Northern CA Psych Soc

Psychiatry 2025

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Co-founder and President, Mindstrong Health
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Disclosures

Equity in Alphabet, Apple, Compass Pathways, Mindstrong Health, and Sage Therapeutics

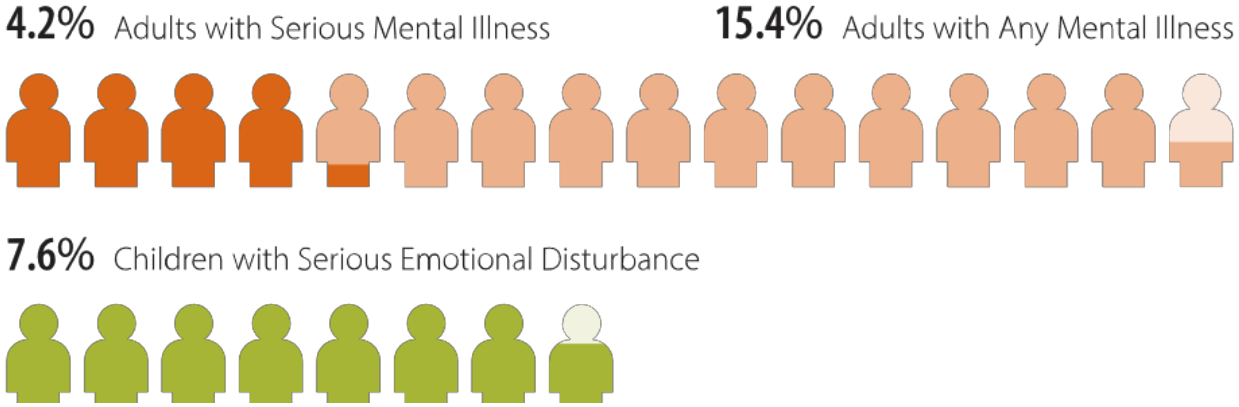
Board Service: 7 Cups, Compass Pathways, Inscopix, Mindstrong Health

Non-profit Board Service: Autism Science Foundation, CitiesRISE, International Neuroethics Society, Rady Institute for Genomic Medicine, Steinberg Institute

Lecture Outline

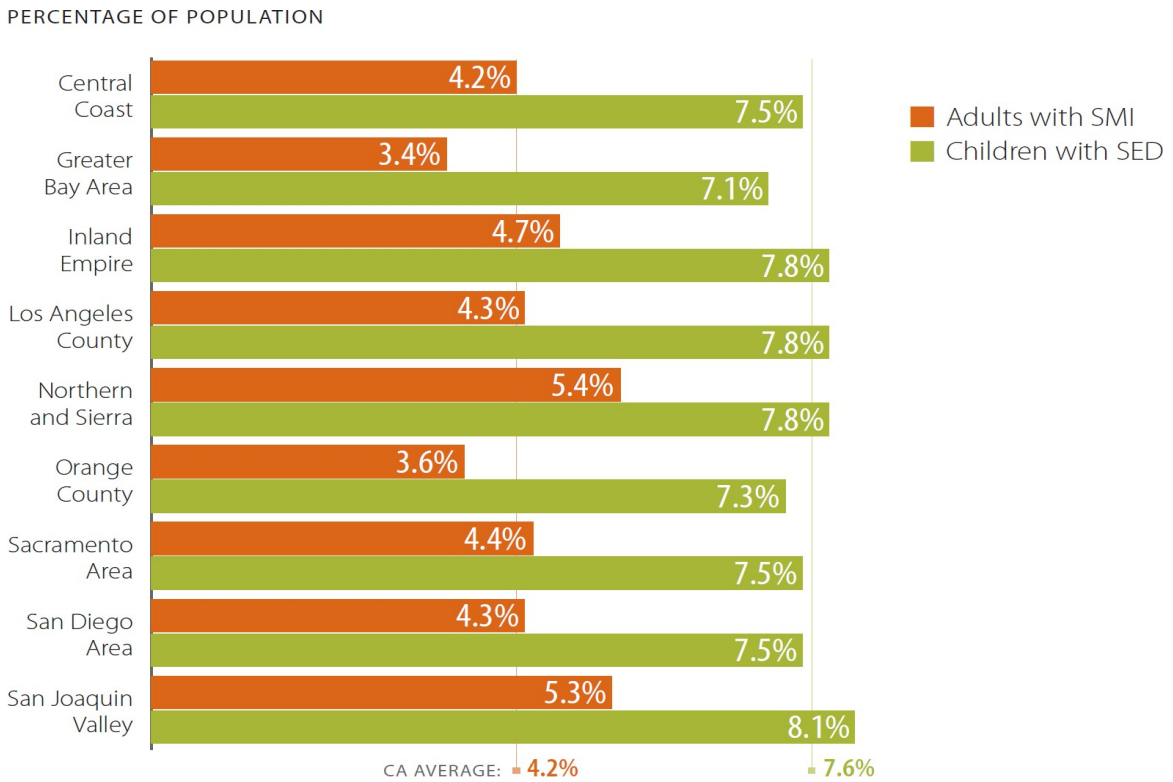
- Mental health stats in California - 2019
- Mental healthcare in California - 2019
- Opportunities for transformation 2019 - 2023
- A vision for 2025

Incidence of Mental Illness, Adults and Children, California, 2014



Source: Charles Holzer and Hoang Nguyen, "Estimation of Need for Mental Health Services," accessed December 22, 2017, charlesholzer.com.

Adults with SMI and Children with SED, by Region, California, 2014



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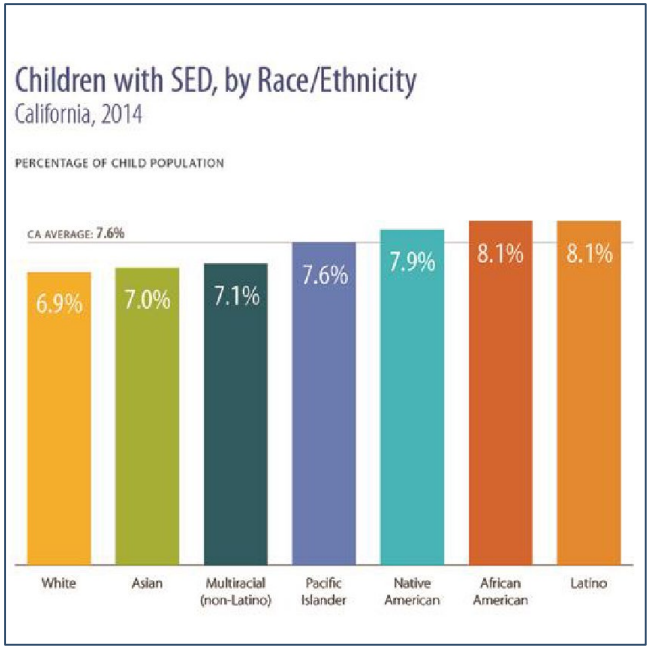
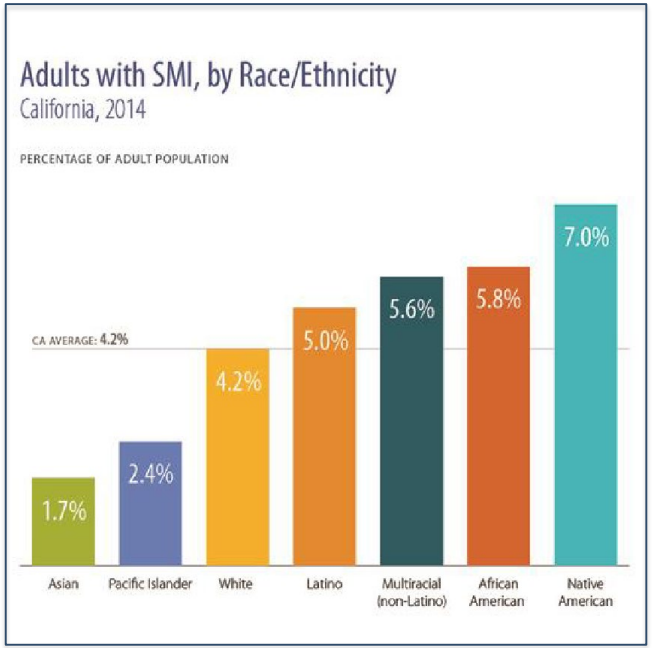
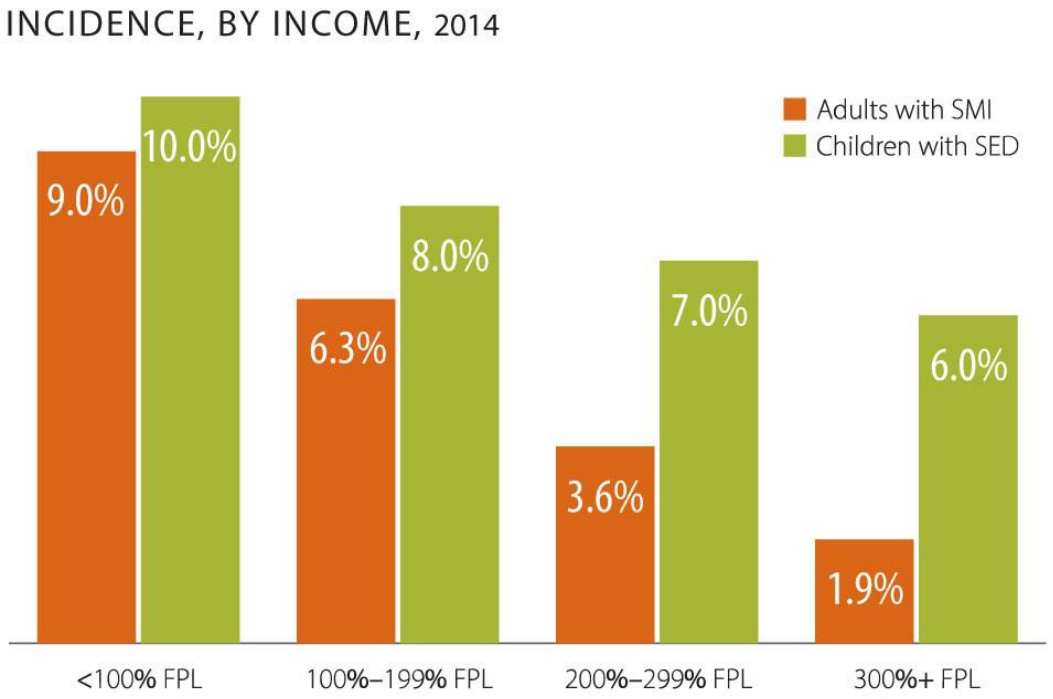
Prevalence varies by race/ethnicity





Source: Charles Holzer and Hoang Nguyen, "Estimation of Need for Mental Health Services," accessed December 22, 2017, charlesholzer.com.

Prevalence varies by income



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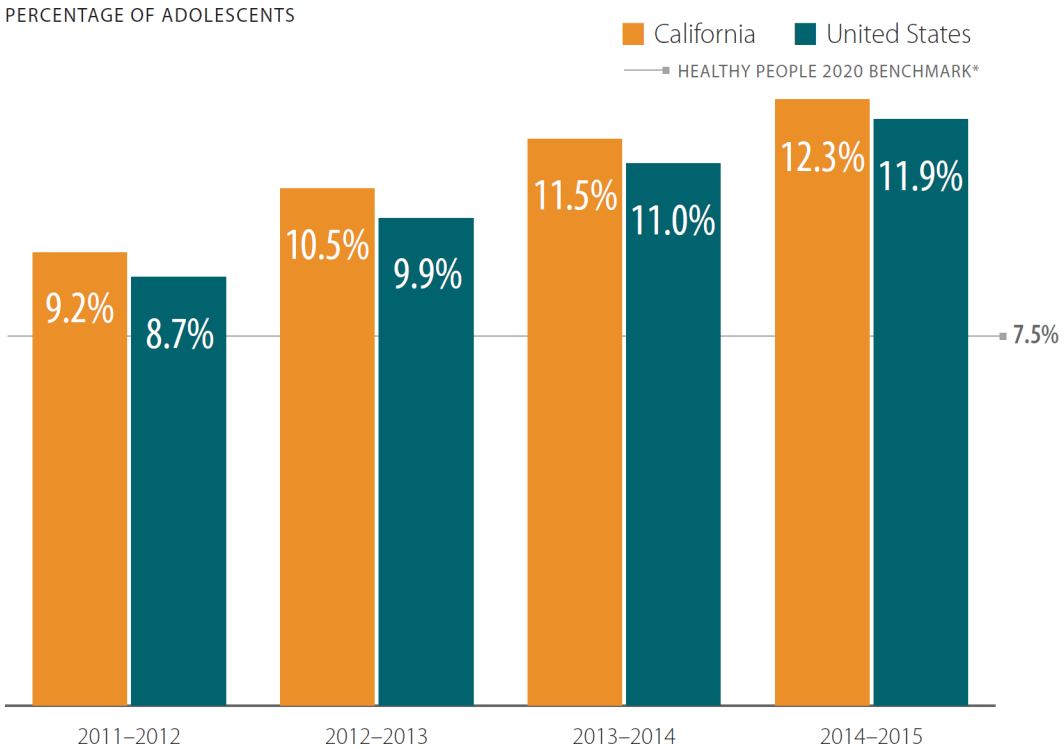
Depressive illness has risen among adolescents

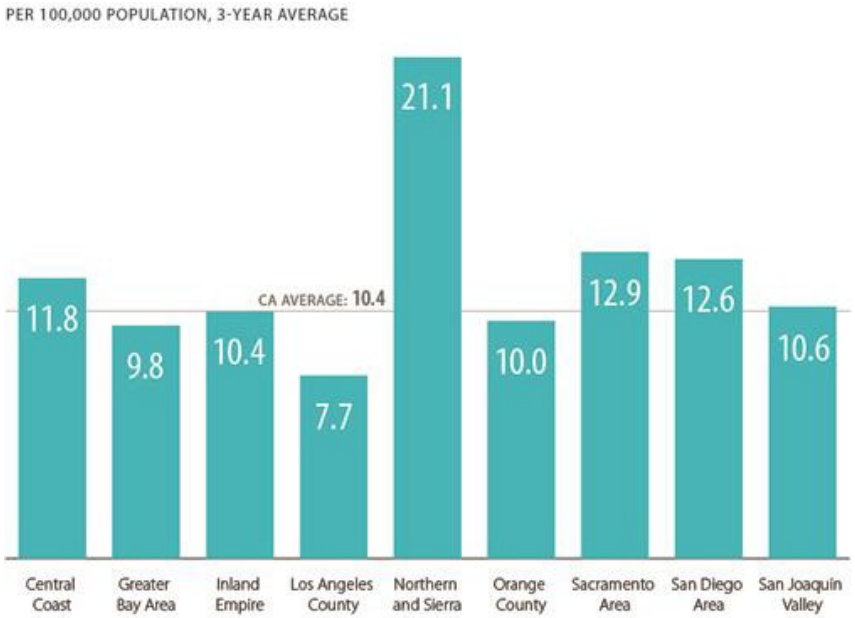
Reported Having an Major Depressive Episode Adolescents, California, 2011 to 2015



Source: Behavioral Health Barometer: California, Volume 4, Substance Abuse and Mental Health Services Administration, 2017, www.samhsa.gov (PDF).

Suicide rates are highest in northern California

Suicide Rate, by Region
All Ages, California, 2011 to 2013



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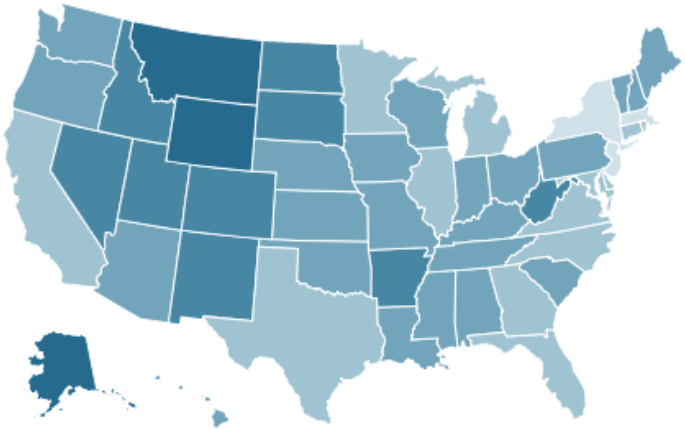
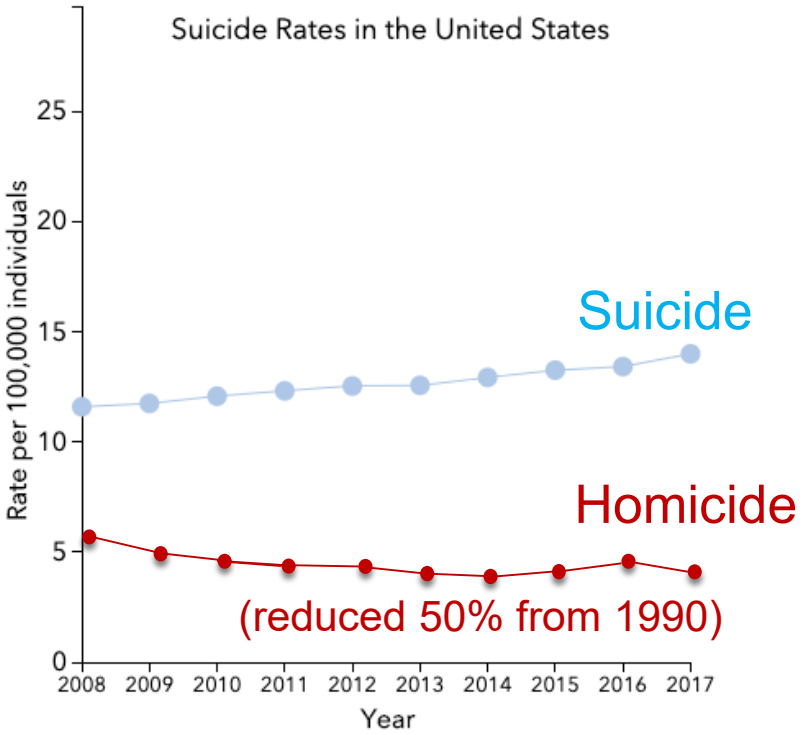
US Suicide Rates Increase 33% 1999 – 2017

(CDC Statistics)

US suicide rate = 14.0/100,000
CA suicide rate = 10.4/100,000





SOURCES: AFSP.com

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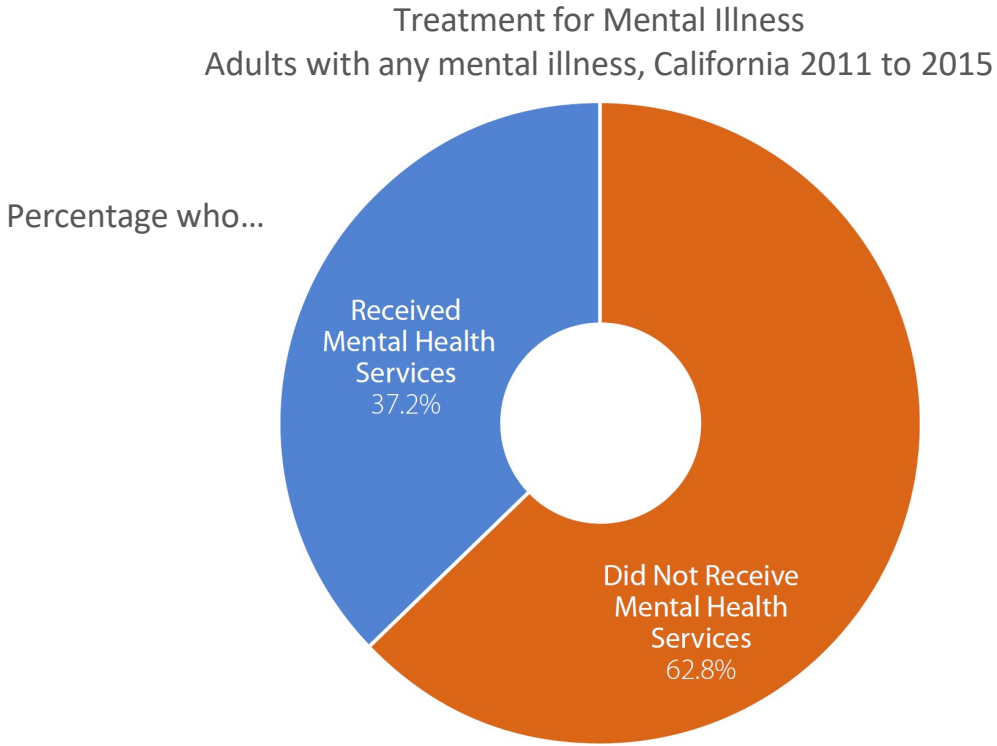
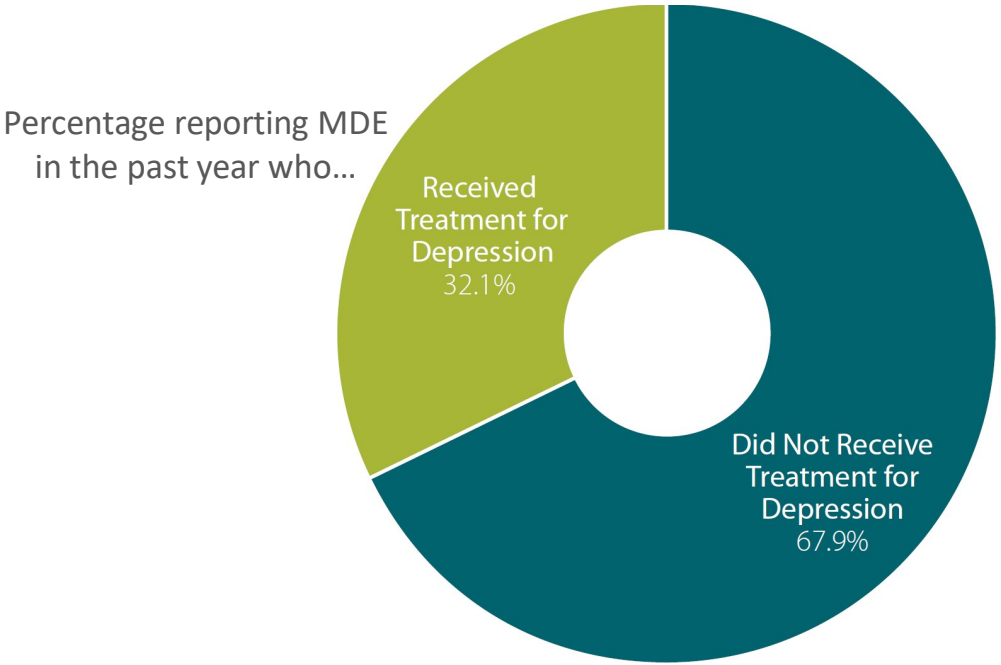
Many California adults with mental illness do not receive treatment



Sources: Behavioral Health Barometer: California, Volume 4, Substance Abuse and Mental Health Services Administration, 2017, www.samhsa.gov (PDF); Larry Goldman, Nancy Nielsen, and Hunter Champion, "Awareness, Diagnosis, and Treatment of Depression," Journal of General Internal Medicine 14, no. 9 (September 1999): 569–80.

Access for adolescents reporting major depression is particularly limited

Treatment for Major Depressive Episode
Adolescents, California, 2011 to 2015

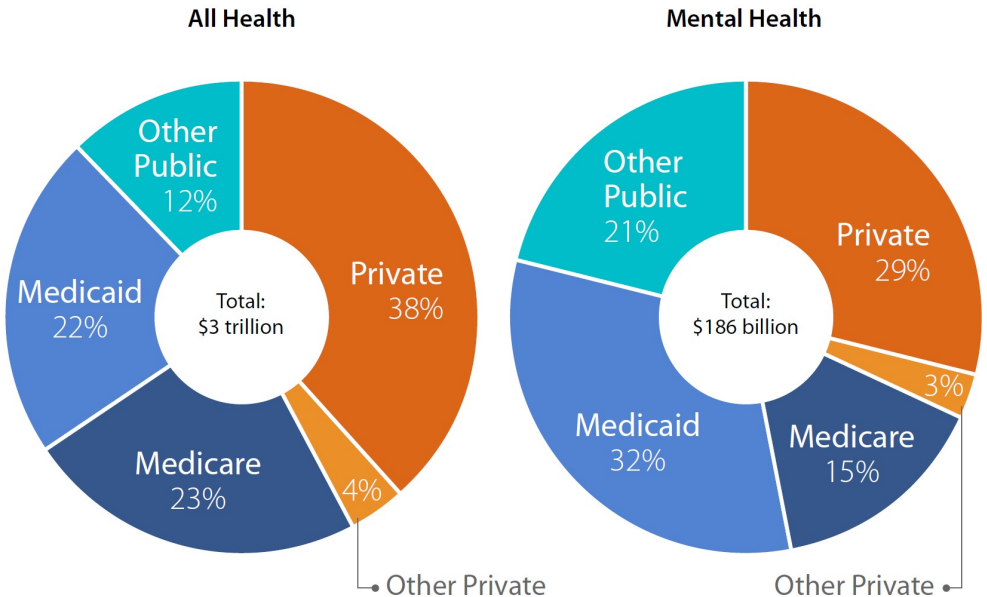


Source: Behavioral Health Barometer: California, Volume 4, Substance Abuse and Mental Health Services Administration, 2017, www.samhsa.gov (PDF).

Medi-Cal and other public programs play a critical role in financing mental health care

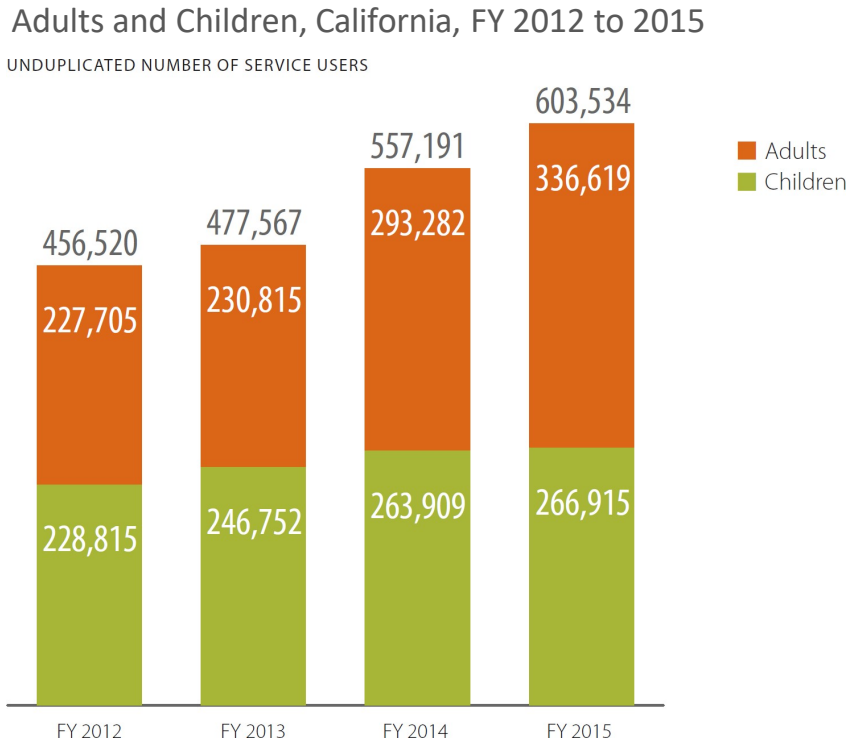
All Health vs. Mental Health Expenditures
By Payer, United States, 2015

PERCENTAGE OF TOTAL PROJECTED SPENDING



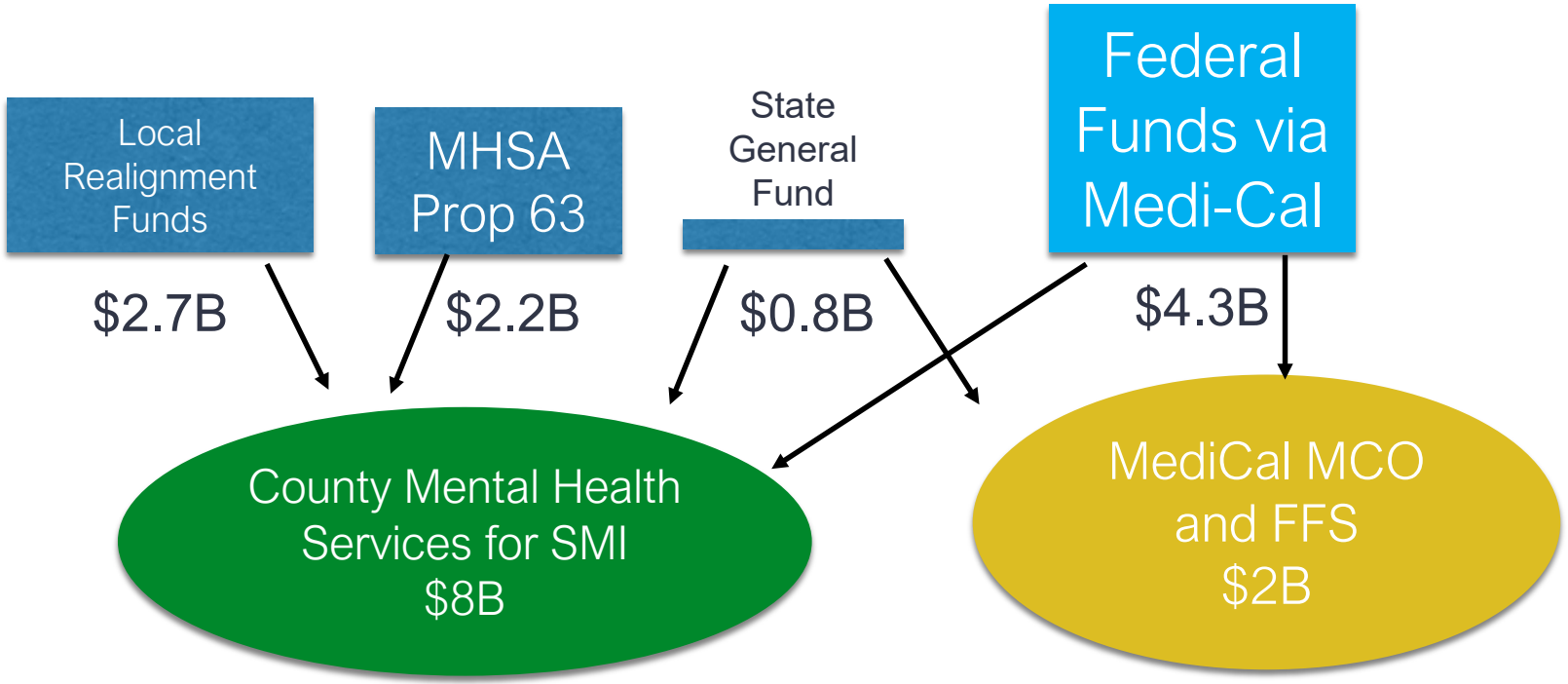
Source: "Table A.7," in Projections of National Expenditures for Treatment of Mental and Substance Use Disorders, 2010–2020, Substance Abuse and Mental Health Services Administration, 2014: A-12 and A-13, store.samhsa.gov.

600,000 Californians receive Medi-Cal specialty mental health services

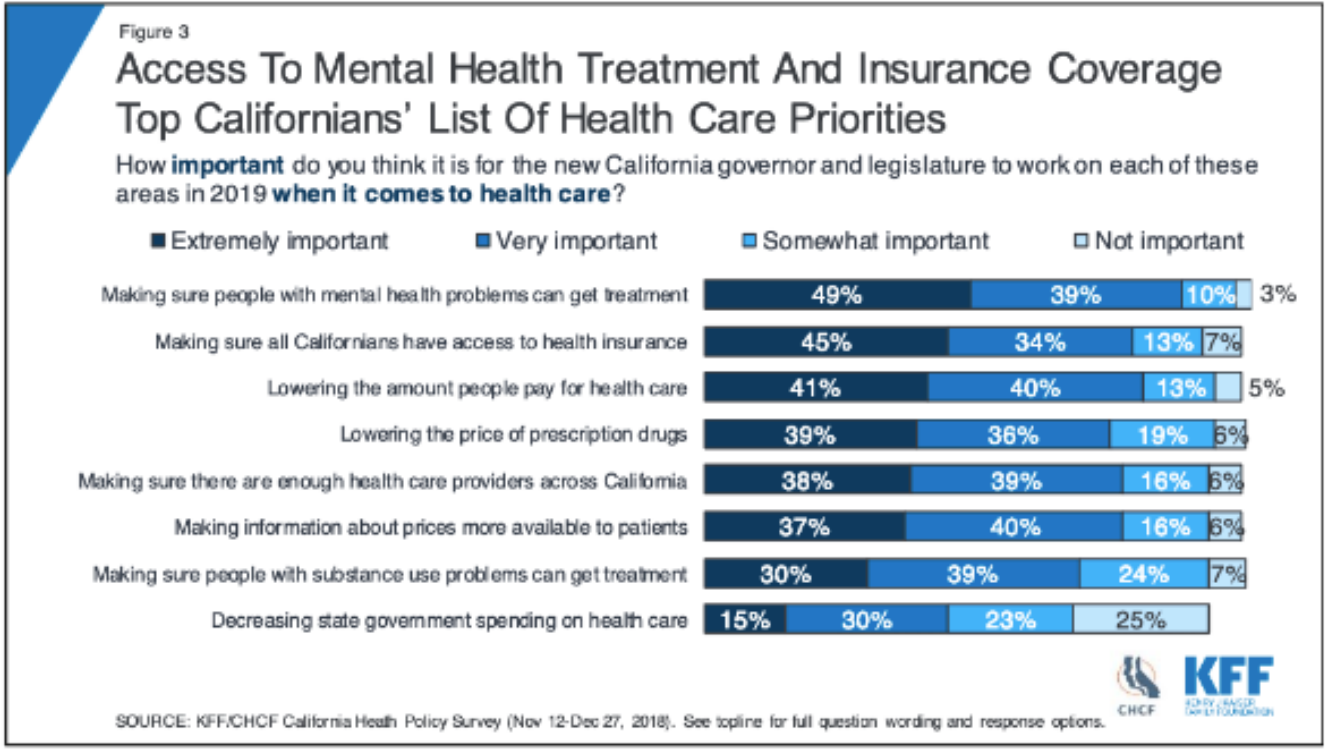


Source: Statewide Aggregate Specialty Mental Health Services Performance Dashboard, California Department of Healthcare Services, 2016, www.dhcs.ca.gov (PDF).

California's Public Mental Health Budget
Total = $10B



Californians do NOT think they have sufficient mental healthcare



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What makes us unique?

- Diversity – majority minority state
- Abundance - $21B surplus
- Intellectual capital – UC system, Stanford, S.V.
- MHSA - >$2B with funds for EIP, innovation
- Leadership – Governor committed

How Can We Be 10X Better?

- Create state mental health leadership
- Invest in what works
- Tie UC system to community colleges and K-12
- Workforce for task shifting – Coach for CA
- Technology

The Technology Revolution

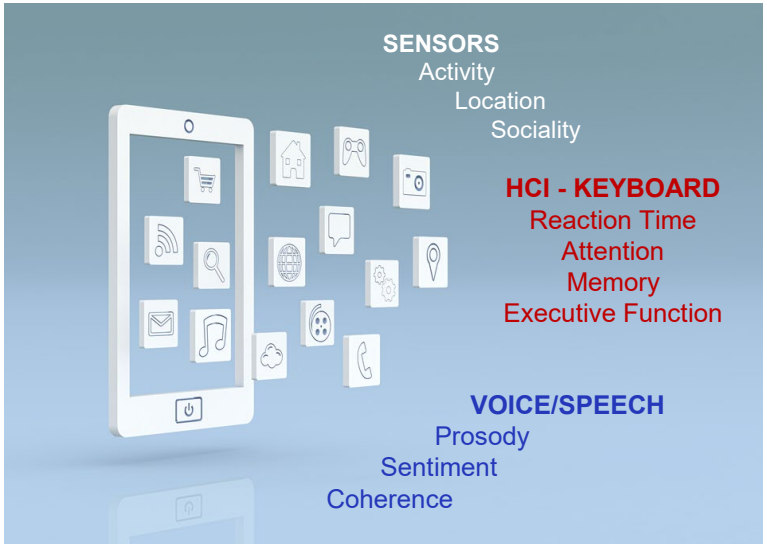
	2006	2018
Smartphones	64M	3B
Facebook users	12M	2B
YouTube hrs/day	65K	1.0B
Google searches	250M/day	> 3.5B/day
Apps in App Store	<15K	2M
Analytics	Parametric	Machine Learning

Why have we failed to bend the curve?

Imprecise Dx	*Lack of biological validity*
Lack of Engagement	*60% not receiving care*
Quality	*Fragmented, episodic, reactive*
Lack of Measurement	*We don't manage what we don't measure*

DIGITAL PHENOTYPING

A New Kind of Biomarker



MACHINE LEARNING
Pattern Identification
Feature Extraction

Raw Features → **Digital Biomarkers** → **Digital Phenotype**

N.B. digital phenotype can also include “digital exhaust” (social media posts, search terms, AI personal assistants etc.)

MEASURING MOOD, COGNITION, AND BEHAVIOUR

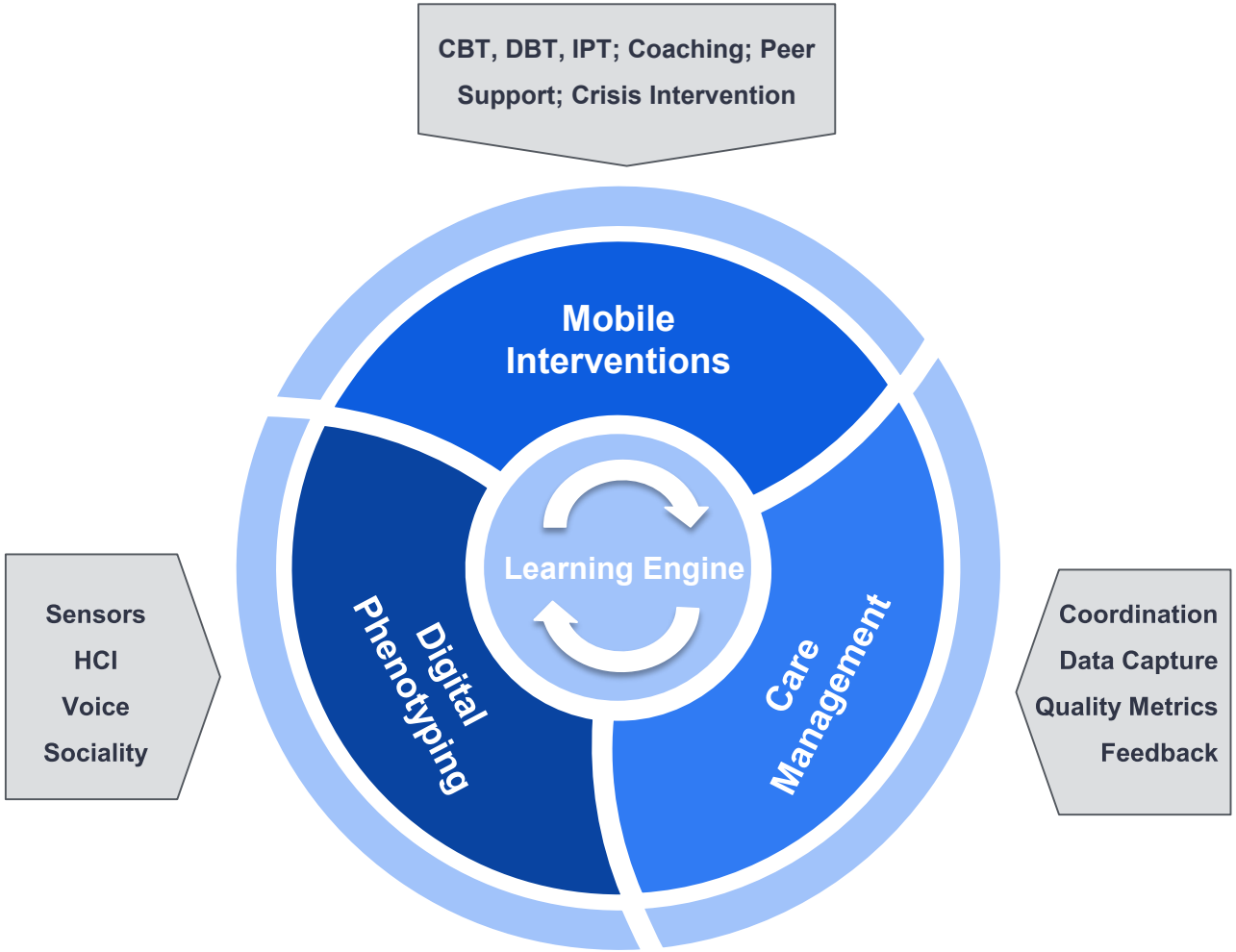
WHAT WE DO TODAY

- Subjective
- Episodic
- Clinic-based
- High Burden

WHAT WE NEED

- ✓ Objective
- ✓ Continuous
- ✓ Ecological
- ✓ Passive

The Digital Health Landscape



WHITE STAR CAPITAL

MENTAL HEALTH TECH LANDSCAPE

CCBT

33% OF COMPANIES ANALYZED / *$5.8M* AVG FUNDING AMOUNT

TELEPSYCHIATRY

16% OF COMPANIES ANALYZED / *$6.7M* AVG FUNDING AMOUNT

PROVIDER TOOLS

15% OF COMPANIES ANALYZED / *$5.7M* AVG FUNDING AMOUNT

CONSUMER TOOLS

13% OF COMPANIES ANALYZED / *$1.8M* AVG FUNDING AMOUNT

HARDWARE

12% OF COMPANIES ANALYZED / *$1.1M* AVG FUNDING AMOUNT

APPLIED AI

11% OF COMPANIES ANALYZED / *$3.8M* AVG FUNDING AMOUNT

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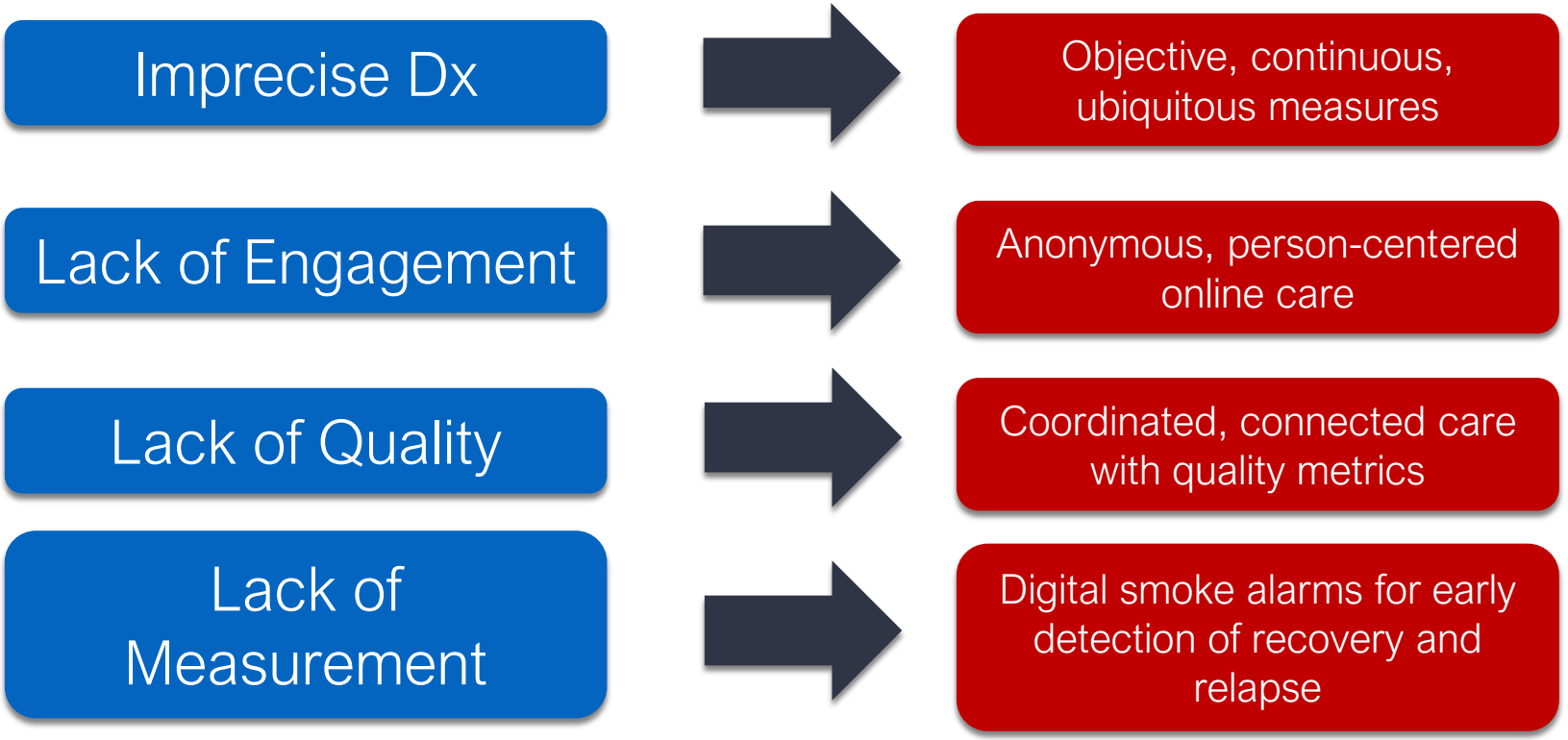
The Digital Future for Psychiatry?



Digital Tools to Reduce Suicide

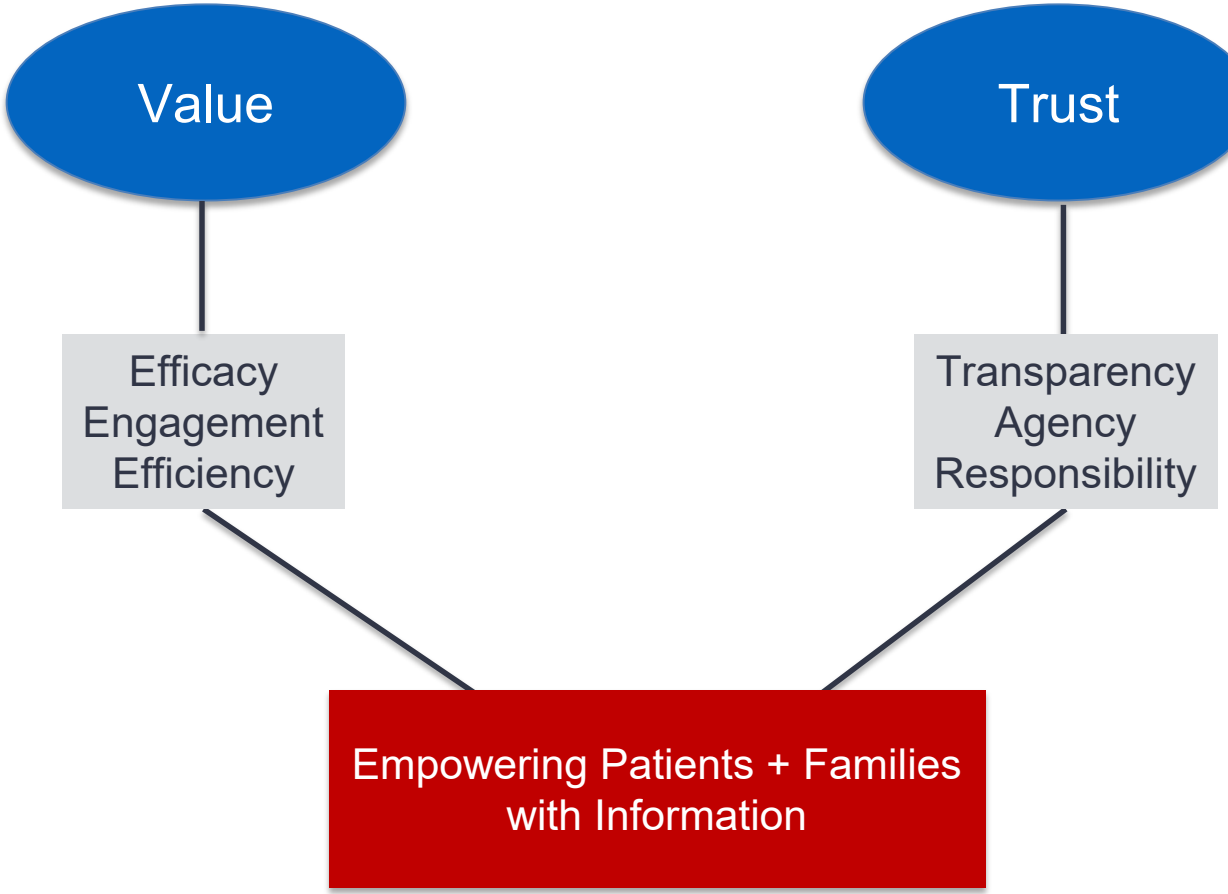
High Tech + High Touch

Predictive signals
HCI data
Speech/text signals
Online classifiers

Crisis intervention
Upskilling tools for volunteers
On demand support
Social networks

Postvention
Care management
Peer support
AI nurse

The Digital Mental Health Challenge



Psychiatry 2025

- Mental health services in schools reduce depression and suicide attempts by 25%, identify early psychosis in 50%, reduce incidence of FEP. (see Australia 2020)
- Evidence based psychotherapy and high quality medication management delivered to 2% of CA/year, reducing morbidity and mortality from mood/anxiety disorders by 25%. (see UK – IAPT services 2019)
- Whole person care delivered to 80% of people with SMI including psychosocial rehab, reducing hospitalization, homelessness, ER visits by 50%. (see Lower Saxony 2015)

Will We Transform Mental Healthcare?

"We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten."

--Bill Gates Jr.