

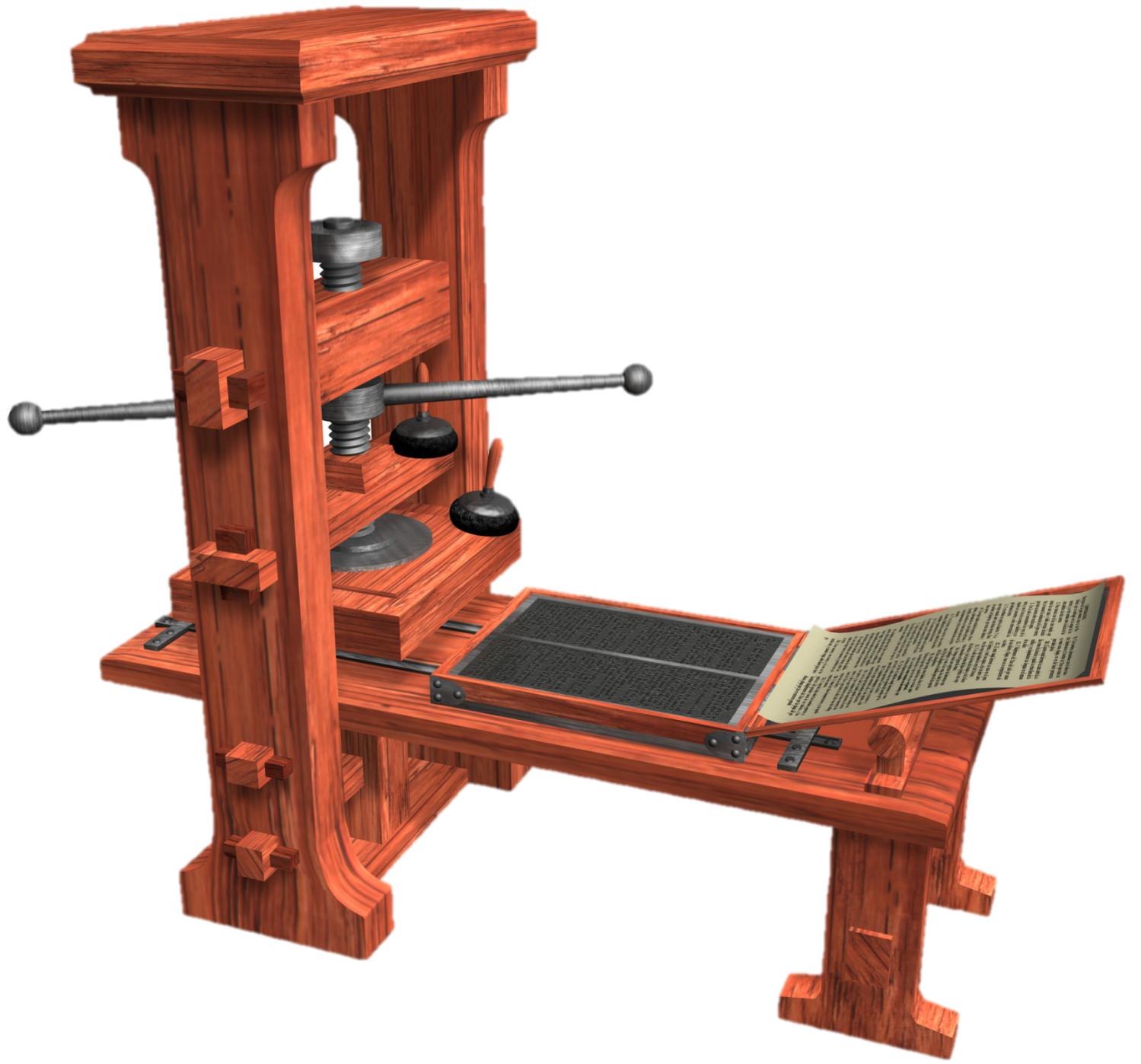


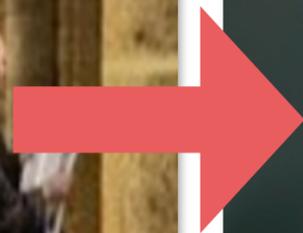
---

# Fostering a Revolutionary Era of Collaborative & Integrative Behavioral Healthcare via Cutting-Edge Technology

**Chieko Tabata, LMFT**  
Chief Science Officer at

 **calmscient**





# PROBLEM

## Global mental health crisis

---

In 2017, an important discovery was made by the Substance Abuse and Mental Health Services Administration (SAMHSA).

It revealed that nearly 1 in 5 adults in the United States confront a mental health condition annually.

In 2022, United Nations [estimated](#) that 1 in 4 people around the world suffer from a mental health condition



# PROBLEM

## Global mental health crisis and shortage of mental health providers

---

Health Resources and Services Administration predicts a shortage of 12,530 psychiatrists by 2030 to meet the demand for behavioral health disorders.

The country faces a shortage of up to 48,000 primary care physicians by 2034.

**-Association of American Medical Colleges**



# HOW DO WE ADDRESS THIS GROWING MENTAL HEALTH CRISIS AND FILLING THE GAP?

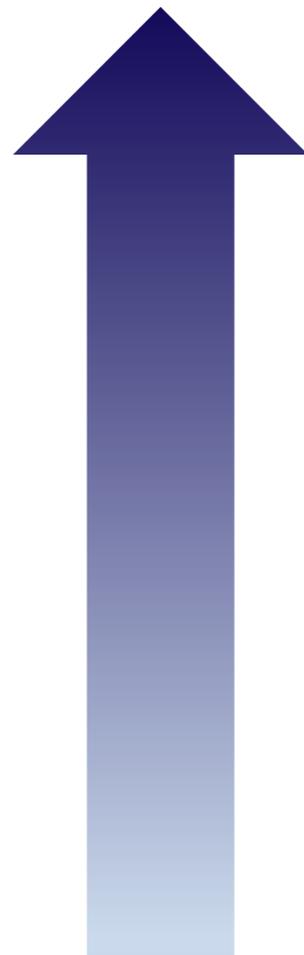


More Human Resources?

Integration of Technologies?

# Patients With **Depression** Have Greater Risk Of Developing Physical Health Problems

Chronic Physical Pain  
Hypertension  
Cardiac Disease  
Obesity  
Stroke  
Diabetes

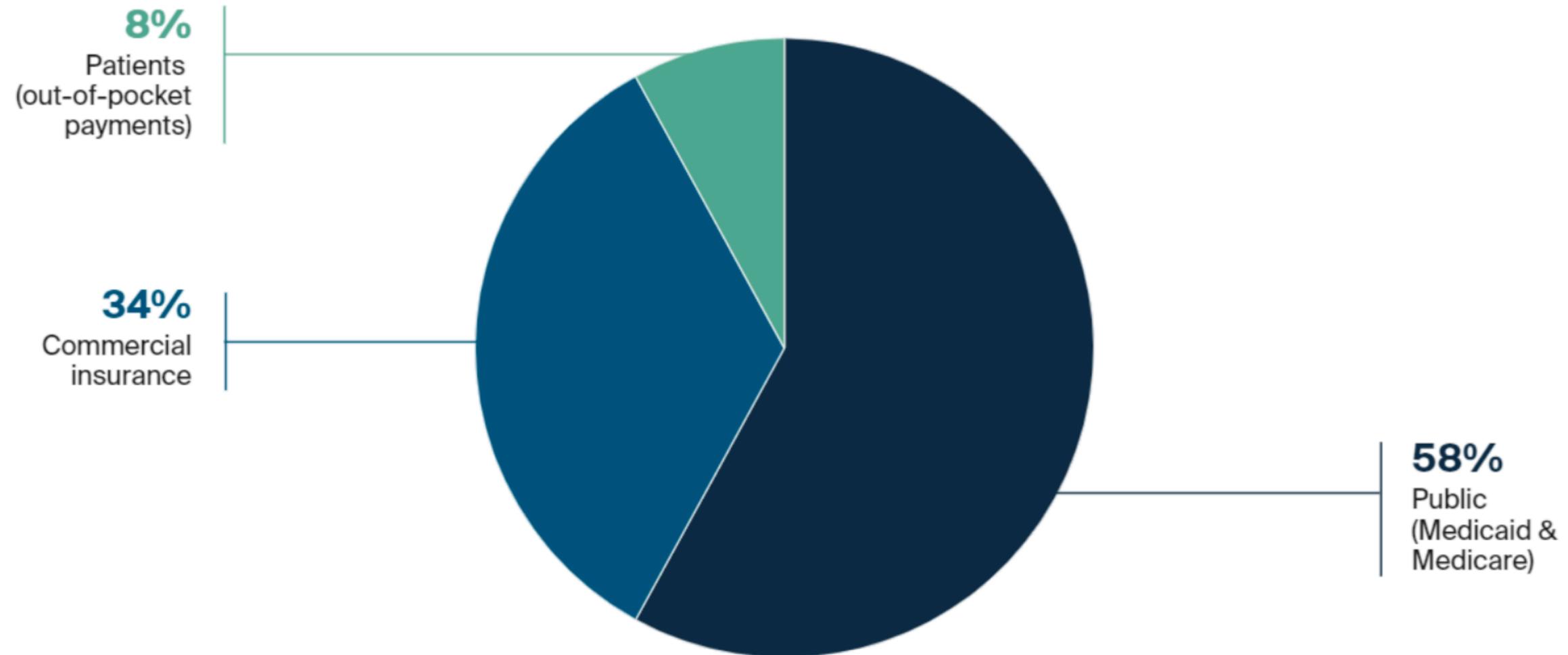


**40%**



# FINANCIAL IMPLICATION

Behavioral health: 9.8% of all healthcare spending, as the healthcare industry was estimated to be worth \$808 billion in the US in 2021.



# Challenges At Primary Care

Complexity of physical illness and behavioral health conditions

- Anxiety
- Pain
- Sleep disturbances
- Smoking
- Excessive drinking
- Unbalanced diet



# Challenges with a referral

- 50% of patients don't follow through with referrals to mental health specialists.
- 37-45% attend therapy only twice.
- Long wait time
- Providers are not in the area



# Continuum of Physical and Behavioral Health Integration



## Coordinated Care

- Educating and training primary care providers to independently diagnose and provide mental health support
- Provide PHQ-9, GAD, AUDIT and DAST

## Colocated Care

- Behavioral health providers such as case managers or therapists work closely with primary care providers to provide behavioral health support, including psychiatric consult.  
(Collaborative Care)

## Integrated Care

# IMPACT Study: Results at 12months

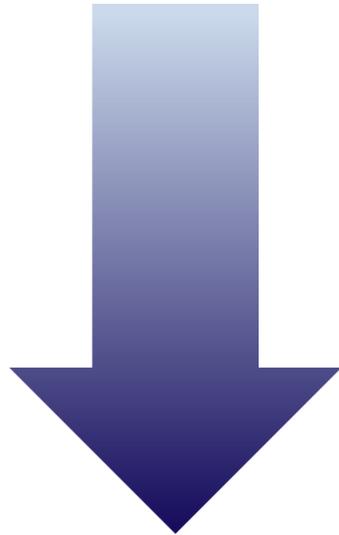
Half of IMPACT/collaborative care patients had a 50% or greater reduction in depressive symptoms

- ✓ increased satisfaction
- ✓ Lower depression severity
- ✓ Less pain
- ✓ Better functioning
- ✓ greater quality of life

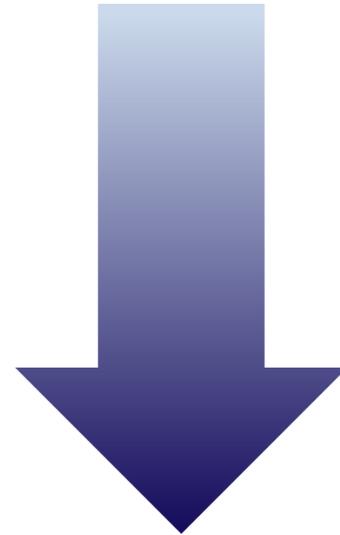
Impact (“improving mood – promoting access to collaborative treatment”)

---

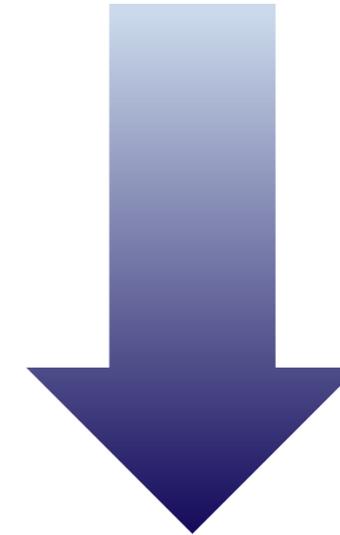
# Improved Health Outcomes



**54%**



**49%**



**16%**

# Financial Benefits

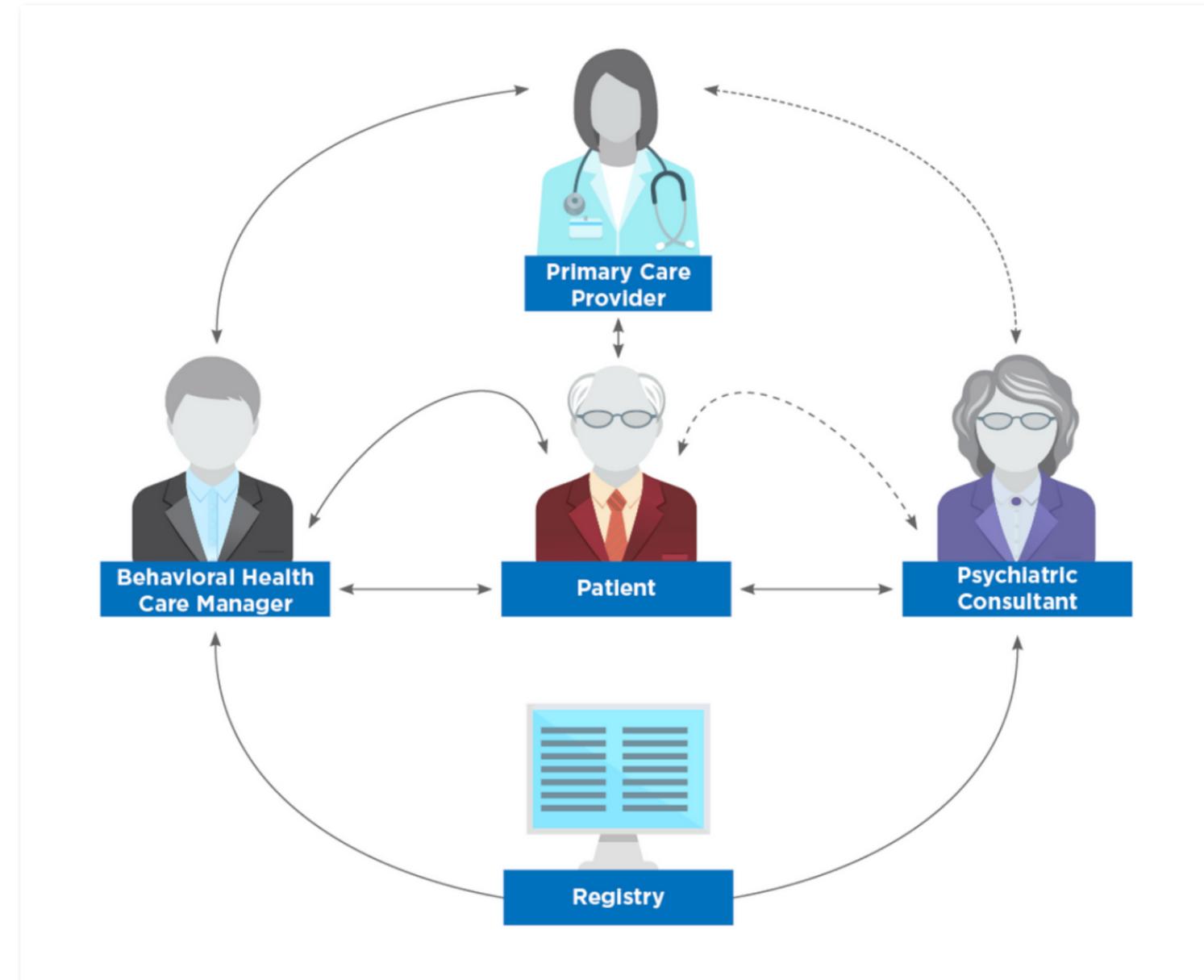
- SBIRT(alcohol/substance intervention) saves the healthcare system and society an estimated \$6-7 for every \$1 invested. Collaborative BH care has shown an ROI of 6:1
  - A 2018 report showed that a Colorado program (Sustaining Healthcare Across Integrated Primary Care Efforts) saved about \$1.08 million in net cost for Medicare, Medicaid, and dual-eligible patients.
  - Depression treatment in primary care for those with diabetes had \$896 lower total healthcare costs per patient over 24 months.
  - Depression treatment in primary care had \$3,300 lower total healthcare cost/person over 4yrs period.
-

## GATHER BEHAVIORAL HEALTH INTEGRATION MODEL

<b>Generalist</b>	The goal is to have the behavioral health consultant (BHC) work with patients of any age and any behavioral concern, from anxiety or tobacco use to parenting strategies.
<b>Accessible</b>	The BHC should be available to help the primary care physician at all times during the workday, whether that entails a warm handoff to take over care or just a quick curbside consultation.
<b>Team-based</b>	The BHC is part of the health care team and participates in meetings and huddles about patient care.
<b>High productivity</b>	To make this model work financially, the BHC must be able to see a large number of patients each day. Many of these visits are short.
<b>Education</b>	The BHC educates patients about health issues and is also a teacher and coach for the rest of the health care team regarding patients' psychosocial needs. The BHC supports the primary care physician in continued care of the patient.
<b>Routine</b>	When making referrals to the BHC becomes part of the clinic's normal daily workflow, the BHC becomes an integrated part of the team and the normalization of behavioral health care destigmatizes the process of working with a behavioral health provider.

# Challenges at co-located collaborative care

- Financial: BHI care activities provided by BH specialists may not be reimbursed. (ex. Same-day billing restrictions)
- High up-front cost to set up collaborative care: hiring, training, upgrade technologies
- Shortage of behavioral health providers in rural areas, difficulty hiring BH providers.



# SOLUTION

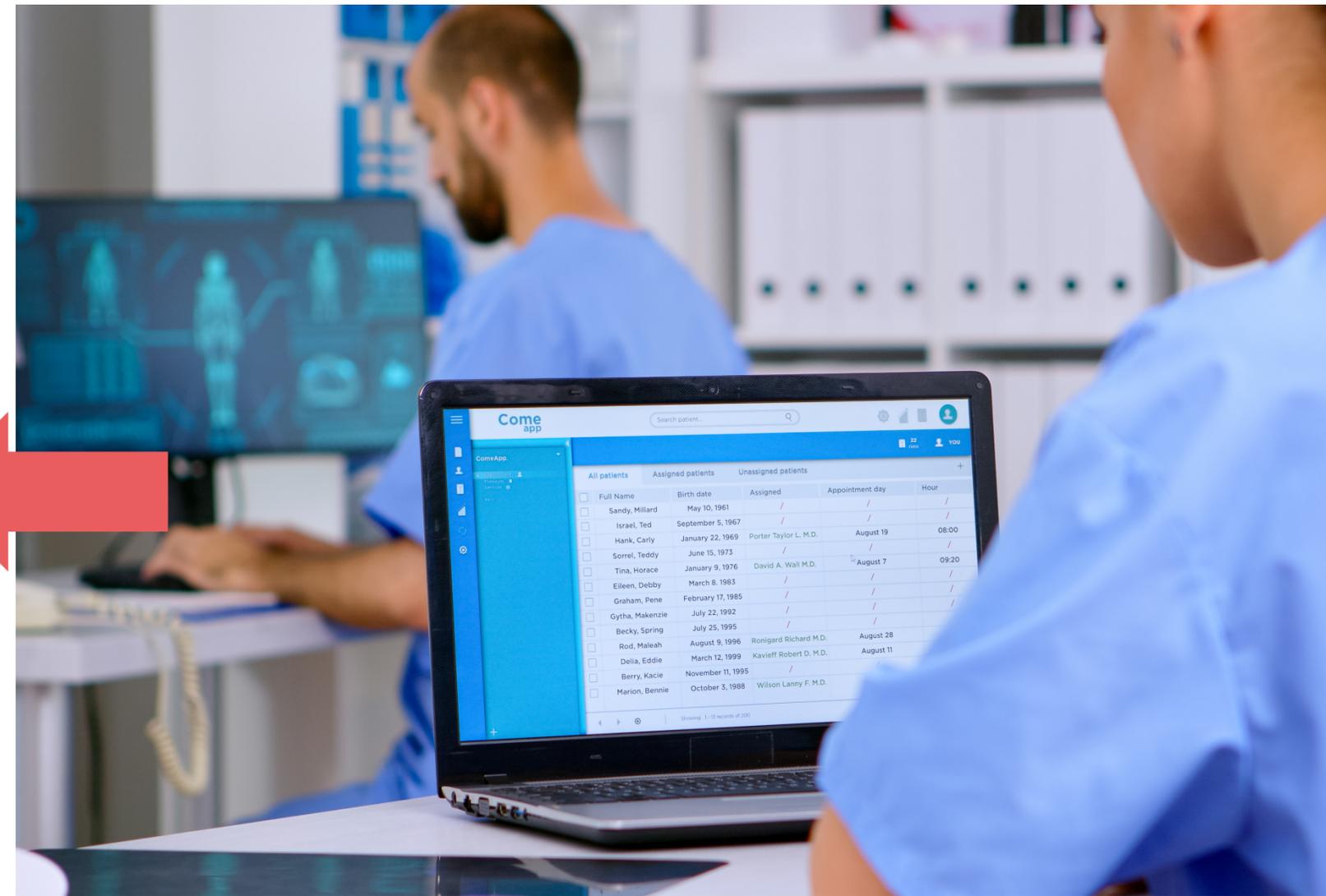
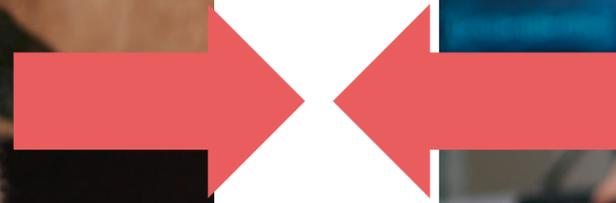
Filling the gap between BH needs and a chronic shortage of BH providers

---

Gutenberg's solution:  
"Integrate existing technologies!"

Is there a way to harness the power of technology to transform the delivery of BH care?





# Technological Solution To Establish Integrated Behavioral Healthcare

Continuum of Physical and Behavioral Health Care Integration

## Coordinated Care

In this first level of integration, behavioral health providers and primary care providers work within physically separate facilities and have separate health record systems.

Providers communicate rarely about cases; if communication occurs, it is usually based on a particular need for specific information about a mutual patient.

## Colocated Care

Behavioral health providers and primary care providers deliver care in the same physical location or practice. Patient care is often still siloed to areas of expertise.

Due to the proximity of behavioral health and primary care providers, there may be occasional meetings between providers to discuss mutual patients.

## Integrated Care

Behavioral health providers and primary care providers function as a team, working together in the same physical space to design and implement a patient care plan.

Providers understand the different roles team members play and structure the delivery of care to better achieve patient goals.

Providers and patients view the clinical operation as a single system.

# Technological Solution: Integration

- Mental health mobile app and clinical system accessible by health providers
- AI (Natural Language Processing) for patient care management





# Integration between Mobile app and Clinical system accessible by providers



## Patients

Access to behavioral health mobile app



## Health Providers

Monitor and receive an alert on patient's well-being in one shared patient management system

# Clinically Validated Behavioral Health Mobile App

- Mobile behavioral health assessment
- Medication management to increase treatment adherence
- Mental health education and skill trainings
- Tracking and modifying lifestyle
- Intervention tool for alcohol and substance



# Mobile App And Behavioral Health Assessment

- Recent study findings:
  - Detect mental/behavioral health that constitute patients' well-being:
  - PHQ-9, GAD, AUDIT(Alcohol), DAST-10(Substances)
  - The accessibility of mobile apps makes it easy to report routine mental health ratings, such as for depression or other mood states, into ecological instantaneous assessment tools.
-

# Mobile App and Medication Adherence

- Calendar-based alarm reminders with specific dosage or functionality that integrates medication lists with specific drug information or combines pharmacy and primary care contact information or includes prescription drug discount cards.
- Adherence apps can be downloaded for little to no cost
- These apps may prove most beneficial for patients with complex medication regimens or for caregivers of others or family members.
- Providers can track their patient's medication compliance.





# Mobile App and Lifestyle Modification Support

## Case study:

- Diabetes and related complications are estimated to cost US \$727 billion worldwide annually.
- Efforts in lifestyle modification, such as daily physical activity and healthy diets, can reduce the risk of pre-diabetes, improve the health levels of people with diabetes, and prevent complications. Lifestyle modification is commonly performed in a face-to-face interaction, which can prove costly and health providers struggle to spend enough time to modify patient's lifestyle.
- Mobile phone apps provide a more accessible platform for lifestyle modification in diabetes.
- **Result:** There is strong evidence for the efficacy of mobile phone apps for lifestyle modification in type 2 diabetes.

# Mobile app and Smoking and Drinking cessation

The efficacy of the 24-week Smoking Cessation Program

## Result:

Program adherence rates were relatively high throughout (72% at week 12 and 60% at week 24).

In the analysis of the factors related to the CAR at weeks 21-24, the number of entries in the app's digital diary and number of educational videos watched during the first 12 weeks were significant factors.

# Mobile app and Mental Health Support

## Treatment protocol for Anxiety

### First line treatment

- CBT (session 12-20)
- Applied relaxation (session 15)
- Pharmacotherapy: SSRI, SNRI

### Adjunctive treatment

- Lifestyle modification: exercise, diet, sleep

\*AADA (Anxiety & Depression Association of America)

# The Cost Of Mental Health Support (Tele-therapy Or In-person)

## First line treatment

- Min. 5 months (22.5 hrs of therapy time, 50 min/session)
- \$1,350 (\$50 co-payment)

## Teletherapy

- \$2,140 (\$95/session)

## Adjunctive treatment; Being referred to specialists

- Lifestyle modification: exercise, diet, sleep

**1**  
**Understand Conditions  
&  
Behaviors of ADHD**

**4**  
**Clear role  
+  
Responsibility**

**7**  
**Adjust expectations  
with CBT**

**2**  
**Stop labeling**

**5**  
**Re-program  
body & muscle memory  
Procedural Memory**

**8**  
**Practice soothing  
exercises**

**3**  
**Set a balanced structure  
that is helpful  
for ADHD**

**6**  
**Modify emotional memory  
Consequences tapping**

**9**  
**Work with  
anxiety and depression**

# SOLUTION: Mobile apps

- Provides structured education and skill training at low-cost
- Enhance the practices of BH providers
- Improve the quality of care
- Seamless data sharing and follow up if it's integrated with an admin portal



# A Health-care Baseline: Essentially where you are "at" on the broad complex spectrum of physical, mental and emotional health.

## What is a health baseline?

Existing illness and potential future illness.

## Why is it important?

- appropriate treatment for current illness
- appropriate preventative care to reduce health decline in the future.

Self-tracking movement is not always safe...

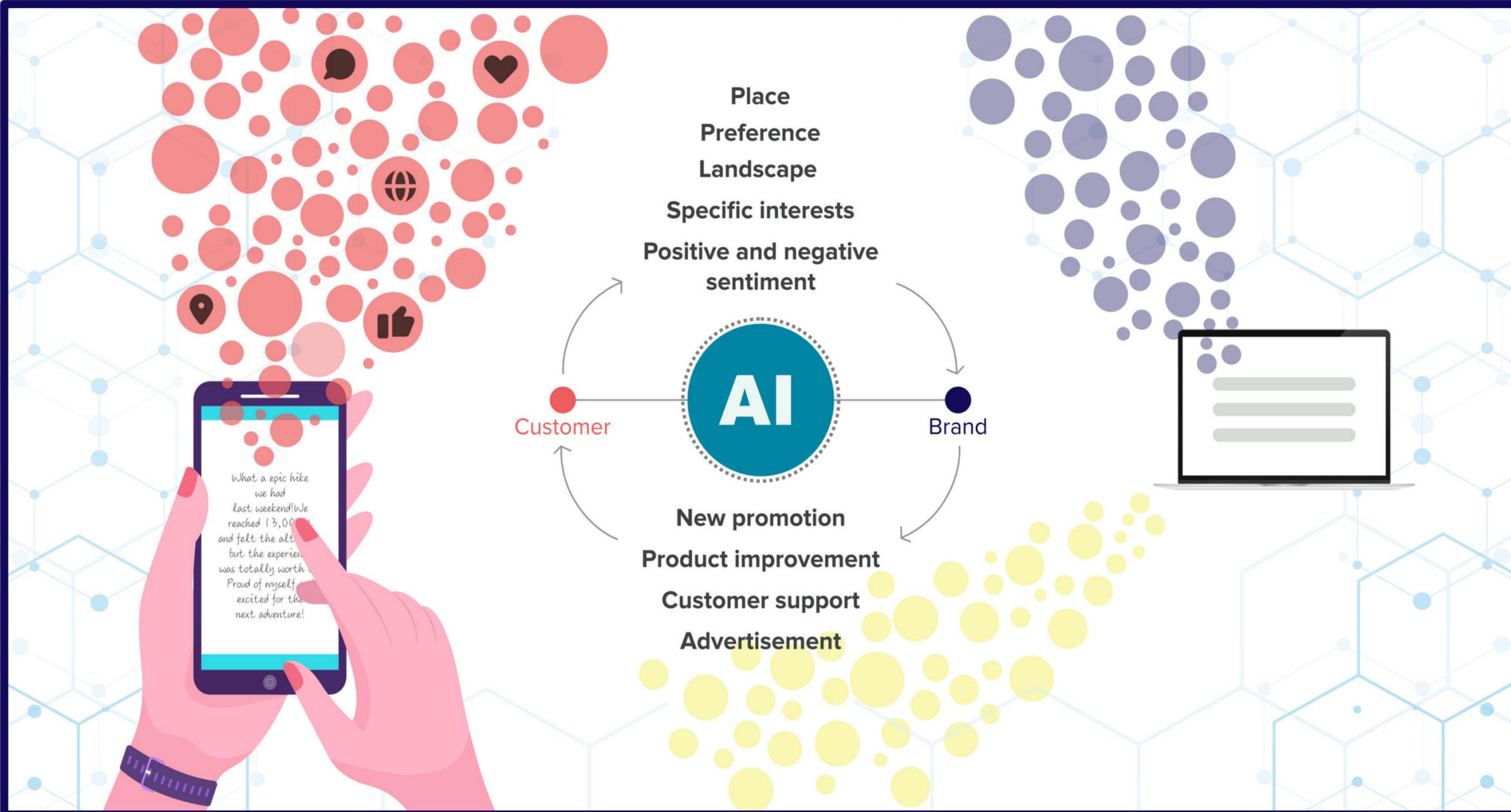
(Example: Skinny jeans; can it be your baseline for diet and exercise?)

# Technological Solution: Integration

AI(NLP: Natural Language processing) for patient care management

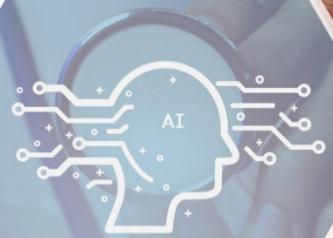


# NLP and Mental Health Support





NLP



# NLP and Patient's Behavioral Health Care

NLP and AI are here to assist health providers to:

- Collect data from various sources
- Alerts providers

**Health providers:**

- Making clinical judgments and treatment plans
- Remain central to patient care



**Integrate technologies  
to fill a gap between  
behavioral health care  
and primary care...**

**Without making  
humans work harder!**





---

# Thank you!

**Continue the conversation  
on integrated technologies  
with us at our booth!**

**Chieko Tabata, LMFT  
Chief Science Officer at**

 **calmscient**