental Health Platform

The RIGHT Treatment The FIRST Time

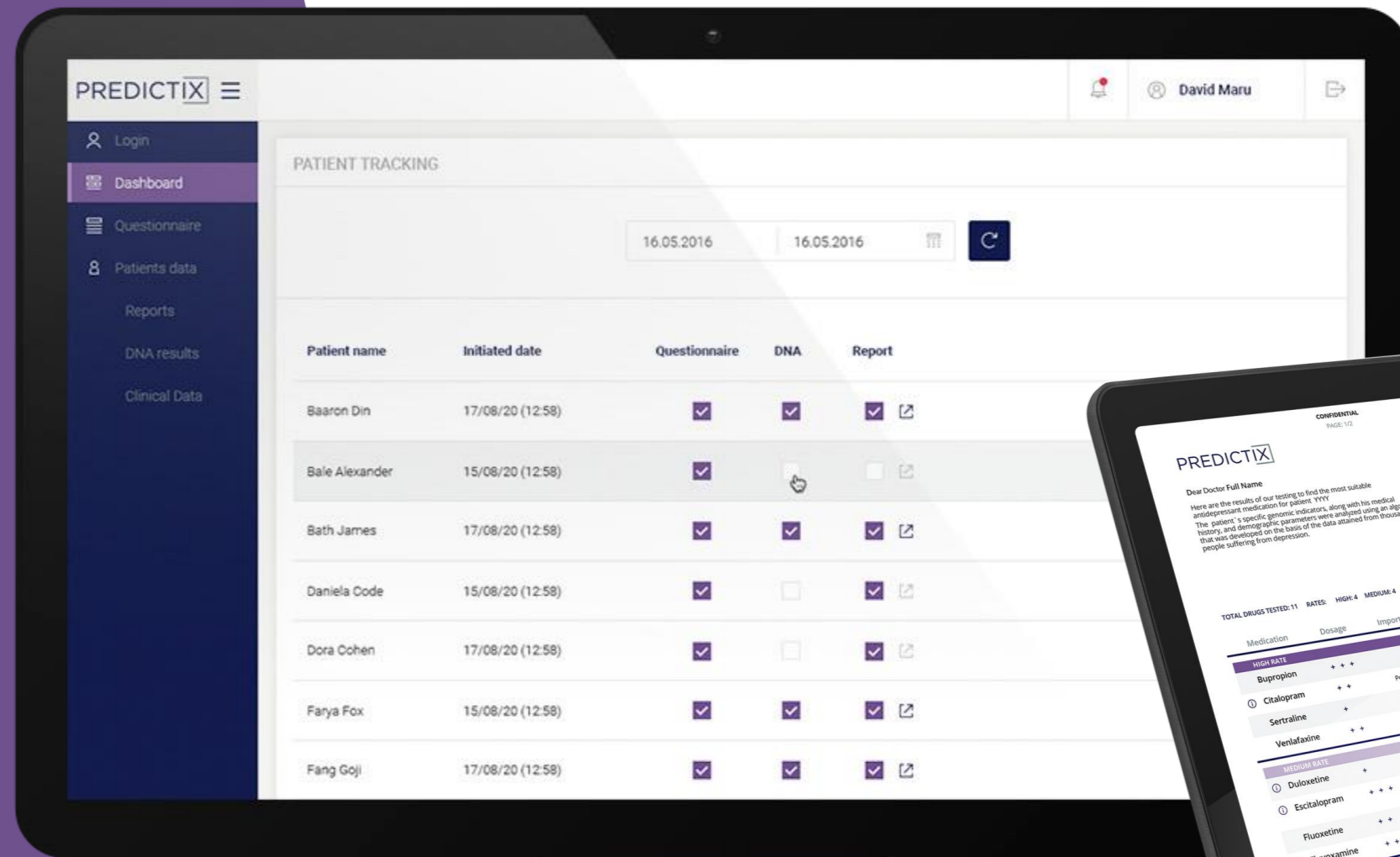
Powered by



PREDICTIX

World's first decision support platform for mental health providers

Harnesses AI to empower clinician precision prescribing decisions





The World is in a Growing Mental Health Crisis

630M

People globally suffer with mental health disorders

\$2.5T

Global annual cost for mental health disorders*

30%

Increase in depression worldwide due to COVID-19*

* See Annexes for details

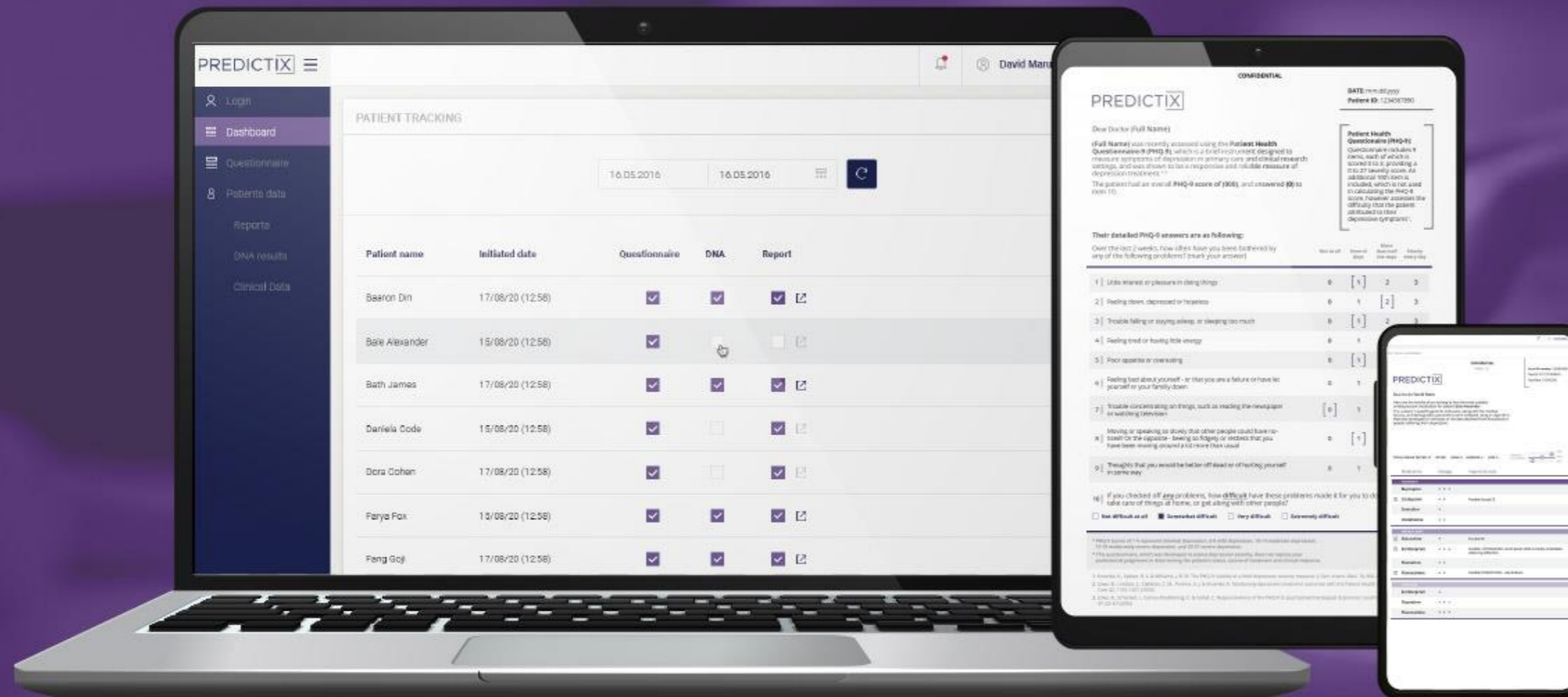
DEPRESSION

is the #1 Mental
Health Challenge

- 80% of antidepressants are prescribed by a Primary Care Physician with limited tools for success
- Must select from multiple antidepressants
- Spend only 10-15 min with patients
- Achieve between 30% - 49% prescribing accuracy

The Solution:

PREDICTIX AI Platform for Mental Health Providers



1 Instant Assessment

2 Accurate Treatment Prediction

3 Easy Management & Follow-up

■ Depression

■ Anxiety

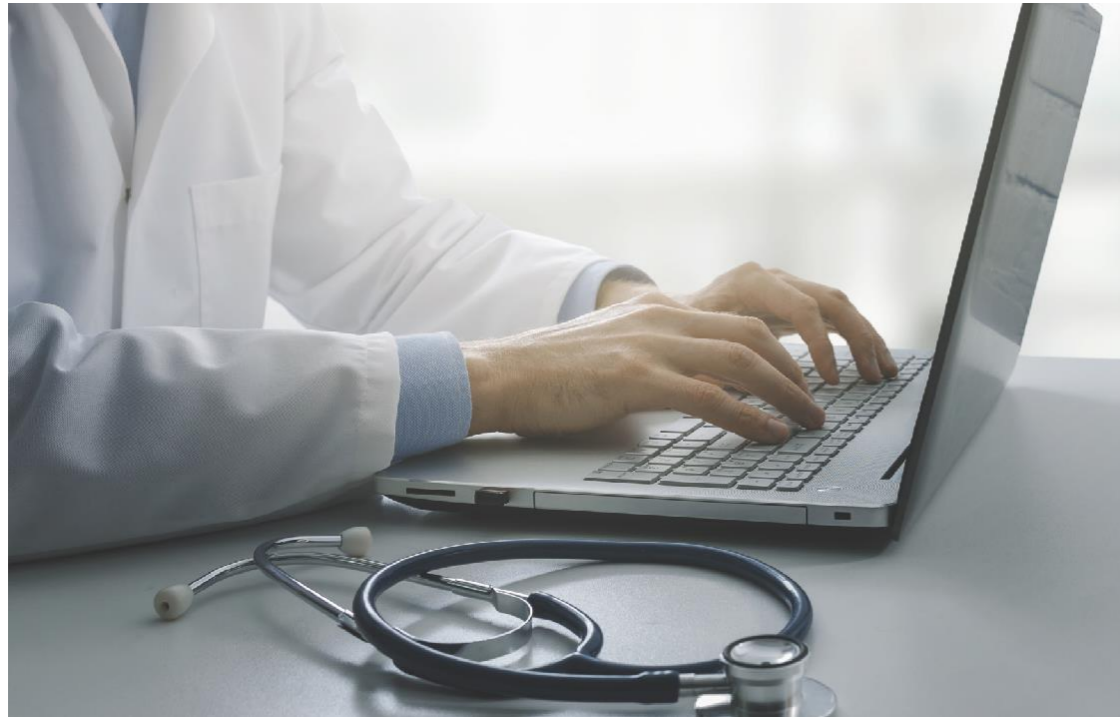
■ Bipolar

■ ADHD

■ OCD

■ PTSD

PREDICTIX Product Portfolio



PREDICTIX Digital

Support Physician Prescribing Decisions Instantly with AI-driven Analysis of Clinical & Demographic Data



Personalize Treatment & Management



Lower Cost per Patient



Enhance Clinic Efficiency



Expand Service Offerings



PREDICTIX Genetics

Combine DNA Analysis with our AI-driven Analysis for greater Precision Prescribing accuracy



PREDICTIX Digital

Support Prescribing Decisions Instantly

PREDICTIX offers a complete AI-driven SaaS platform accessible to every family physician and psychiatrist.

PREDICTIX Digital enables easy, effective and rapid patient assessment, prescribing validation and management for a wide range of mental health conditions.



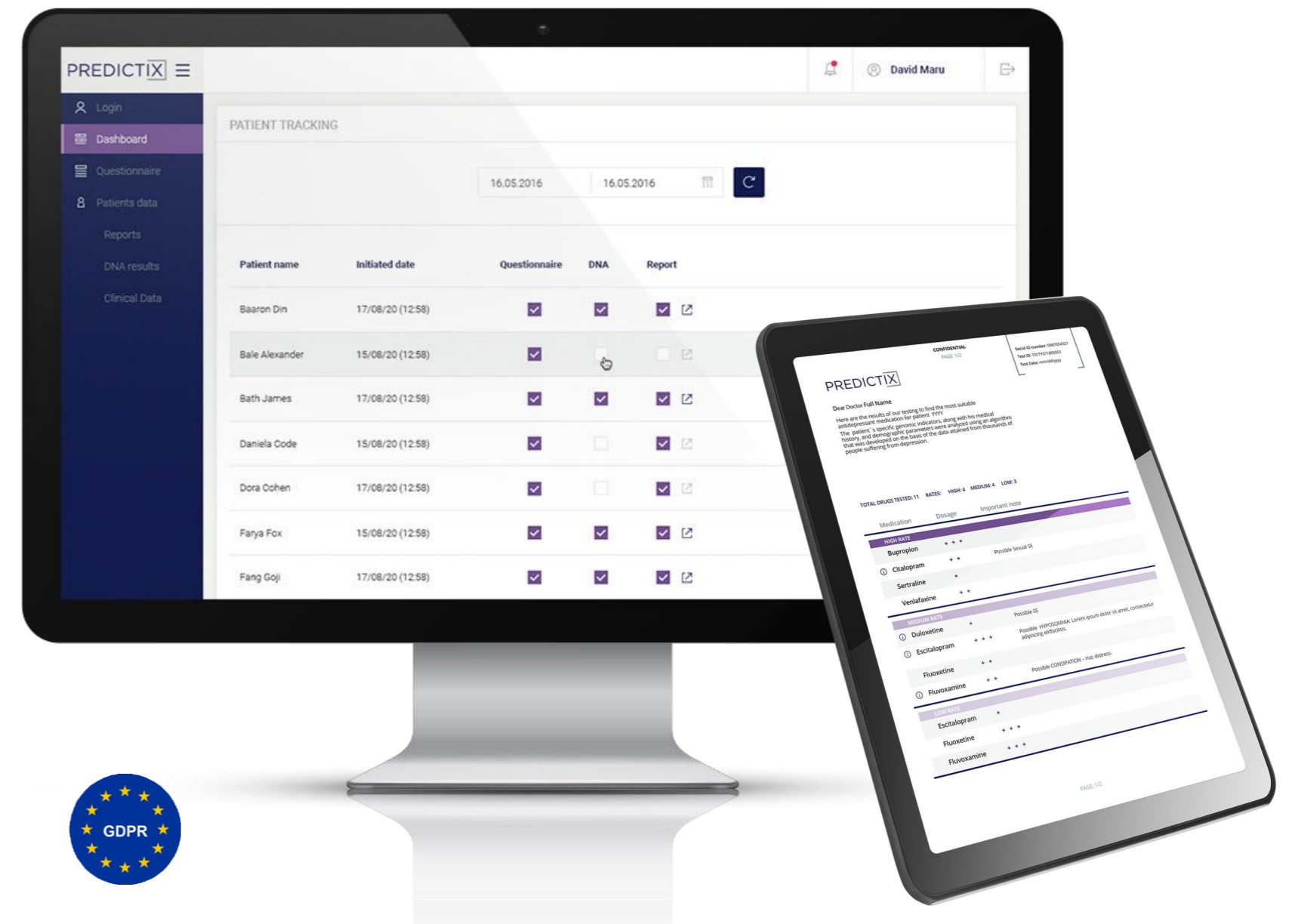
Complete User-friendly Online Management Tool



Integrates Clinical & Demographic Data with AI



Instant Patient Assessment & Prescribing Validation Report



PREDICTIX Genetics

Combine DNA Analysis with our
Digital Solution for Precision Prescribing

PREDICTIX Genetics provides a next generation genetic testing solution that integrates with our comprehensive SaaS platform, to enable precision prescribing and ongoing management for a wide range of mental health conditions.

 Integrates Genetic Data with our Digital Solution

 Non-invasive, Results within 2 Weeks

 Precision Prescribing Decision support report



Introduction

Major depressive disorder (MDD) is a common psychiatric disorder that is associated with high burden on patients and their families. The societal burden of MDD has been estimated to affect 225 million workdays and 36.6 billion US dollars' salary equivalent of lost productivity per year. Unfortunately, clinical trials indicate that current best practice methods of determining optimal treatment for a specific MDD patient lack efficiency. This inefficiency is plausibly caused by the polygenic nature and the phenotypic heterogeneity of MDD. Recent technological advancement lead to the accumulation of data through electronic health records, next generation sequencing technologies, and sensory devices. This has paved the way to a new era of brain research; now we can start using Machine Learning (ML) as an advanced approach to understanding MDD. Through a combinatorial approach applied to the STAR*D genetic, clinical and demographic data, we have generated an ensemble algorithm which predicts the chances of an MDD patient to respond to an antidepressant while ranking the different antidepressants for each patient.

Methods

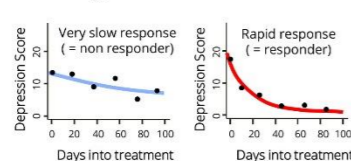
1 STAR*D cohort

4,041 patients; full genetic, clinical and demographic data for ~50%

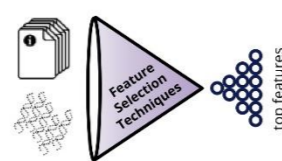


2 Characterize personalized response rate per participant

Using function fit

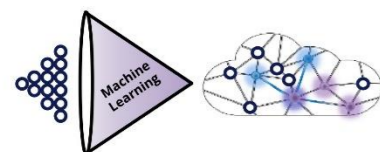


3 Select genetic, clinical and demographic features relevant for antidepressant response



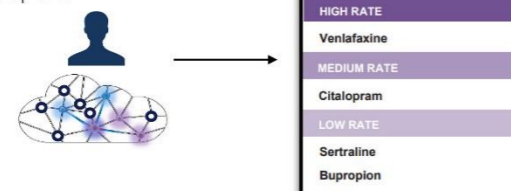
4 Use top relevant features for generation of Machine Learning models

Create an ensemble algorithm, PREDICTIX, which interprets the interrelationships between features



5 Predict whether a participant will respond to an antidepressant

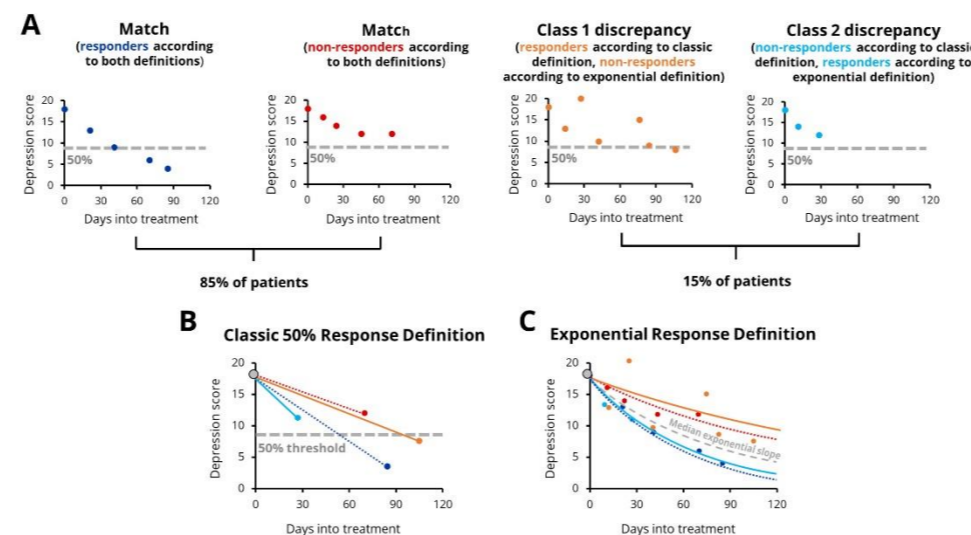
Generate a report ranking antidepressants for each participant



Results

Characterization of personalized response rate per participant

In the majority of cases, **85%** (dark blue & red representative patients, A), the response outcome for the current approach of depression response (reduction of $\geq 50\%$ in the depression score compared to baseline) matched the exponential fit response outcomes (B, C). For the minority of cases, **15%** (orange & light blue representative patients, A) the exponential approach generated a more comprehensive interpretation of the response that included: reference to the within-treatment dynamics (Class 1 discrepancy) and normalization for missing time-points of depression scores (Class 2 discrepancy).

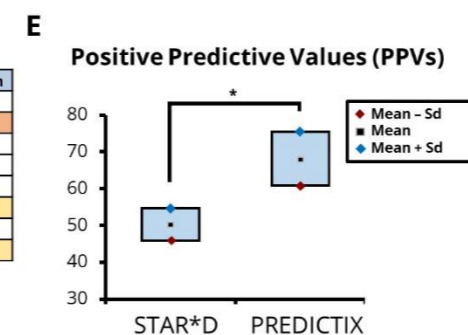


PREDICTIX performance validation #1 (per medication)

Using validation data (i.e., untrained data), we were able to cross-validate the performance of PREDICTIX per medication on new patients. Analyses show that PREDICTIX accuracy per medication can get up to 77.5% (venlafaxine, D, orange row).

In addition, PREDICTIX positive predictive value (PPV, i.e., PREDICTIX' success when it predicts positive response to an antidepressant) is higher by up to 58% than that of STAR*D [venlafaxine, 75% compared with 47.5%, D (yellow rows) & E].

Statistic	citalopram	venlafaxine	sertraline	bupropion
n	507	40	45	37
PREDICTIX Accuracy (%)	60	77.5	68.9	67.6
p-value (exact binomial test)	<0.001	<0.001	<0.05	<0.05
PREDICTIX Sensitivity (%)	65.2	78.9	76	52.9
PREDICTIX Specificity (%)	55	76.2	60	80
PREDICTIX PPV (%)	57.9	75	70.4	69.2
PREDICTIX NPV (%)	62.4	80	66.7	66.7
STAR*D PPV (%)	48.7	47.5	55.6	45.9

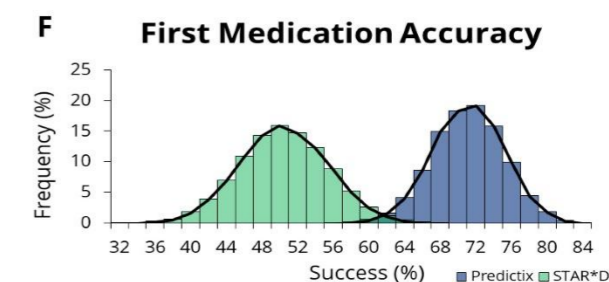


Results

PREDICTIX performance validation #2 (between-medications ranking)

A random sample of patients was run through the PREDICTIX pipe-line, and was utilized to analyze PREDICTIX success with the most highly ranked medication per patient (i.e., most recommended).

The *first-medication accuracy* of PREDICTIX (i.e., the most highly ranked medication per patient) has an average of 70.2% [95% CI [63.9%, 76.3%] F], outperforming the 50% STAR*D average of first-medication accuracy in the original STAR*D protocol (F).



Conclusions

There is an evident need for new approaches to help clinicians improve the treatment of depression and other psychiatric disorders. Applying machine learning methods to the accumulating data derived from Next Generation Sequencing (NGS) technologies, Electronic Health Records (EHR) and sensory devices can transform the way psychiatric disorders are treated. One challenge in designing any prediction algorithm is in selecting the right combination of features that will predict a well-defined clinical outcome. The PREDICTIX algorithm and pipeline may be used as a tool to tackle this challenges, and act as a decision supporting tool for clinician, generating more precise, efficient, quick and cost-effective treatment for depression.



Funding

This project is supported by grants from the European Commission (832230) and the Israel Innovation Authority (IA 47499, 55573 and 59126).

Covid-19 Impact on Worldwide Depression

15% Increase in depression worldwide due to COVID-19

45% Of Americans reported the coronavirus crisis is harming their mental health

10000% Increase in US helpline calls for emotional distress in April

x10 Increase in virtual consultations in the United States (Lancet 2020)

We provide the infrastructure to easily manage and better treat these patients during & beyond COVID-19

Recommendations for PREDICTIX

"...the frontier of personalized medicine in psychiatry by delivering to psychiatrists and GPs state-of-the-art information..."

Prof. Stephen Stahl MD, PhD

Author of the best selling clinical manual - "Essential Psychopharmacology";
Talizaz Advisory Board Member



"I have just reviewed a lady who had not responded to 4 antidepressants... After starting the medication recommended after the genetic test 3 weeks ago, she says **"I am a different person", & "I feel 80% better in myself"!**"

Dr Adil Jawad MBBS; DPM

FRCPsych Consultant Psychiatrist



"The work that Taliaz are doing is **revolutionising the practice of psychiatry**. By using "PREDICTIX" we know that we can reduce our patient's suffering, at the same time as saving our time and our client's money."

Jon Chanter, Founder & CEO, Psychiatry UK

The largest online UK psychiatry network



PSYCHIATRY-UK

They have Partnered with PREDICTIX

Providers



Health Systems



Payers



JOIN US

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