

# TeleBehavioral Health 2025 Training Series

Behavioral Health Institute (BHI)

Harborview Medical Center

Website: <https://bhoinstitute.uw.edu>

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Northwest Regional

Telehealth Resource Center (NRTRC)

Website: <https://nrtrc.org>

Email: [info@nrtrc.org](mailto:info@nrtrc.org)

March 21, 2025



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# Behavioral Health Institute (BHI)

## Training, Workforce and Policy Innovation Center

The **Harborview Behavioral Health Institute (BHI)** is a program of Harborview Medical Center that is dedicated to advancing innovation, research and clinical practice to improve community mental health and addiction treatment. The BHI also serves as a resource for the advancement of behavioral health outcomes and policy, and supporting sustainable system change.

The BHI brings the expertise of Harborview Medical Center/UW Medicine and other university partners together to address the challenges facing Washington's behavioral health system, through innovation and improving access to effective behavioral health care. BHI pillars include:

- Clinical Services
- Research and Program Evaluation
- Training, Policy and Workforce Development
  - **Expanded Digital and Telehealth Services and Training**



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# Northwest Regional Telehealth Resource Center (NRTRC)

## Telehealth Technical Assistance Center



The NRTRC delivers telehealth technical assistance and shares expertise through individual consults, trainings, webinars, conference presentations and the web.

Their mission is to advance telehealth programs' development, implementation and integration in rural and medically underserved communities.

The NRTRC aims to assist healthcare providers, organizations and networks in implementing cost-effective telehealth programs to increase access and equity in rural and medically underserved areas and populations.

These sessions were made possible in part by grant number U1UTH42531-03 from the Office for the Advancement of Telehealth, Health Resources and Services Administration, DHHS.



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# Speaker Disclosures

None of the series speakers have any relevant conflicts of interest to disclose.

## Planner disclosures

The following series planners and team have no relevant conflicts of interest to disclose:

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# DISCLAIMER

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Any information provided in today's talk is not to be regarded as legal advice. Today's talk is purely for informational purposes.

Please consult with legal counsel, billing & coding experts, and compliance professionals, as well as current legislative and regulatory sources, for accurate and up-to-date information.



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We gratefully acknowledge the support from



# Digital Behavioral Health Therapeutics:

## Is there an app for that and can AI be your next therapist?

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### **Kari A. Stephens, PhD**

Professor, Vice Chair of Research, Director of Clinical Research Informatics | Family Medicine

Helen D. Cohen Endowed Professor


Adjunct Professor | Biomedical Informatics & Medical Education

# Learning Objectives



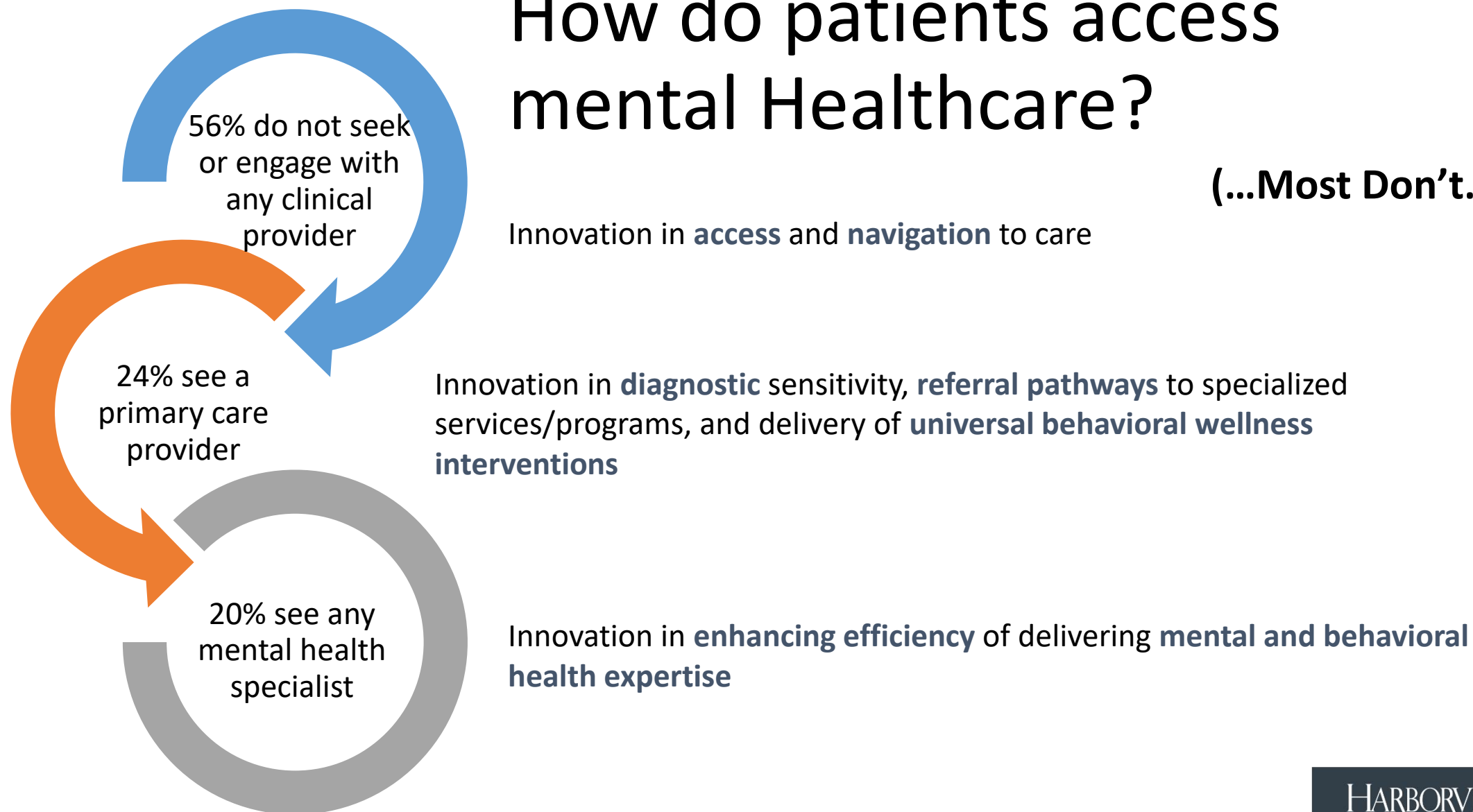
- **Describe** challenges in primary care to meet mental and behavioral health needs.
- **Describe** how digital apps can help disseminate care and advance integrated behavioral health.



 Integrated  
Behavioral Health  
(IBH) is spreading  
and evolving, in a  
struggling workforce

# How do patients access mental Healthcare?

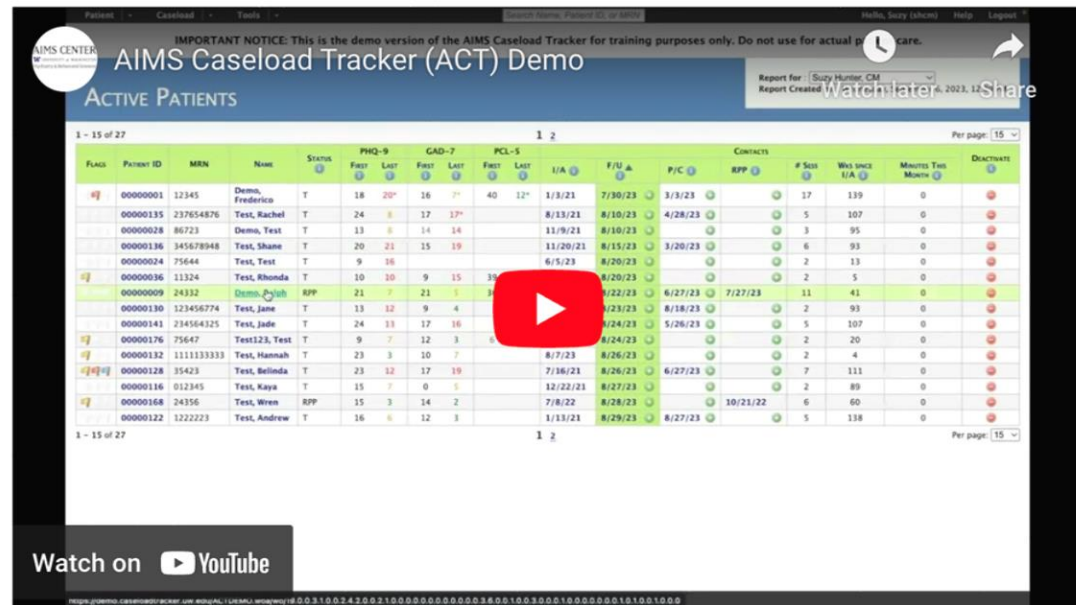
(...Most Don't...)



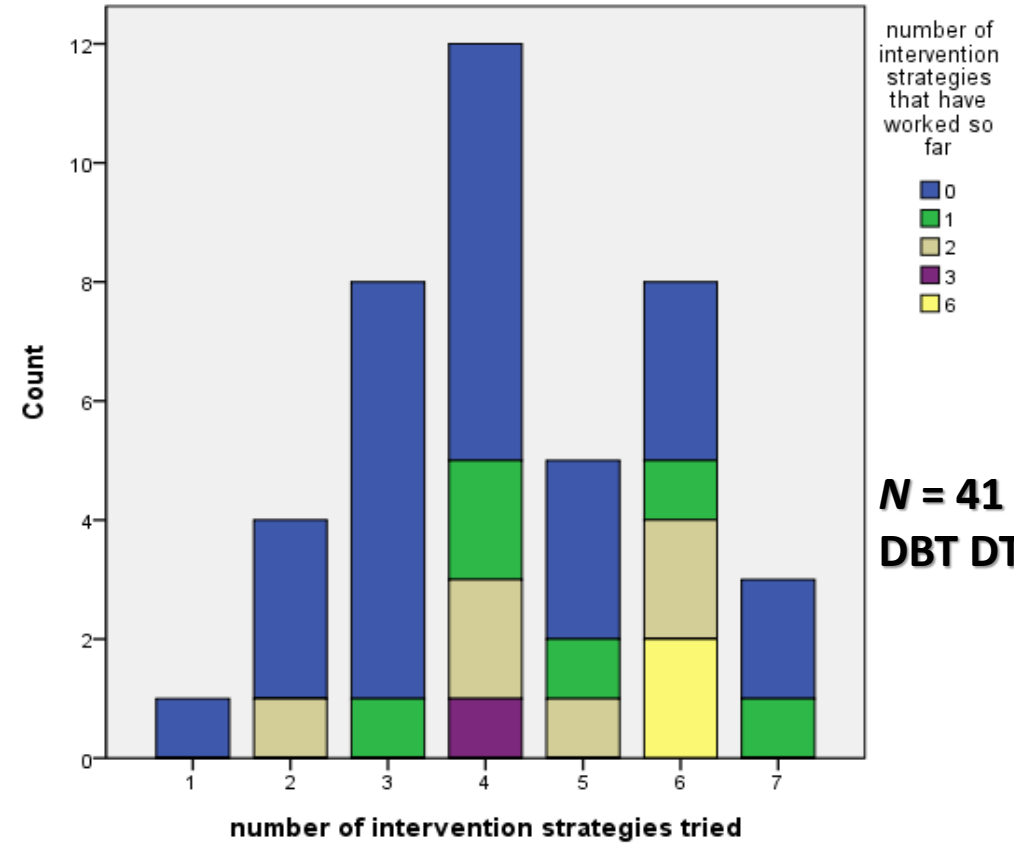
# UW AIMS Center: Collaborative Care Model (CoCM)

## Demo of the AIMS Caseload Tracker

Learn more about the [AIMS Caseload Tracker](#) by watching the virtual demo below.

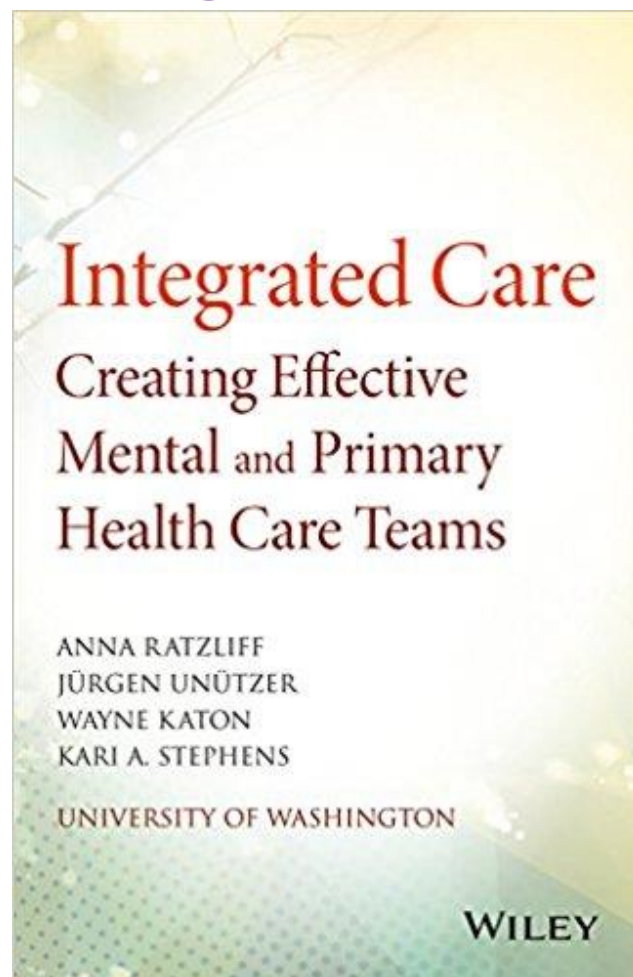


## 2010's: What's working? Not much...




**N = 41 BA and DBT DT cases**

# Training Behavioral Health Providers in Primary Care



Ratzliff, A., Unützer, J., Katon, W., & Stephens, K. A. (Eds.). (2016). *Integrated Care: Creating Effective Mental and Primary Health Care Teams*. New York, NY: Wiley.



Northwest (HHS Region 10)  
**MHTTC**  
Mental Health Technology Transfer Center Network  
Funded by Substance Abuse and Mental Health Services Administration

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TRAINING AND EVENTS ▾

RESOURCES ▾

PROJECTS ▾

COMMUNICATION ▾

☰ NORTHWEST MHTTC NAVIGATION (Select to expand / collapse menu)

Go to Center 🏠

## Brief Behavioral Skills Modules

This series of videos presented by Drs. Kari Stephens and Patrick Raue of the University of Washington is intended for community mental health counselors and primary care providers who are interested in integrating behavioral skills into their practice. Each module provides an overview of an evidence-based behavioral skill and suggestions on how these skills can be integrated into practice settings.

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### Module 1: CBT for Anxiety (CBT-A)

Anxiety is the most treatable and common mental health condition we know of today and treatments are highly effective and well-studied over many decades. These treatments are also shown to work with complex patients in primary care. However, treating anxiety can require patients to expose themselves to situations that are difficult. This module will walk clinicians through how to approach treatment of anxiety in a primary care setting.

[See Module 1 page here.](#)

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### Module 2: Behavioral Activation

Behavioral Activation is an evidence-based treatment for depressive symptoms. Behavioral Activation is a structured and brief approach to treatment that targets patterns of avoidance, withdrawal, and inactivity that are common among those with depressive symptoms.

[See Module 2 page here.](#)

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### Module 3: DBT Distress Tolerance Skills

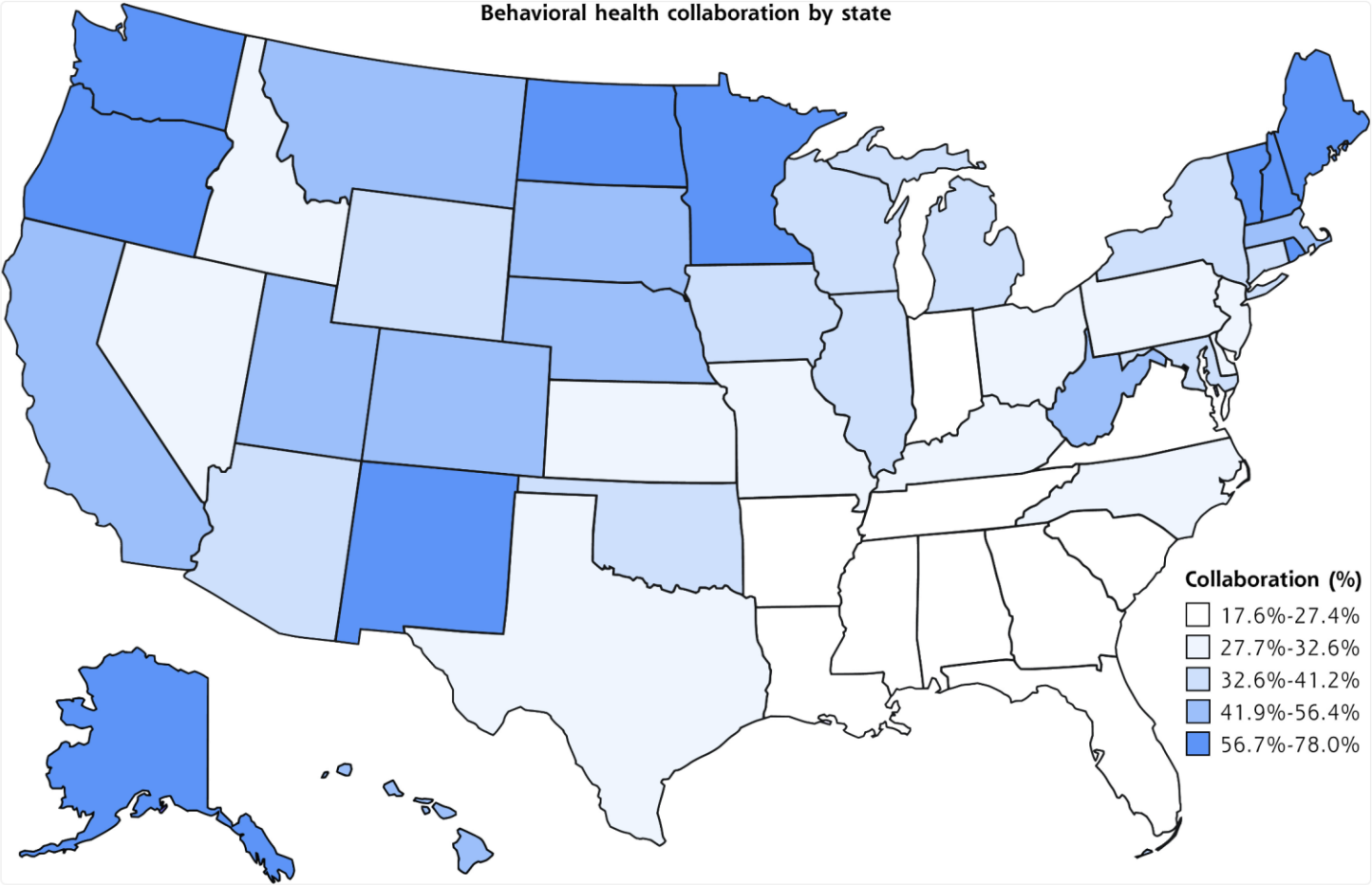
Dialectical Behavior Therapy (DBT) Distress Tolerance Skills are an evidence-based approach that teaches patients skills to help them tolerate distressing thoughts and emotions. Distress Tolerance (DT) skills are appropriate for patients who are experiencing crisis, especially those who are experiencing a serious problem that cannot be solved in the moment.

[See Module 3 page here.](#)

<https://www.youtube.com/watch?v=fqk41YZ81uM>

# Behavioral Health Collaboration by State

Family Medicine physicians work with co-located behavioral health providers, but percentages vary across states



State-level variation of family physicians who work collaboratively with behavioral health professionals, 2017-2021.

Tong ST, Morgan ZJ, Stephens KA, Bazemore A, Peterson LE. Characteristics of Family Physicians Practicing Collaboratively With Behavioral Health Professionals. Ann Fam Med. 2023 Mar-Apr;21(2):157-160. doi: 10.1370/afm.2947. PMID: 36973057; PMCID: PMC10042557.



# Occupational Burnout in Primary Care

PCPs 70%

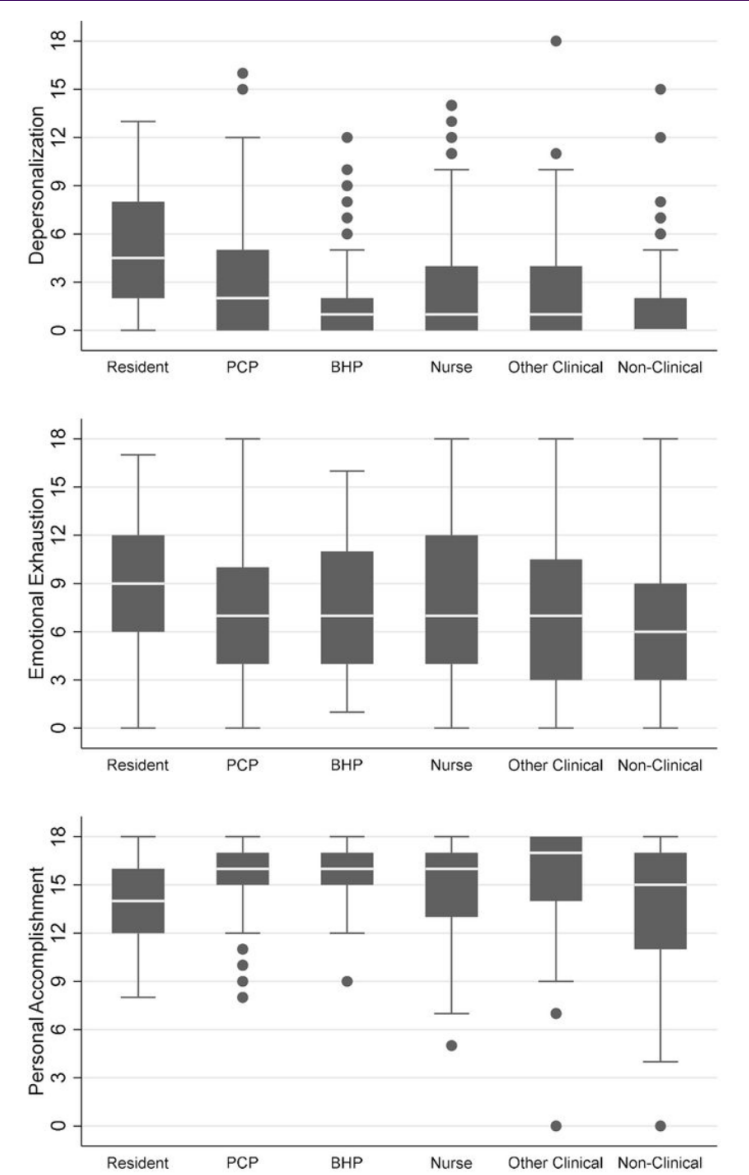
medical residents 89%

behavioral health providers 59%

nurses 66%

other clinicians 68%

nonclinical professionals 70%



Depersonalization

Emotional Exhaustion

Personal Accomplishment

Clifton J, Bonnell L, Hitt J, Crocker A, Rose GL, van Eeghen C, Kessler R, Stephens KA, Teng K, Leon J, Mollis B, Littenberg B. Differences in Occupational Burnout Among Primary Care Professionals. J Am Board Fam Med. 2021 Nov-Dec;34(6):1203-1211. doi: 10.3122/jabfm.2021.06.210139. PMID: 34772775.

# Shortage in Behavioral Workforce

Issues → cost, reimbursement, insurance coverage, burnout, well-being, turnover rates

National Center for Health Workforce Analysis

November 2024

Table 3. Percentage of U.S. Rural and Urban Counties Without Behavioral Health Providers, 2021

Profession	Rural Counties	Urban Counties
Psychiatric mental health nurse practitioner	69%	31%
Psychologist	45%	16%
Social worker	22%	5%
Counselor	18%	5%

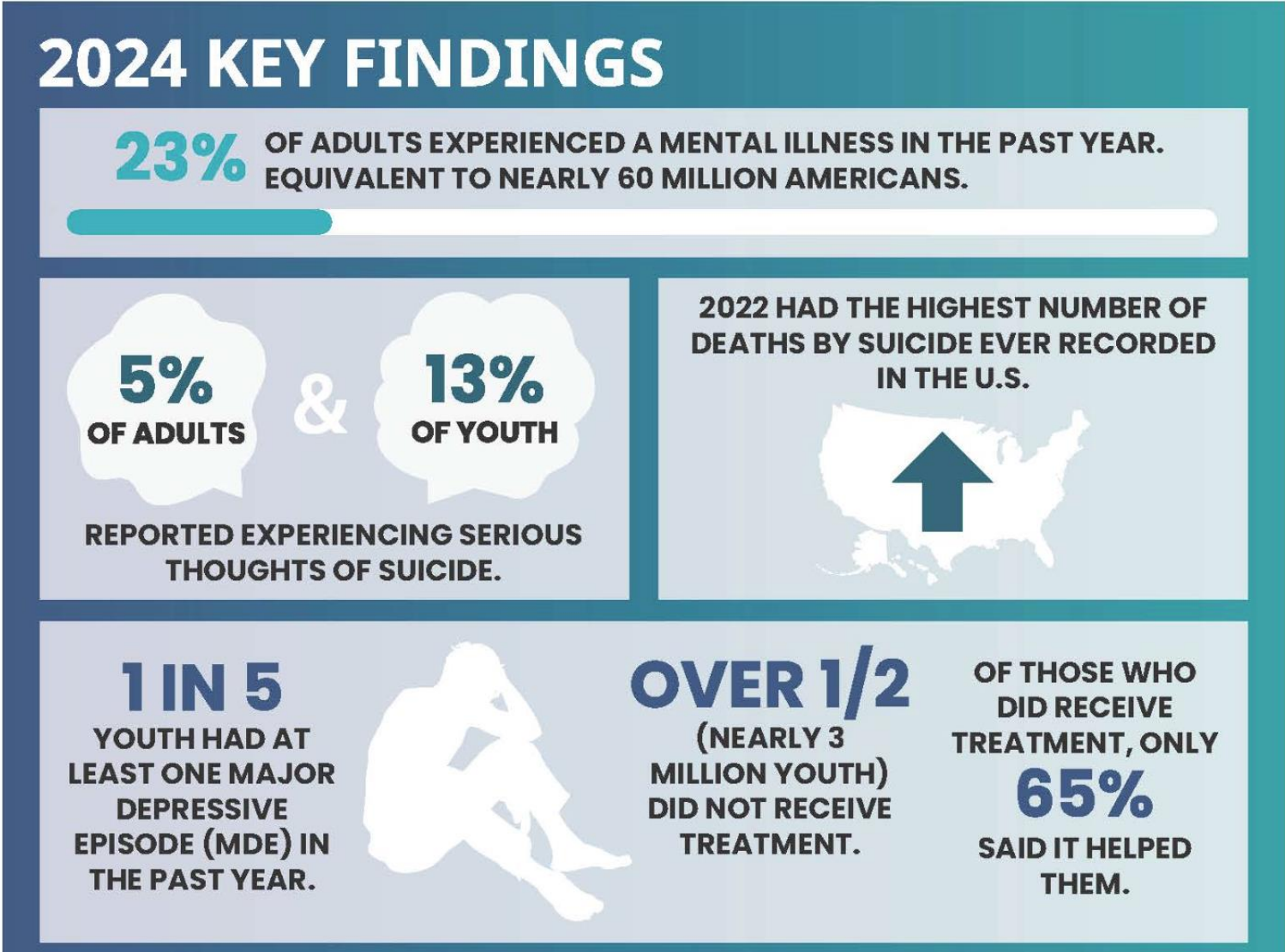
Note. Adapted from data briefs by WWAMI Rural Health Research Center at the University of Washington, 2022.

<https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/state-of-the-behavioral-health-workforce-report-2024.pdf>

# Mental Health Wave

Increasing since the pandemic

(in addition to chronic conditions)



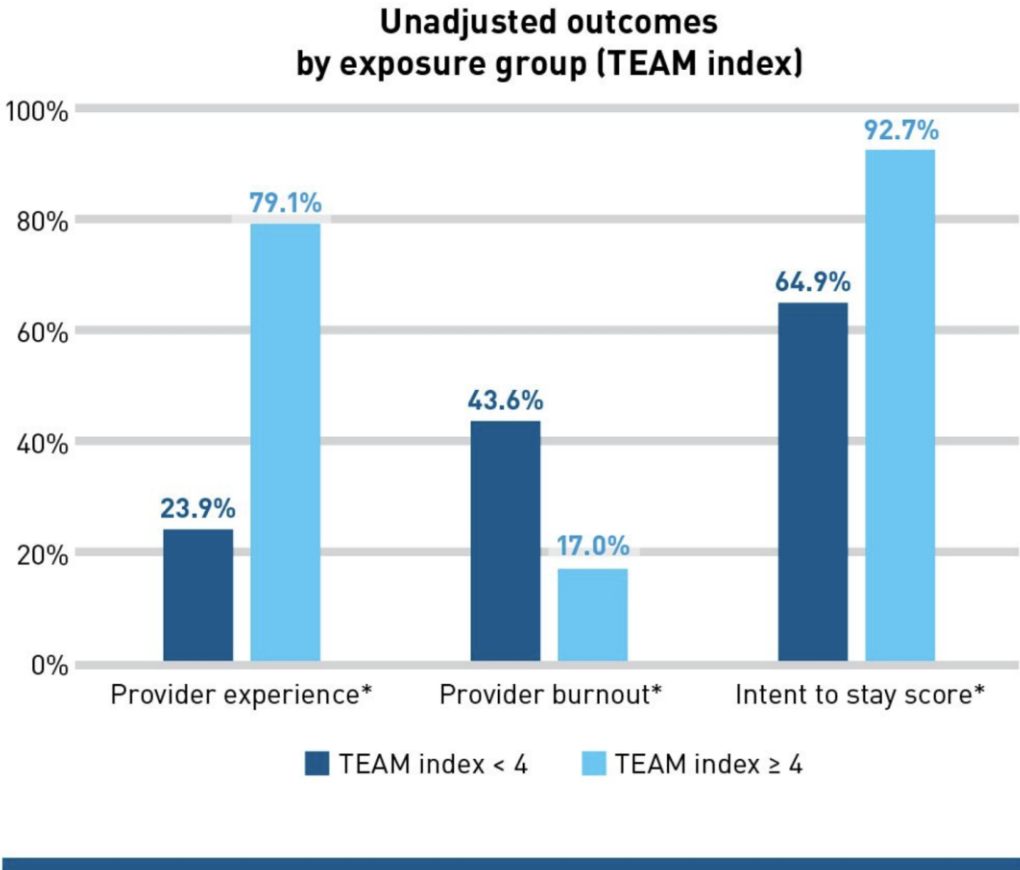
<https://mhanational.org/issues/state-mental-health-america>



# Trends in Community Health Clinics


Team effectiveness →  
improved provider  
experience, less  
burnout, and more  
intent to stay

**FIGURE 1.** Outcomes by TEAM Index Scores: High vs Low



\* $P < .001$  for all comparisons.

Nguyen Howell A, Linzer M, Seidel Z, Flood A, Moss M, Stillman M, Poole K, Ameli O, Chaisson CE, Poplau S. Teamwork measure relates to provider experience, burnout, and intent to stay. Am J Manag Care. 2023 Jul 1;29(7):e192-e198. doi: 10.37765/ajmc.2023.89343. PMID: 37523451.



Meeting practices  
where they're at –  
helping *each*  
practice advance  
IBH

# DONABEDIAN QUALITY OF CARE FRAMEWORK:

## CREATING A CROSS MODEL IBH FRAMEWORK

### Structures

All factors that affect the context in which care is delivered

Examples:

- Physical facility
- Equipment
- Human resources
- Staff training
- Payment methods

### Processes

The sum of all evidence-based actions that you do in health care

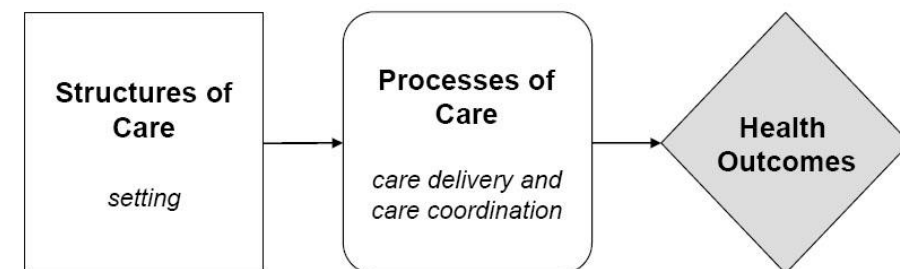
Examples:

- Diagnosis
- Treatment
- Preventive care
- Patient education
- How care is delivered

### Health Outcomes

Examples:

- Symptom reduction
- Quality of life
- Function improvement
- Patient satisfaction



Donabedian. JAMA 1988;12:1743-1748

# IBH CORE PROCESSES & STRUCTURES:

## PRINCIPLES (5) – 25 PROCESSES, 9 STRUCTURES

Patient-centric Care	Treatment to Target	Use of EBTs	Conduct Efficient Team Care	Population Based Care	Structures Needed to Support IBH
<ul style="list-style-type: none"><li>• Orient patient</li><li>• Shared decision making</li><li>• Patient autonomy</li><li>• Changes in symptoms / function</li></ul>	<ul style="list-style-type: none"><li>• Target health and quality of life</li><li>• Stepped care</li><li>• Goal setting</li><li>• Assessment</li><li>• Barriers</li><li>• Outcomes</li><li>• Tracking system</li><li>• Caseload management</li></ul>	<ul style="list-style-type: none"><li>• Coordinate evidence-based treatments</li><li>• Use evidence-based treatments</li><li>• Psycho-education</li></ul>	<ul style="list-style-type: none"><li>• Roles and workflow</li><li>• Brief visits</li><li>• Team communication</li><li>• Team trust</li><li>• Common language</li><li>• Fast and easy access</li><li>• Psychiatric consultation / care</li></ul>	<ul style="list-style-type: none"><li>• Resources target those most in need</li><li>• Triage processes</li></ul>	<ul style="list-style-type: none"><li>• Financial billing sustainability</li><li>• Administrative support and supervision</li><li>• Quality improvement</li><li>• EHR</li><li>• Clinic space</li><li>• Behavioral Health Provider</li><li>• Protected time</li><li>• Accountability</li><li>• Tracking system for panel management</li></ul>

Stephens, K. A., van Eeghen, C., Mollis, B., Au, M., Brennhofner, S., Martin, M., Clifton, J., Witwer, E., Hansen, A., Monkman, J., Buchanan, G., & Kessler, R. (2020). Defining and Measuring Core Processes and Structures in Integrated Behavioral Health in Primary Care: A Cross-Model Framework. *Translational Behavioral Medicine*, 10, 527-538. PMID: PMC8128511

# IBH-PC Trial

- \$18.5M PCORI funded 2-arm, parallel, superiority, pragmatic cluster-randomized trial
- Intervention = quality improvement and lean-based intervention to improve integrated behavioral health for patients with multiple chronic conditions

## Integrating Behavioral Health and Primary Care for Comorbid Behavioral and Medical Problems



Crocker et al. *Trials* (2021) 22:200  
<https://doi.org/10.1186/s13063-021-05133-8>

### STUDY PROTOCOL

Integrating Behavioral Health and Primary Care (IBH-PC) to improve patient-centered outcomes in adults with multiple chronic medical and behavioral health conditions: study protocol for a pragmatic cluster-randomized control trial

Abigail M. Crocker<sup>1\*</sup>, Rodger Kessler<sup>2,3</sup>, Constance van Eeghen<sup>1</sup>, Levi N. Bonnell<sup>1</sup>, Ryan E. Breshears<sup>4</sup>, Peter Callas<sup>1</sup>, Jessica Clifton<sup>1</sup>, William Elder<sup>5</sup>, Chet Fox<sup>6</sup>, Sylvie Frisbie<sup>1</sup>, Juvena Hitt<sup>1</sup>, Jennifer Jewiss<sup>1</sup>, R. Kelly Clark/Keefe<sup>1</sup>, Jennifer O'Rourke-Lavoie<sup>1</sup>, George S. Leibowitz<sup>8</sup>, C. R. Macchi<sup>2</sup>, Mark McGovern<sup>9</sup>, Bre Daniel J. Mullin<sup>11</sup>, Zsolt Nagykaldi<sup>12</sup>, Lisa Watts Natkin<sup>1</sup>, Wilson Pace<sup>13</sup>, Richard G. Pinckney<sup>1</sup>, Douglas Alexander Pond<sup>1</sup>, Rachel Postupack<sup>14</sup>, Paula Reynolds<sup>1</sup>, Gail L. Rose<sup>1</sup>, Sarah Hudson Scholle<sup>15</sup>, William J. Sieber<sup>16</sup>, Terry Stancin<sup>17</sup>, Kurt C. Stange<sup>18</sup>, Kari A. Stephens<sup>10</sup>, Kathryn Teng<sup>17</sup>, Elizabeth Needham Waddell<sup>19</sup> and Benjamin Littenberg<sup>1</sup>

### Condition or disease ⓘ

Arthritis  
 Asthma  
 Chronic Obstructive Lung Disease  
 Diabetes  
 Heart Failure  
 Hypertension  
 Anxiety  
 Chronic Pain  
 Depression  
 Fibromyalgia  
 Insomnia  
 Irritable Bowel Syndrome  
 Problem Drinking  
 Substance Use Disorder

# This study...

**Hypothesis** - Practices that completed more stages in the intervention arm, compared to treatment as usual, would report:

1. Higher levels of integration
2. Greater patient improvement in physical and mental health outcomes



► [Ann Fam Med](#). 2025 Jan-Feb;23(1):35–43. doi: [10.1370/afm.230576](https://doi.org/10.1370/afm.230576) [↗](#)

## Intervention Stage Completion and Behavioral Health Outcomes: An Integrated Behavioral Health and Primary Care Randomized Pragmatic Trial

[Kari A Stephens](#)<sup>1,✉</sup>, [Constance van Eeghen](#)<sup>2</sup>, [Zihan Zheng](#)<sup>1</sup>, [Tracy Anastas](#)<sup>1</sup>, [Kris \(Pui Kwan\) Ma](#)<sup>1</sup>, [Maria G Prado](#)<sup>1</sup>, [Jessica Clifton](#)<sup>2,3</sup>, [Gail Rose](#)<sup>4</sup>, [Daniel Mullin](#)<sup>5</sup>, [Kwun C G Chan](#)<sup>6</sup>, [Rodger Kessler](#)<sup>7</sup>

Stephens, K. A., van Eeghen, C., Zheng, Z., Anastas, T., Ma, K. P. K., Prado, M. G., Clifton, J., Rose, G., Mullin, D., Chan, K. C. G., & Kessler, R. (2025). Associations of intervention stage completion on practice level of integrated behavioral health and behavioral health outcomes in an integrated behavioral health and primary care randomized pragmatic intervention trial. *Annals of Family Medicine*, 23, 35-43.

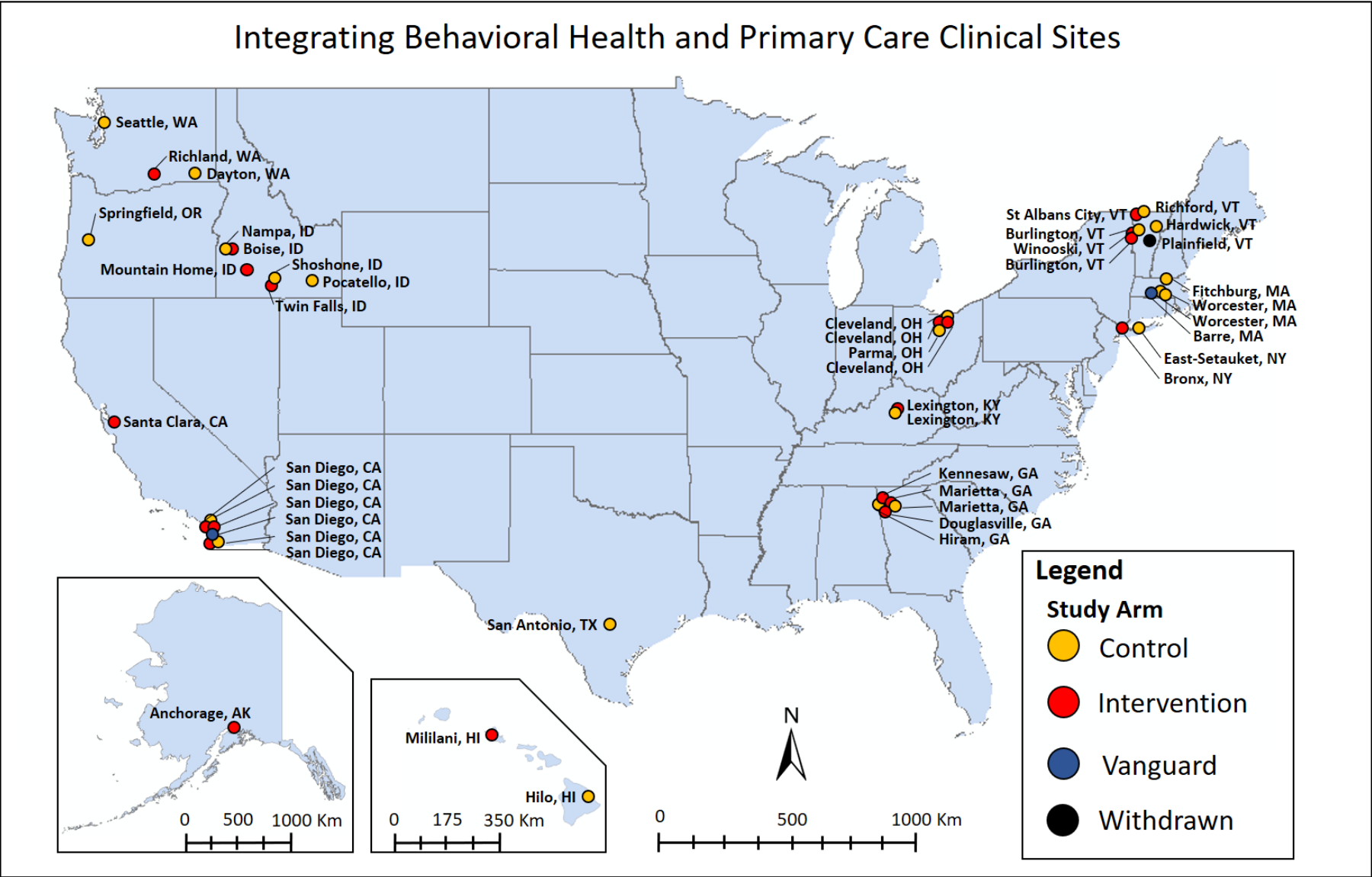


N = 42 Primary Care practices

12 States

2017 – 2020

N = 2,945 patients



# Patient Chronic Conditions – top 6

- >80% had chronic pain or hypertension
- 48.1% depression
- 45.3% diabetes
- 41.1% arthritis
- 34.5% anxiety

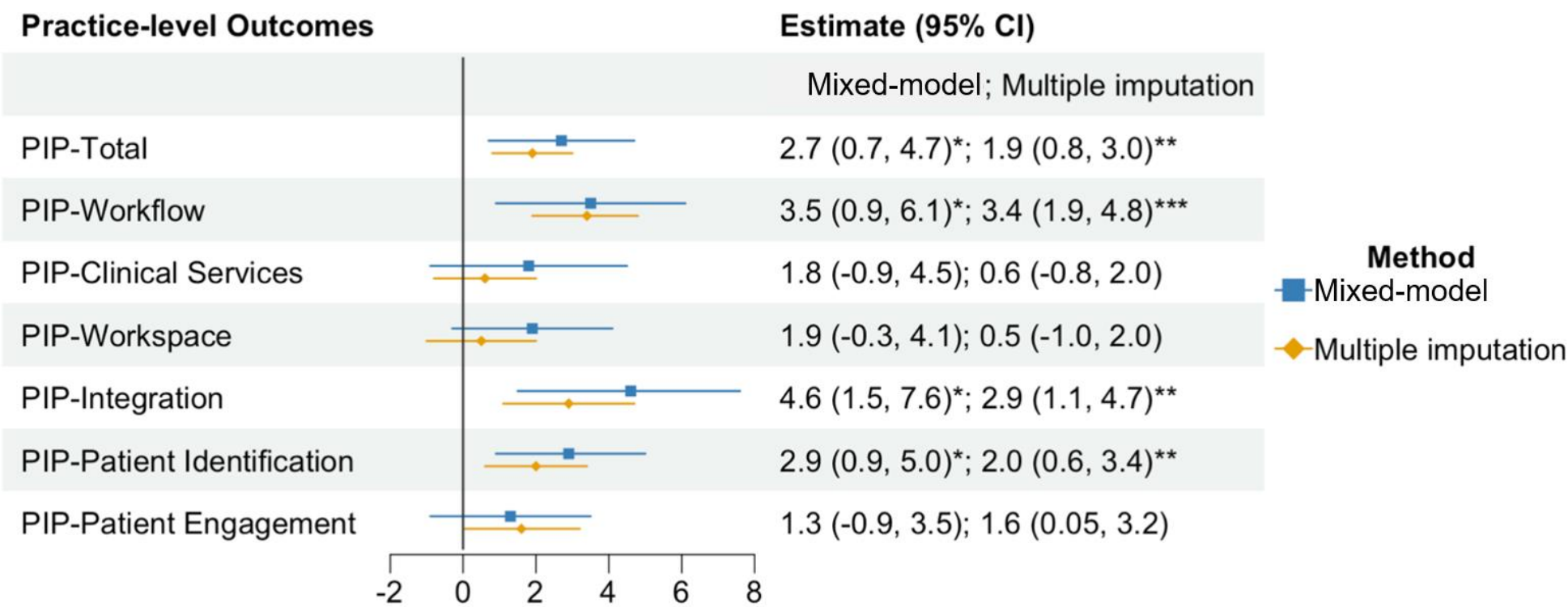
Mean # of total conditions = 4.4 (SD = 1.7)




# Results – Practice Outcomes

Integration  
level improved  
overall










Improved  
across several  
subcategories





# Digital behavioral apps – can they help?

# Developing Digital Therapeutics for Chronic Pain in Primary Care: A Qualitative Human-Centered Design Study of Providers' Motivations and Challenges

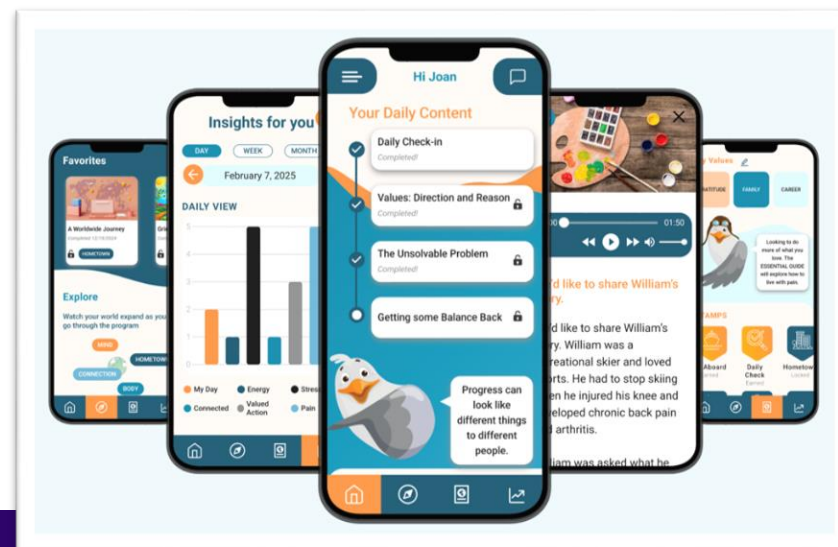
Kris Pui Kwan Ma<sup>1</sup> ; Kari A Stephens<sup>1</sup> ; Rachel E Geyer<sup>1</sup> ; Maria G Prado<sup>1</sup> ;  
Brenda L Mollis<sup>1</sup> ; Susan M Zbikowski<sup>2</sup> ; Deanna Waters<sup>2</sup> ; Jo Masterson<sup>2</sup> ;  
Ying Zhang<sup>1</sup> 

Improving Chronic Pain through use of a Digital Behavioral Health App

Kari A. Stephens, PhD,<sup>1</sup>  
Kris Pui Kwan Ma, PhD<sup>1</sup>,  
Brennan Keiser, MSW<sup>1</sup>,  
Maria G. Prado, MPH<sup>1</sup>,  
Ying Zhang, MD, MPH<sup>1</sup>,  
Imara West, MPH<sup>1</sup>,  
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Tracy Anastas, PhD<sup>1</sup>,  
Yohali Burrola-Mendez, PhD<sup>1</sup>,  
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Deanna Waters, MA, LMHC<sup>2</sup>,  
Jo Masterson, RN, MBA<sup>2</sup>

<sup>1</sup>Department of Family Medicine,  
University of Washington, Seattle, WA  
<sup>2</sup>Morrow, Inc, Kirkland, WA

Digital behavioral apps  
may offer accessible  
evidence-based treatments  
for chronic pain in primary  
care settings.



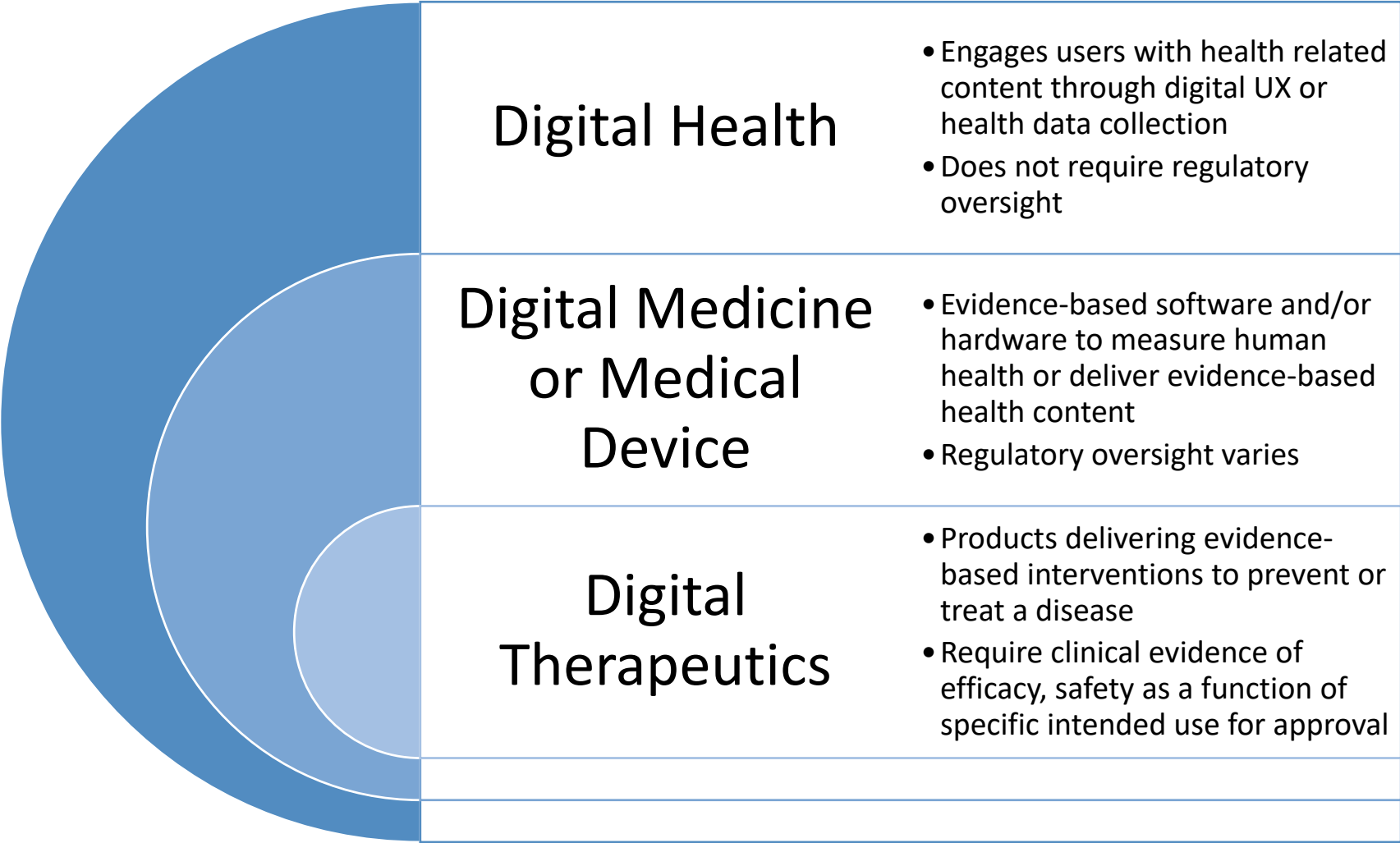
# Results show chronic pain app had biggest reduction in pain interference at 1-month

## Faster than office-based psychotherapy, but does it persist?

Outcomes	Intervention Group	Control Group	Mean Differences	Pooled Standard Deviations	Standard Errors	95% Wald Confidence Intervals
Primary Outcomes						
PROMIS T-score						
Baseline	N= 46	N= 38	0	4.9	1	[-2.0, 2.0]
mean (SD)	62.1 (4.2)	62.1 (5.5)				
1-month	N= 41	N= 40	-2	5.7	1.2	[-4.4, 0.3]
mean (SD)	60.8 (5.6)	62.8 (5.7)				
3-month	N= 40	N= 38	-0.6	5.9	1.2	[-3.1, 1.8]
mean (SD)	61.2 (5.6)	61.9 (6.2)				
6-month	N= 38	N= 30	-1.1	5.9	1.2	[-3.5, 1.4]
mean (SD)	59.9 (5.7)	61.0 (6.1)				

Stephens, K. A., Ma, K., Keiser, B., Prado, M., Zhang, Y., West, I., Hsu, C., Anastas, T., Zbikowski, S., Waters, D., & Masterson, J. (2024, August). *Improving chronic pain through use of a digital behavioral health app*. Abstract and poster presented at the American Psychological Association Annual Convention, Seattle, WA.

Digital Health, Digital Medicine, Digital Therapeutics



# What's the difference?

## Digital diagnostics and therapeutics - FDA

- Software as a device
- >50% are mental health related
- Others are related to common behavioral health issues, i.e., insomnia and chronic pain

## Health and wellness apps – use at your own risk?

- Direct to consumer
- Not necessarily meant to be treatment, not necessarily evidence-based
- Calm

## Entertainment apps – causing harm?

- TikTok being shut down?
- AI chatbots like Character.AI getting sued

"Allowing the unchecked proliferation of unregulated AI-enabled apps such as Character.ai, which includes misrepresentations by chatbots as not only being human but being qualified, licensed professionals, such as psychologists, seems to fit squarely within the mission of the FTC to protect against deceptive practices," Dr. Arthur C. Evans, CEO of APA, wrote.


# Prescription Digital Therapeutics (PDTs)

**Prescription digital therapeutics (PDTs) are software-based solutions prescribed by HCPs that deliver FDA-cleared, evidence-based therapy to patients through devices such as a smartphone or tablet<sup>1,2</sup>**

The revolution of PDTs to deliver validated neurobehavioral techniques in mental health has begun. Treatments delivered via PDT have been clinically proven to help treat, manage, and prevent a spectrum of disease and disorders, including mental health conditions.<sup>1,2</sup> PDTs have been proven efficacious in the real world for a range of behavioral health conditions, including ADHD, anxiety, depression, insomnia, PTSD, and substance abuse.<sup>3</sup>

**PDTs are distinctly different from health and wellness apps because they are<sup>1</sup>:**



 **Rigorously studied for safety and efficacy in randomized clinical trials**



**Cleared by the FDA\***



**Prescribed by health care providers**





# Evaluation Resource



## APP **ADVISOR**

An American Psychiatric Association Initiative

The App Evaluation Model

ACCESS & BACKGROUND

PRIVACY & SAFETY

CLINICAL FOUNDATION

USABILITY

THERAPEUTIC GOAL

(Data Integration)

<https://www.psychiatry.org/psychiatrists/practice/mental-health-apps>

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# Digital Therapeutic Alliance

<https://dtxalliance.org/understanding-dtx/product-library/>

**DIGITAL THERAPEUTICS ALLIANCE**

Understanding DTx ▾ Resources ▾ Community ▾ Events ▾ Membership ▾

News About Careers











Understanding DTx / Product Library

## Product Library


To help key stakeholders understand and differentiate digital therapeutics from the thousands of other mobile health apps that are available, DTA developed this library to highlight evidence-based innovative DTx products.

The products in this library are currently on the market and meet the **definition of a DTx product** and attest to aligning with industry **Core Principles**.

### DTx Products

 <p><b>Dario Platform</b> &gt;</p> <p>by Dario Health for type 1 and 2 diabetes, hypertension</p>	 <p><b>Daylight®</b> &gt;</p> <p>by Big Health for generalized anxiety disorder</p>	 <p><b>EndeavorOTC®</b> &gt;</p> <p>by Akili for attention-deficit/hyperactivity disorder (ADHD)</p>	 <p><b>EndeavorRx®</b> &gt;</p> <p>by Akili for attention-deficit/hyperactivity disorder (ADHD)</p>	 <p><b>Freemira®</b> &gt;</p> <p>by Freemira, Inc. for Post-traumatic stress disorder (PTSD), panic disorder, panic/anxiety attacks</p>
 <p><b>gameChange®</b> &gt;</p> <p>by RealizedCare for Agoraphobic avoidance and distress</p>	 <p><b>HelloBetter® Chronic Pain</b> &gt;</p> <p>by GETON Institut für Online</p>	 <p><b>HelloBetter® Diabetes</b> &gt;</p> <p>by GETON Institut für Online</p>	 <p><b>HelloBetter® Panic</b> &gt;</p> <p>by GETON Institut für Online</p>	 <p><b>HelloBetter® Sleep</b> &gt;</p> <p>by GETON Institut für Online</p>

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UW Medicine  King County

# Opportunity

\$657B by 2025

Well over 350,000 digital health apps, but  
83% saw fewer than 5,000 downloads

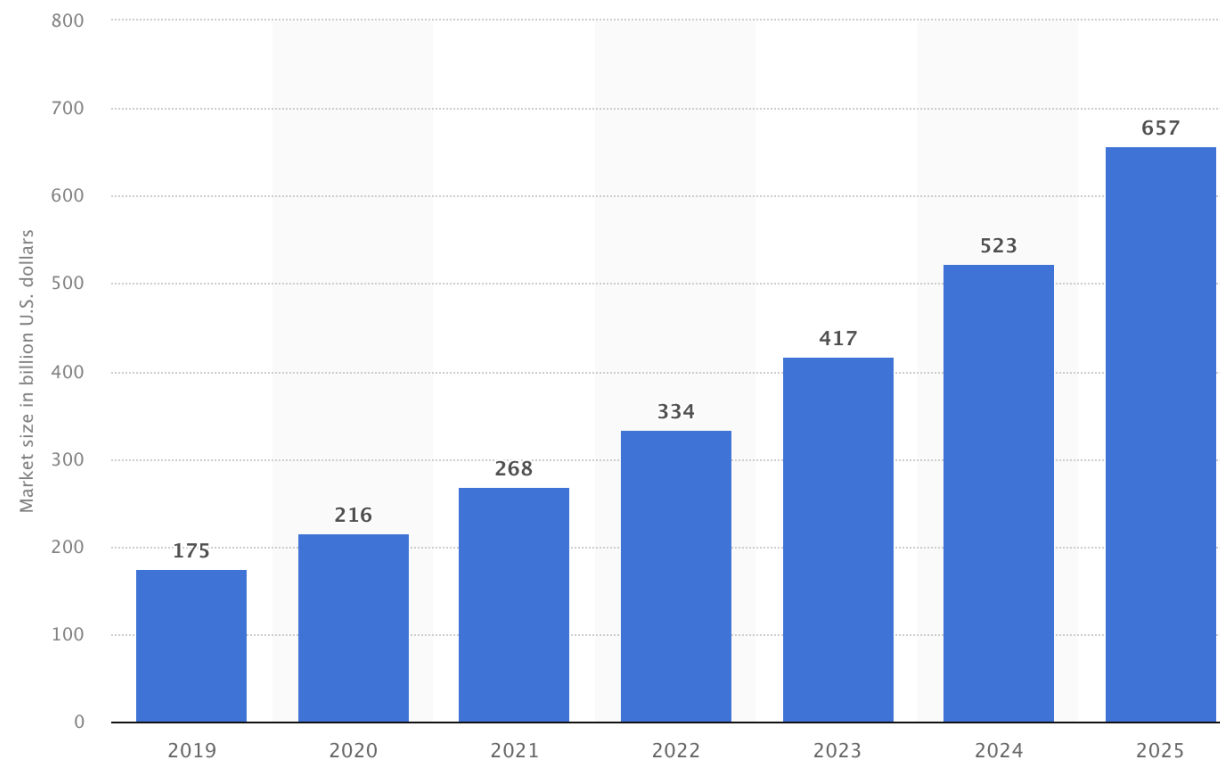
77% of adults turn to digital devices for  
health-related information

66% of teens have used a health app (2022)

But only 2 in 5 physicians plan to adopt AI

<https://www.ama-assn.org/about/research/ama-digital-health-care-2022-study-findings>

Projected global digital health market size from 2019 to 2025  
(in billion U.S. dollars)



[Additional Information](#)

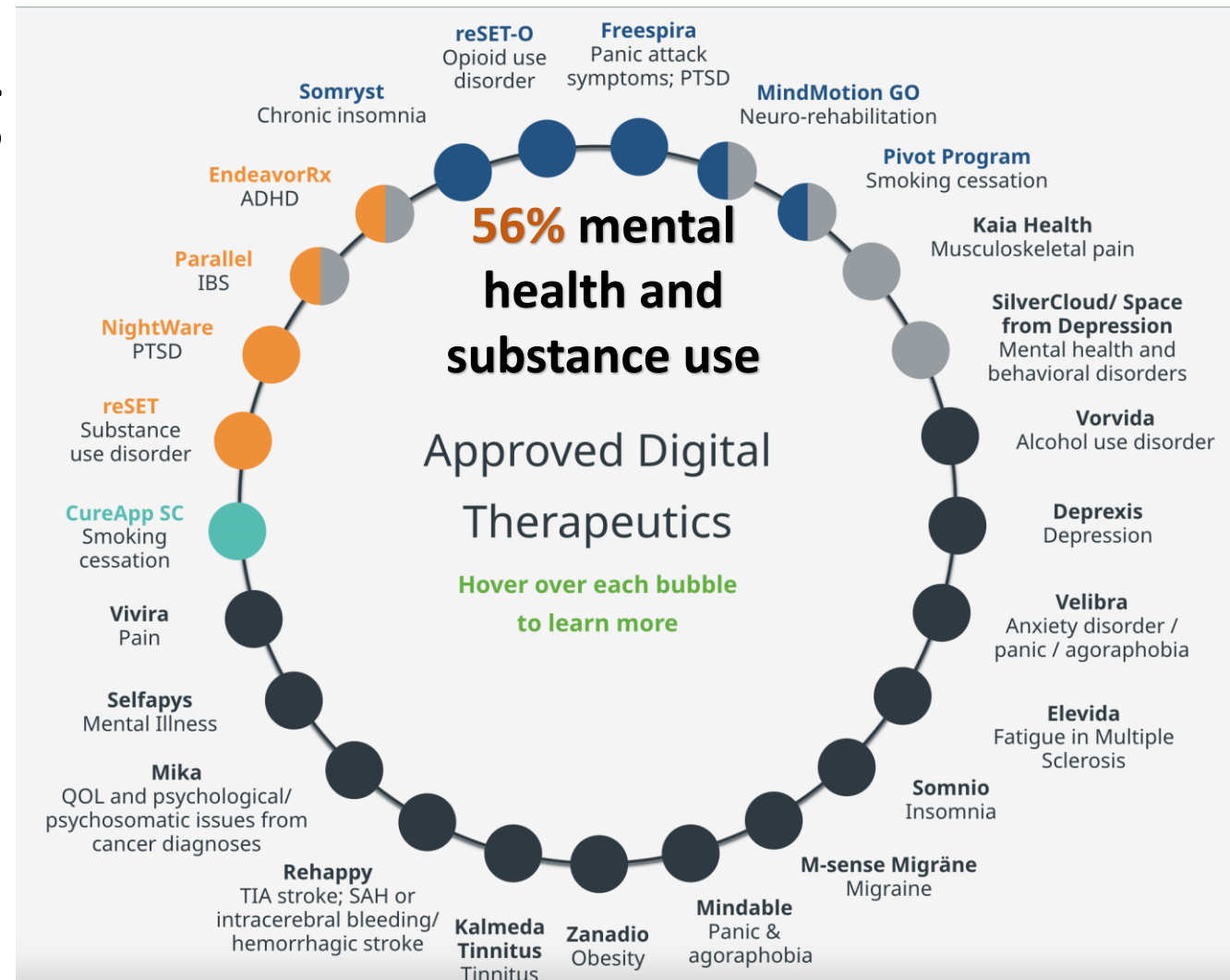
© Statista 2024

[Show source](#)

# Digital Health Apps Lag in Dissemination

- 829 digital health validation studies, **46.5% had less than 100 enrollees**
- Barriers to dissemination in care:  
High number of apps, varying functionality, complexity, impact, and cost

<https://www.nature.com/articles/s41746-019-0212-z>



<https://www.iqvia.com/insights/the-iqvia-institute/reports-and-publications/reports/digital-health-trends-2021>

Rejoyn

MEET REJOYN   THE SCIENCE   WHAT TO EXPECT   HOW TO GET REJOYN   FAQs   GET A Rx

For adults age 22+ who want to add to their antidepressant medication

Tap into your brain's power to take on depression symptoms

Rejoyn is the first and only prescription app for the treatment of major depressive disorder symptoms.

HOW TO GET REJOYN

BlueStar®, powered by Welldoc, is an app for people living with diabetes. BlueStar is currently available through select organizations only.

An App for Your Diabetes Management.

Sync your Devices:

Connect BlueStar to your devices, including activity trackers, blood glucose meters, and more

Helpful Health Data:

Personalized, real time coaching

Connect to Your Team:

Share your progress with your care team for added support

RESET / RESET-O

-based treatment for SUD and OUD on a smartphone

wysa

Individuals

Need someone to talk to? Wysa is your AI-powered personal therapist, ready to support you anytime, anywhere.

Whether you're managing stress, improving sleep, or working through tough emotions, Wysa offers personalized tools and guidance you can rely on.

Download Wysa

Up to 80% of PTSD patients suffer from chronic nightmares. Be part of the solution. INVEST TODAY ON STARTENGINE

NIGHTWARE

HOME   ABOUT   PRODUCT   PROFESSIONALS

"A Breakthrough Device for PTSD Treatment - US F..."

In 2020, the FDA granted NightWare a Breakthrough Device designation. It's the acknowledgment that there is a clear need for a more effective treatment for PTSD, a condition that is often threatening or debilitating where an unmet need has been identified and preliminary data suggest a clinical benefit. It also allows the FDA to expedite the development and review of these devices.

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# What do FDA approved Digital Therapeutics do?

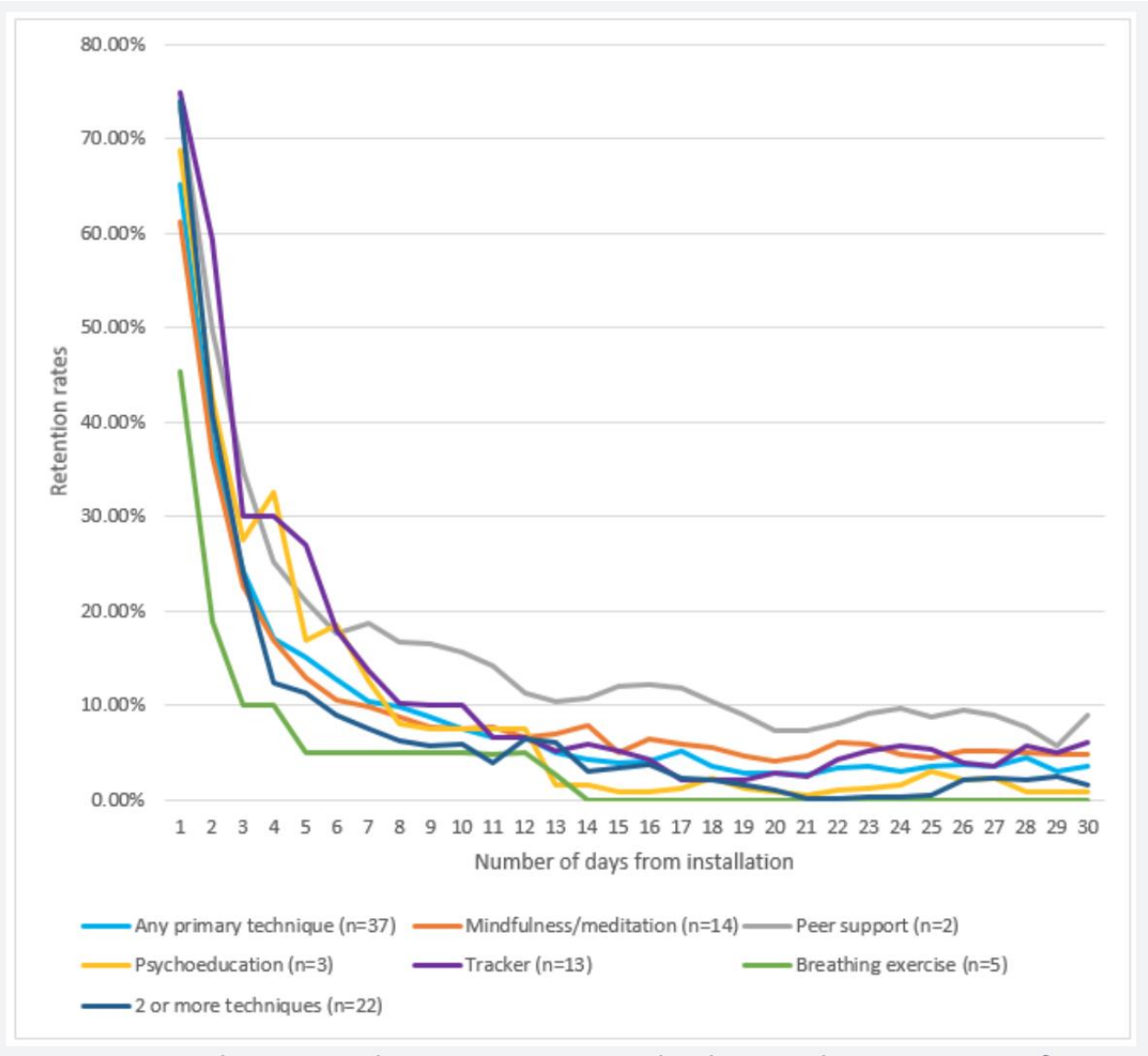
- Retrain the brain, muscles, nervous system
- Offer psychotherapy and biofeedback in digital formats (apps, VR, wearables)
- Integrate wearables to interrupt nightmares before they escalate
- Provide adjunctive support to medications
- Help promote lifestyle changes (taking medications, movement, tracking)
- Video games to improve ADHD in adults and kids
- And more...

# Evidence Base for Digital Therapeutics

- Evidence-base is in its infancy with very limited precision in defining and evaluating the specific features of a digital therapeutic
- Largely equivocal results with modest effect sizes for app-based digital therapeutics as an intervention for general mental health concerns (CBT-oriented therapeutic modules) and SUD management
- Inadequate evidence-base to consider app-based therapeutics (as a broad category) as stand-alone treatment interventions

Weisel, K. K., Fuhrmann, L. M., Berking, M., Baumeister, H., Cuijpers, P., & Ebert, D. D. (2019). Standalone smartphone apps for mental health—a systematic review and meta-analysis. *NPJ digital medicine*, 2(1), 118.

# Real World App Usage for Mental Health



Baumel, A., Muench, F., Edan, S., & Kane, J. M. (2019). Objective user engagement with mental health apps: systematic search and panel-based usage analysis. *Journal of medical Internet research*, 21(9), e14567.

Patients find  
them high in  
acceptability



## Acceptability of Digital Mental Health Interventions for Depression and Anxiety: Systematic Review

Carrie K Y Lau<sup>1, 2</sup> ; Anthony Saad<sup>1</sup> ; Bettina Camara<sup>3</sup> ; Dia Rahman<sup>4</sup> ;  
Blanca Bolea-Alamanac<sup>1, 5</sup> 

Digital mental health interventions for depression and anxiety disorders were generally found to be acceptable to patients. Of the 143 included articles, 125 (87%) indicated positive acceptability, 12 (9%) had mixed results, and 6 had insufficient information (4%).

Lau CKY, Saad A, Camara B, Rahman D, Bolea-Alamanac B  
Acceptability of Digital Mental Health Interventions for Depression and Anxiety: Systematic Review  
J Med Internet Res 2024;26:e52609



Huge  
promise,  
growing, but  
barriers are a  
problem

Seo YC, Yong SY, Choi WW, Kim SH. Meta-Analysis of Studies on the Effects of Digital Therapeutics. J Pers Med. 2024 Jan 30;14(2):157.



► J Pers Med. 2024 Jan 30;14(2):157. doi: [10.3390/jpm14020157](https://doi.org/10.3390/jpm14020157)

## Meta-Analysis of Studies on the Effects of Digital Therapeutics

[Young-Chul Seo](#)<sup>1</sup>, [Sang Yeol Yong](#)<sup>1</sup>, [Won Woo Choi](#)<sup>2</sup>, [Sung Hoon Kim](#)<sup>1,\*</sup>

- High potential for improving the quality of life → growing exponentially; across 28 studies
- Barriers: high development costs, technical difficulties, **traditional resistance from the medical community, and the attitudes of patients and medical personnel**
- Needs: effective integration with the existing medical system, improved understanding of medical personnel through education and training programs, and introduction of cost-effective models

# Integrating apps into clinical practice

**Table 1.** Prescribing apps as a component of clinical workflow. A smoking cessation app is used as an example.

Workflow Component	Description	Example
Searchable and Orderable	<ul style="list-style-type: none"><li>• Provider searches for an app within their EHR application</li><li>• The search cross-references the organization's digital formulary and the patient's pharmacy benefit digital formulary to ensure access and coverage</li><li>• Provider selects the app and opens an order screen</li></ul>	45 y/o male presents to his PCP for smoking cessation  • Provider searches for "Smoking cessation" in the set of available, covered apps. Provider selects an app and enters the indication.
Clinical Decision Support Integration	<ul style="list-style-type: none"><li>• Apps trigger EHR clinical decision support rules</li><li>• Rules can check for clinical appropriateness, duplicate therapies, other contraindications</li></ul>	• CDS fires and checks that the patient is a current smoker and is not currently on a different app.
App Indications	<ul style="list-style-type: none"><li>• Provider enters indication for the app</li><li>• Indication is visible to other providers in the EHR</li></ul>	• Provider enters "Smoking Cessation"
App Directions (the digital "sig")	<ul style="list-style-type: none"><li>• Specific directions for app usage are entered, similar to traditional medication "sig"</li><li>• Apps may have a list of default sigs, similar to how medications often have default common dosing instructions</li></ul>	• Please install application on your smartphone and use 3 times daily for 6 months
App Parameterization	<ul style="list-style-type: none"><li>• Certain apps may allow for app parameters, which provide settings for the app</li><li>• Apps will likely have default parameters to select from</li></ul>	• Provider confirms default parameters—for example, "run in background"
EHR Visibility	<ul style="list-style-type: none"><li>• Once ordered, apps are visible in the EHR, so that other providers can see a list of prescribed apps, along with their indication, directions, and parameters</li><li>• Historical apps can be "re-activated" if clinically appropriate</li></ul>	• Once prescribed, smoking cessation app shows up in the patient's list of current medications and therapies.
Data Integration	<ul style="list-style-type: none"><li>• App results can be surfaced to providers and patients through existing communication channels, like a patient portal or EHR</li><li>• Data includes app usage (if acceptable from a patient privacy perspective) and any output</li></ul>	<ul style="list-style-type: none"><li>• Overall smoking trends and number of cigarettes smoked / prevented are displayed in tabular and graphical formats.</li><li>• Patients can see this through the app, or through their patient portal.</li><li>• Provider can monitor patient usage of the smoking cessation app.</li></ul>
De-prescribe	<ul style="list-style-type: none"><li>• Apps can be de-prescribed, for example, if they are no longer effective or now contraindicated</li><li>• Apps can be re-activated in the future</li></ul>	• Patient achieves smoking cessation and app is removed from list of active medications.

REVIEW ARTICLE OPEN

## Beyond validation: getting health apps into clinical practice

William J. Gordon<sup>1,2,3\*</sup>, Adam Landman<sup>2,3,4</sup>, Haipeng Zhang<sup>3,5,6</sup> and David W. Bates<sup>1,3</sup>

Fueled by advances in technology, increased access to smartphones, and capital investment, the number of available health "apps" has exploded in recent years. Patients use their smartphones for many things, but not as much as they might for health, especially for managing their chronic conditions. Moreover, while significant work is ongoing to develop, validate, and evaluate these apps, it is less clear how to effectively disseminate apps into routine clinical practice. We propose a framework for prescribing apps and outline the key issues that need to be addressed to enable app dissemination in clinical care. This includes: education and awareness, creating digital formularies, workflow and EHR integration, payment models, and patient/provider support. As work in digital health continues to expand, integrating health apps into clinical care delivery will be critical if digital health is to achieve its potential.

*npj Digital Medicine* (2020)3:14; <https://doi.org/10.1038/s41746-019-0212-z>

Gordon, W.J., Landman, A., Zhang, H. *et al.* Beyond validation: getting health apps into clinical practice. *npj Digit. Med.* **3**, 14 (2020)

# Takeaway...

Practice-  
centric  
approach

AI/tech  
solutions  
to expand  
human  
reach



**Then we can all go  
to the beach rather  
than drown in the  
wave!**

# Thank you!

# Questions?

Kari Stephens: [kstephen@uw.edu](mailto:kstephen@uw.edu)



## Continuing Medical Education Accreditation

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4026 NE 55th St., Suite E-245, Seattle, WA 98105  
206.706.7084 » [nasw-wa.org](http://nasw-wa.org)



This workshop has been approved for 1 CEU by the Washington Chapter, National Association of Social Workers (NASW) for Licensed Social Workers, Licensed Marriage & Family Therapists and Licensed Mental Health Counselors.

Our Provider number is #1975-433.



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  - \$35 for 8.25 -16.0 hours
- CME fees: TeleBH 101/201/301 and 401/501 online

  - \$25 for 8.0 hours or less
  - \$35 for 8.25 -16.0 hours
  - \$45 for 16.25 - 64.0 hours



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# TeleMental Health Guides for Infancy to Young Adults

## Guides (8)

- Infancy and Toddlers
- Pre-schoolers
- Elementary School Children
- Middle School Youth
- High School Teens
- Young Adults
- Neuropsychological Testing
- Suicidality

### Guide for Elementary-School Children

**DEFINING ELEMENTARY-SCHOOL CHILDREN (GRADES 1-5)**

Elementary-School Children (ES; grades 1 to 5th) vary greatly by gender and age in their pubertal development and cognitive maturity, and resources. For example, a 1st grade boy may still be learning to control impulses and cooperation in the classroom while a 5th grade girl may be fully pubertal and aware of societal expectations. Thus, the clinician must be flexible in considering the engagement and treatment of ES children through TeleMental Health (TMH) services. Typically, ES children readily engage with technology, especially seeing themselves on "TV."

**SAFETY AND PRIVACY**

Establishing safety and privacy depends on the child's location while receiving TMH services. If located at a clinical site, safety and privacy will be ensured by clinical procedures at those sites. If located at a non-clinical site, such as a school or home, careful planning to ensure safety and privacy is needed.

- **At the beginning of each session** ascertain and document patient's location and exchange immediate contact information (phone, text message, or e-mail). Include any new address, in case the clinician needs to call emergency services, as outlined in the Privacy and Safety Planning Tool (PSP Tool) appended to the Introduction Guide, as well as to comply with documentation regulations in the medical record. If patient is in a car, be sure they are parked and document the nearest stable location.
- **Consider providing a virtual tour of the clinician's office** to the child and parents/ caregivers to demonstrate that no one else is in the room observing the session. Also, assure them that there is no unseen or unheard person observing the session online and that the session is not being recorded.
- **Consider a virtual tour of the child's room or home** to ensure that no unseen participant is viewing or listening to the session, or coaching the child.
- **Explain that recording of the session is prohibited.**
- **Turn off social media** and access to families' devices by any third party.
- **Ensure privacy at home** by scheduling while siblings and other adults are not home, connecting out of visual range of others, using headphones, and keeping low-volume radio or TV playing in the common areas to add auditory privacy.
- **Consider non-traditional settings at home** if needed to ensure privacy, such as a bedroom, bathroom, porch, backyard, or car (with a parent/ caregiver).
- **Consider the impact of non-traditional settings** on the child's presentation, e.g., less motor activity in a car, less anxiety in the backyard, more depressed at school.

**TIP:** Limit children's use of electronics during sessions unless the clinician and parents/ caregivers need time to talk without interruptions.

**SAFETY AND PRIVACY CONT.**

- **Consider sessions in a clinic or school**, if other professionals are involved in the child's treatment plan or if the child is reluctant to talk at home.
- **Children may stray from the clinician's view** on the monitor, e.g., children who are hyperactive, disruptive, or anxious. Take steps to ensure the child's safety, and the room's integrity. Steps may include following the child with the camera, the parents/ caregivers maintaining view of their child and informing the clinician, or parents/ caregivers reversing their device's camera to surreptitiously show their child's activity to the clinician.
- **Anticipate elopement** by poorly self-regulated children. Plan for a second adult to manage these children while the clinician completes the interview with the parents/ caregivers.
- **Secure the equipment** if sessions are done in a clinic as impulsive children may damage it.
- **If an emergency arises**, such as suicidality, refer to the Suicidality TMH Guide and the PSP Tool. The PSP Tool should have been completed prior to the initiation of clinical services and includes referral information for the patient's community.
- **Also, be aware that calling 911** may not link to other communities. Refer to the PSP Tool as noted above.

**TIP:** Determine early the feasibility of and parent/ caregiver's comfort regarding interviewing the child alone, and whether the child poses any potential risk to the equipment or the room.

TELEMENTAL HEALTH GUIDE FOR ELEMENTARY-SCHOOL CHILDREN

### Case Example

Abdul is a 10 y/o Afghan refugee boy who presented with his mother due to the school's concern with his inattention and distractibility in class, restlessness and difficulty staying seated, yelling out answers impulsively, and falling behind academically. The Mother noted similar difficulties in the home, especially regarding homework. Both parents worked and lived in an urban neighborhood with poor transportation options, so they agreed to home-based TMH. The family used their smartphone for the sessions, with adequate, but not optimal, cell reception. Sessions were held in the parent's bedroom, for privacy. An older sister watched the siblings in another room or took them for a walk.

Abdul was readily engaged over the smartphone and told of his favorite videogame, his love of Legos, and his best friend at school, as well as the injustices of his siblings. The clinician conducted the interview by alternating between the mother's history and the child's input.

Even with the spotty connectivity, the clinician appreciated Abdul's good verbal skills, intellect, charming personality, as well his impulsive intrusiveness and mild mid-facial and gurgling tic. To assess his gross motor skills, the clinician asked Abdul to do some movements, including some dance movements. He was awkward and had difficulty cooling down once wound up. To assess his fine motor skills, and to keep him occupied in order to obtain the mother's history, Abdul was asked to draw a picture of his favorite animal. He impulsively scribbled something and quickly returned to the smartphone to show his artwork: not an animal, but he enthusiastically told of its meaning, demonstrating his creativity and knowledge.

The clinician then asked Abdul to play with his Hot Wheels in front of his mother, allowing more time with the mother while monitoring Abdul. He did so, fairly quietly for a while, then became increasingly louder, and then disruptive. At various times, Abdul's mother quietly flipped the smartphone's camera to allow observation of Abdul's play without his knowledge. He did show symbolic play, although somewhat aggressive with the Hot Wheels breaking off some wheels.

Then, the clinician sent an ADHD rating scale and an anxiety rating scale to the older daughter's tablet so that the mother could complete these behavior reports in another room while the clinician spent some individual time with Abdul. The mother also logged into the school's website to check Abdul's grades, missing assignments, and the teacher's recent comments. Meanwhile, the clinician observed Abdul's play and engaged him verbally regarding his Hot Wheels. The clinician asked Abdul to trace his favorite Hot Wheel car and write the name of it along with his name on top of the paper. He showed some difficulties with tracing and penmanship but had correct spelling. He showed increased tic movements while engaged in this task.

The clinician made a diagnosis of ADHD with a concern about a fine motor disability and tics. They wrote a treatment plan on the "White Board" that included: a) the clinician requesting completion of behavior rating scales from selected teachers, to be uploaded into the clinician's website portal; b) making the child a "Focus of Concern" under Public Law 94-142 for further school evaluation and possibly special education services; and c) developing a structured plan for homework including turning it in reliably; and d) the mother reviewing the treatment plan on the website and reading information about ADHD treatment, including using behavior charts. As the family did not have a printer, the clinician also sent a hard copy of the treatment plan and readings. They made a plan for the mother to meet alone with the clinician in a week to set up a behavior program and discuss the relevance of a medication trial, consistent with evidence-based treatment for ADHD.

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[uwcolab.org/tmh-guides](http://uwcolab.org/tmh-guides)

## Additional Free Resources for Washington State Behavioral Health Providers

### EDUCATIONAL SERIES:

- UW Traumatic Brain Injury – Behavioral Health ECHO → →
- UW Psychiatry & Addictions Case Conference ECHO
- **UW TelePain series**

### PROVIDER CONSULTATION LINES

- **UW Pain & Opioid Provider Consultation Hotline**
- Psychiatry Consultation Line
- Partnership Access Line (pediatric psychiatry)
- Perinatal Psychiatry Consultation Line

Use of Cannabis with  
People with TBI  
- Chuck Bombardier PhD

TODAY  
12-1.30pm