MHSA Innovation Technology Suite: Help@Hand Evaluation
Quarterly Report
June 2019 – September 2019
December 2019

Authors: John Bunyi, MMFT, Katelyn Davis, MS, Elizabeth Eikey, PhD, Cinthia De Leon, MPH, Gloria Mark, PhD, Daniela Macias, Bessie Mathew, MPH, Dana Mukamel, PhD, Martha Neary, MSc, Stephen Schueller, PhD, Margaret Schneider, PhD, Dara H. Sorkin, PhD, Nicole Stadnick, PhD, Kai Zheng, PhD [Authors listed in Alphabetical Order]

University of California, Irvine (UCI)
University of California, San Diego (UCSD)

help@hand™ Evaluation

Measuring What Works

Introduction

The primary focus of CalMHSA and the Counties in Q3 was to establish the foundation for, and ultimately launch, the Request for Statement of Qualifications (RFSQ) to on–board new technologies into the Help@Hand program. The RFSQ was officially launched September 12, 2019. During Q3, activities included working with CalMHSA to coordinate efforts between implementation and evaluation activities. The UCI Team continued to meet with key stakeholders from Cohort #1 and CalMHSA/Cambria to discuss pilot project planning and implementation. The UCI Team also conducted a post–implementation site visit in Los Angeles County, interviewed and surveyed Peers across the Collaborative, continued to conduct market surveillance and heuristic evaluations, and convened the Help@Hand Evaluation Advisory Board to provide an update.

Help@Hand Evaluation Core Activities and Preliminary Findings – Quarter 3

Implementation Core

The Implementation Core developed a mixed methods plan to understand the system and organizational processes that impede and facilitate the implementation and sustainment of the Help@Hand project. The design included interviews (30-45 minutes) and online surveys (30 minutes) conducted with key stakeholders and vendor representatives involved in the project. This process will be replicated every 6 months. The methods, sample and procedures have been developed and are ready to be executed.

Evaluation of the integration of Peers into Help@Hand continued with an interview and surveys deployed in Orange County. Across counties, the Peer Leads are consistent in their affirmation of the important role that Peers can and will play in Help@Hand, and the focus remains on their role in communicating directly with the members of the target population who are the potential recipients of the program elements.

The Implementation Core is also in the fifth stage of the Market Surveillance process. This process involves identifying apps that can be compared to the Help@Hand apps. All apps identified at this stage were reviewed for 12 key features. User experience was also assessed using the Mobile App Rating Scale (MARS). Some key preliminary findings indicate that there is substantial variability in the app marketplace. For example, the features and functionality of mental health apps vary; the app marketplace is constantly changing given the frequent app updates and changes in availability; and it is highly unlikely that any one app will meet the needs of every County or project.

A post-implementation site visit to the Harbor UCLA DBT Clinic where Mindstrong has been implemented was also completed. Interviews and surveys with clinic leadership and clinicians revealed mixed enthusiasm for the use of Mindstrong. There was a general sense that Mindstrong had been useful for many clients and there was some added value to treatment; however, concerns and questions were raised regarding the clinical validity and utility of some features. More details are provided in the full report.

The Implementation Core created a plan to follow-up on the recommendations provided through the Learning Updates and Quarterly Reports in order to assess their benefit to sites and Counties.

User Core

Two events significantly impacted the work for this Core: 1) the hold on 7 Cups and Mindstrong, and 2) the creation of the new pilot process. As such, the User Core activities this quarter consisted primarily of conceptual and collaborative work in preparation for upcoming data collections. Specifically this work involved engaging in conversations with Cambria to identify areas where the User Core could promote standardization of data collection strategies and instruments as counties prepared for the pilot process. The figure below shows the pilot process as of September 3, 2019. The User Core developed a guide containing recommendations for leading focus groups with early users during the 'Analysis Phase'.

In addition, the User Core developed a survey designed to collect information on participants' experiences with technology and mental health, as well as socio-demographics (for use with college students). The User Core developed a process to remotely survey Mindstrong users when in-person data collection is not an option.

Demo → Analysis → Pilot Proposal → Leadership Approval → Product Development → Deployment → Pilot → Pilot Results Report → Portfolio Vote

Outcomes Core

The UCI Team plans to perform a population analysis of inpatient and emergency department (ED) discharges, Medi-Cal claims, and vital statistics data to compare access to care, access to appropriate levels of care, and outcomes across Help@Hand and a set of California control Counties. UCI identified two control Counties and one alternative for each Help@Hand County throughout the state. To the right is a map showing Cohort #1 Counties in red and control Counties in blue.

The UCI Team also began working on the creation of data sets that will be used in analyses supporting all three cores. These datasets are now included in the data repository for analyses and inclusion in the dashboard. Data have also been obtained from the Census Bureau and the California Health and Human Services (CHHS) Open Data Source and include population estimates broken down by demographics, counts of hospitalizations, emergency department admissions, crisis interventions, etc.
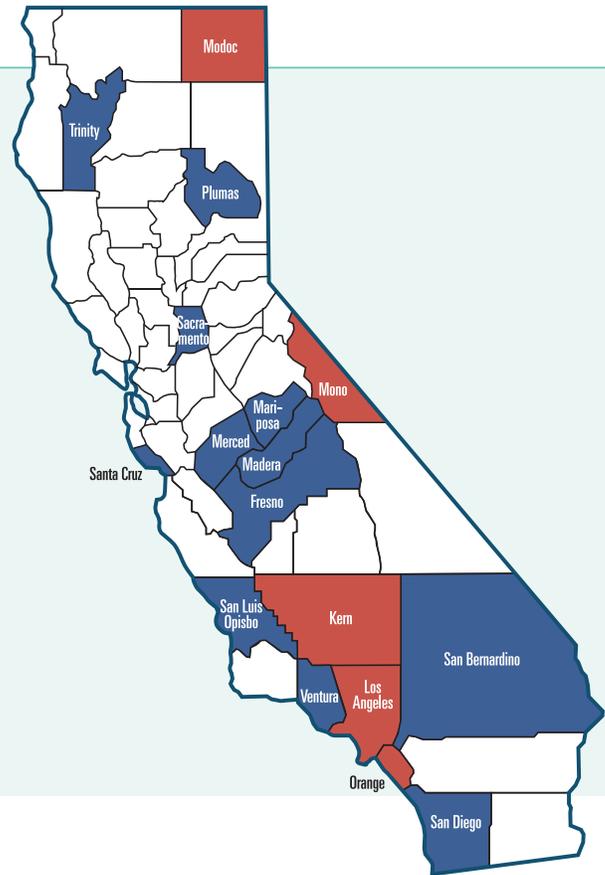
Recommendations for Actions and Modifications

(Please note, these are a few selected items; the full list of recommendations is located in the full report)

CalMHSA

- Continue to work with Counties to standardize data collection methods and instruments where possible

- Continue efforts to address digital literacy across the Collaborative, and develop and/or expand process for tracking programmatic influences

- Continue to build models for integrating peer involvement into the Help@Hand program, including the evaluation, and develop and/or expand processes for tracking this integration

Help@Hand Counties

- Address technical infrastructure issues prior to deployment – e.g., availability of Wi-Fi, devices, operating systems, desktops in provider offices

- Continue to support and recognize clinical champions

Vendors (Mindstrong)

- Improve usability of the Mindstrong keyboard

- Incorporate observations and learnings of clinical workflow and technology infrastructure to support clinic-specific adaptations to Mindstrong prior to subsequent deployments

- Tailor training to address specific competencies and needs of providers

- Continue to provide easy access to technical assistance to clients and providers (e.g., to support downloading of Mindstrong, setting up a user profile, troubleshooting)

Evaluators

- Continue to recommend ways   to simplify processes

- Structure reports to highlight barriers to implementation, and provide recommendations for what science says is needed to move forward

- Pay attention to political dynamics, including the state environment and the county micro-environment, and document emerging issues

Table of Contents

Introduction

The Help@Hand Project is a three-year demonstration project funded and currently directed by the following counties/cities in the State of California:

Cohort #1:	Kern County, Los Angeles County, Modoc County, Mono County, Orange County
Cohort #2:	Inyo County, Marin County, Monterey County, Riverside County, San Francisco County, San Mateo County, Santa Barbara County, Tehema County, Tri-City, and City of Berkeley

This California statewide collaborative project is designed to bring interactive technology–based mental health solutions into the public mental health system through a highly innovative set, or "suite", of mobile applications.

The intended outcomes of this project are to accomplish the following five learning objectives:
(1) Detect and acknowledge mental health symptoms sooner;
(2) Reduce stigma associated with mental illness by promoting mental wellness;
(3) Increase access to the appropriate level of support and care;
(4) Increase purpose, belonging, and social connectedness of individuals served; and,
(5) Analyze and collect data to improve mental health needs assessment and service delivery.

UC Irvine (UCI) is conducting a comprehensive formative evaluation of the Help@Hand Project which involves UCI observing and evaluating the Help@Hand as it happens in order to provide real-time feedback and learnings through the project period. The evaluation encompasses an examination of the project's target audience, implementation, user experience, outcomes, stakeholder participation, and collaboration readiness. Currently the evaluation activities are contracted to focus on Cohort #1. Evaluation findings are reported on a quarterly basis. The following report presents activities and findings for Quarter 3 (June-September 2019) of the project.

Summary of Activities

Help@Hand Activities
The list below is not intended to be a comprehensive accounting of all project activities, but rather to reflect significant events in the lifecycle of the Help@Hand Project.

June 2019
- [throughout June 2019] Development of the Request for Statement of Qualification (RFSQ) continued with the Collaborative identifying the evaluation panel and finalizing the evaluation scoring process.
- [throughout June 2019] Collaborative completed Technology Initiation Worksheets, which would support Counties with stakeholder engagement and strategic planning. (Source: The Forecast: Help@Hand News Update newsletter)
- [June 4, 2019] Tech Lead Collaboration meetings began meeting weekly, alternating between a focused topic one week and an open discussion the following week. (Source: Tech Lead Collaboration Meeting)
- [June 11, 2019] Project branding became "Help@Hand." (Source: Tech Lead Collaboration Meeting)
- [June 17, 2019] New York Times Article published article on Help@Hand project describing how the state of California is working with technologies to make mental health services accessible to the participating counties and cities throughout the state. (Carey, 2019)
- [June 24, 2019] Orange County MHSA Steering Committee and Community Work Sessions were held to better understand the local community needs about how to effectively use digital devices. The meeting kicked off the Collaborative's Peer-Led Digital Mental Health Literacy Community Sessions with counties.   (Source: The Forecast: Help@Hand News Update newsletter)

July 2019
- [throughout July 2019] Development of the Request for Statement of Qualification (RFSQ) and Pilot Process continued.
- [July 9, 2019] Draft of Risk & Liability worksheet was introduced. (Source: Tech Lead Collaboration Meeting)
- [July 11, 2019] Announced at Leadership Committee that Steinberg Institute requested a meeting with Cohort #1 Directors in response to concerns with Tech Suite Project. (Source: Leadership Committee Meeting)
- [July 11, 2019] Draft of Help@Hand Roadmap was introduced. The Roadmap outlines 5 strategic priorities (budget, contract, legal and risk management, governance, and communications). (Source: Leadership Committee Meeting)
- [July 11, 2019] Reversion update was provided to Leadership Committee. As a result of Senate Bill 79, no Tech Suite funds are subject to reversion in June 2020 and Counties will have more time to spend down their funds. (Source: Leadership Committee Meeting)
- [July 16, 2019] Erik Newland replaced Jennifer Martindell (both employed by Cambria) as Implementation Lead. (Source: Tech Lead Collaboration Meeting)
- [July 16, 2019] Riverside County announced that they are working on building a 1-on-1 chat app. (Source: Tech Lead Collaboration Meeting)
- [July 17, 2019] Tehama County held Digital Mental Health Session.
- [July 24, 2019] Kern County held Digital Mental Health Session.

- [July 25, 2019] Leadership Committee approved changing Leadership meetings to a weekly occurrence, alternating one week with information sharing and the next with voting on key motions. (Source: Leadership Committee Meeting)
- [July 25, 2019] Leadership Committee approved the hire of a financial specialist with Digital Health experience to review and develop a fiscal plan. (Source: Leadership Committee Meeting)
- [July 25, 2019] Leadership Committee approved the engagement with a law firm with Digital Health experience for services, including renegotiating existing vendor contracts and providing expertise, not to exceed $99,000. (Source: Leadership Committee Meeting)
- [July 25, 2019] Announced during Leadership Committee that meeting with Steinberg Institute was canceled. (Source: Leadership Committee Meeting)
- [July 26, 2019] U.S. News & World Report Article on Tech Suite was published. (Leins, 2019)
- [July 30, 2019] Kern announced creation of a brochure of recommended apps at Tech Lead Collaboration meeting. (Source: Tech Lead Collaboration Meeting)
- [July 30, 2019] Riverside announced the prototype of its 1-on-1 app was built. (Source: Tech Lead Collaboration Meeting)
- [July 30 & 31, 2019] San Mateo County held Digital Mental Health Session.
- [July, 2019] Inyo County opted out of Help@Hand.

August 2019
- [throughout August 2019] Began compiling information from the Technology Initiation worksheet into a needs analysis and matrix.
- [throughout August 2019] Continued working on RFSQ as well as Risk and Liability worksheet to plan beyond the technology and launch. (Source: The Forecast: Help@Hand News Update newsletter)
- [August 6, 2019] County Needs Assessment Tool was previewed to the Collaborative. (Source: Tech Lead Collaboration Meeting)
- [August 8, 2019] Leadership Committee approved formation of Risk and Liability workgroup (Source: Leadership Committee Meeting)
- [August 8, 2019] Leadership Committee approved the engagement of a vendor with experience in the review of Digital Health Solutions to administer and refine RFSQ, including demos of approved vendors, for an amount not to exceed $99,000. (Source: Leadership Committee Meeting)
- [August 8, 2019] Leadership Committee approved contracting with Manatt Law firm for legal services, not to exceed $99,000. (Source: Leadership Committee Meeting)
- [August 8, 2019] Leadership Committee approved contracting with Adam Powell for financial consulting services, not to exceed $50,000 by successfully creating a firewall without conflict of interest. (Source: Leadership Committee Meeting)
- [August 9, 2019] San Francisco held Digital Mental Health Session.
- [August 9, 2019] Marin held Digital Mental Health Session.
- [August 14, 2019] Peer Lead Meeting held. Meeting included Carl Bonacci, PhD, a subject matter expert and Analyst at Cambria Solutions, to gather input from Peer Leads to help develop risk and liability progress and elaborate on how Peers feel about engaging with the technology being utilized. (Source: The Forecast: Help@Hand News Update newsletter)
- [August 15, 2019] Leadership Committee approved strategic priorities of the 2019/2020 Roadmap. (Source: Leadership Committee Meeting)
- [August 15, 2019] Leadership Committee proceeded to select Catalyst as vendor administering the RFSQ. Contract with them will be limited to 1 year. (Source: Leadership Committee Meeting)

- [August 15, 2019] Tri-City County held Digital Mental Health Sessio.
- [August 19 & 20, 2019] Santa Barbara held Digital Mental Health Session.
- [August 21, 2019] Los Angeles held Digital Mental Health Session.
- [August 29, 2019] In-Person Collaboration in Sacramento was held with digital mental health literacy update and findings, project roadmap objectives brainstorm and prioritization, marketing and outreach approach and lessons learned for target audiences, RFSQ update, Catalyst introduction, and Riverside app demo. (Source: The Forecast: Help@Hand News Update newsletter)
- [August 26 & 27, 2019] Riverside held Digital Mental Health Session.
- [August 30, 2019] Separation of Joy Thompson as CalMHSA Help@Hand Project Manager, CalMHSA. (Source: Tech Lead Collaboration Meeting)
- [August 31, 2019] 7 Cups received 30-day notice of termination of contract for convenience. (Source: Leadership Committee Meeting)

September 2019
- [throughout September 2019] With the RFSQ launched, Collaborative began working on pre-planning activities, including identifying marketing strategies for pilots, developing organizational change management plans, and working to better understand what type of applications would be of interest for pilots. (Source: The Forecast: Help@Hand News Update newsletter)
- [September 3, 2019] The collaboration also discussed an incident over the weekend in LA that resulted in a "wellness check" with a user of 7 Cups. (Source: Tech Lead Collaboration Meeting)
- [September 5, 2019] Leadership Committee discussed the formation of an ad-hoc group to develop a crisis protocol that will identify primary and secondary points of contact for each county for clinical crisis. The group will also develop protocols with vendors as well as how to communicate with CalMHSA. (Source: Leadership Committee Meeting)
- [September 5, 2019] Announced Ann Collentine, Deputy Director for Programs at CalMHSA, will transition off Help@Hand Project and Jeremy Wilson, Program Director & PIO at CalMHSA, will take over as Project Director over the next 60 days. To support the transition, a program assistant will be assigned to Mr. Wilson as well as additional staff, including a communications coordinator and a senior technical project manager. (Source: Leadership Committee Meeting)
- [September 5, 2019] Change Control Board (CCB) was suspended to allow Leadership to make decisions for RFSQ and pilot process. (Source: Leadership Committee Meeting)
- [September 5, 2019] Help@Hand Financial Meeting held. (Source: The Forecast: Help@Hand News Update newsletter)
- [September 10, 2019] Organizational Change Management (OCM) survey template introduced. (Source: Tech Lead Collaboration Meeting)
- [September 12, 2019] Leadership Committee approved Pilot Process and Governance process with the following amendments: the pilot process will be periodically reviewed and adapted to be responsive to county needs within the context of the different types of apps being considered; and in order to expedite the security review, apps considers for the proposed pilot process should not collect PHI or PII. (Source: Leadership Committee Meeting)
- [September 12, 2019] RFSQ officially launched.
- [September 19, 2019] Three-month extension on Cambria contract proposed. (Source: Leadership Committee Meeting)

- [September 19, 2019] RSE presented overview of marketing plan for Help@Hand pilot implementation, portfolio implementation, and statewide brand. (Source: Leadership Committee Meeting)
- [September 27, 2019] Wayne Clark, CalMHSA's Executive Director, retired. (Source: The Forecast: Help@Hand News Update newsletter)

Evaluation Activities

The list below is not intended to be a comprehensive accounting of all evaluation activities, but rather to reflect significant events in the evaluation lifecycle.

June 2019
- [June 5, 2019] UCI's contract was executed for UCI to conduct the Cohort 1 Evaluation.
- [June 7, 2019] UCI held a call with LA County and Harbor-UCLA to finalize LA County's Harbor-UCLA site visit logistics, surveys, and interview guides.
- [June 10, 2019] UCI's Implementation Team conducted a site visit at LA County's Harbor-UCLA.
- [June 25, 2019] UCI hosted an in-person Evaluation Advisory Board meeting to discuss quarter 2 updates, accomplishments, and issues on the Help@Hand project and evaluation. Feedback and guidance were also discussed.
- [June 26, 2019] UCI sent LA County a draft Learning Update which reflected findings from the LA County's Harbor-UCLA site visit.

July 2019
- [July 11 & 12, 2019] UCI held a two-day internal planning meeting.
- [July 18, 2019] UCI sent LA County the final Learning Update which reflected findings from the LA County's Harbor-UCLA site visit.
- [July 25, 2019] UCI presented on the Leadership Committee Call to give the quarter 2 report update which consisted of the site visits with Modoc and Kern Counties, the Mindstrong Heuristic Evaluation, the ongoing Market Surveillance, and the June Evaluation Advisory Board Meeting.
- [July 26, 2019] UCI met with Cambria to discuss the Pilot Process and UCI's role in the Pilot Process.
- [July 26, 2019] UCI met with Cambria to introduce the Baseline Assessment proposal and possible approaches to the Baseline Assessment.
- [July 29, 2019] UCI held interviews with the Peer Lead from Orange County.
- [July 30, 2019] UCI surveyed six Peers from Orange County.

August 2019
- [August 1, 2019] UCI had a call with Keris Myrick, Chief of Peer Services at Los Angeles County Department of Mental Health to discuss the definition of digital phenotyping in the market surveillance.
- [August 7, 2019] UCI shared the Baseline Assessment proposal with one Cohort #1 County.
- [August 9, 2019] UCI had a call with LA County to discuss the Learning Update that was submitted on July 18, 2019.
- [August 15, 2019] UCI began soliciting members from Cohort 2 to join the Evaluation Advisory Committee. (Source: Leadership Committee Meeting)

- [August 15, 2019] UCI provided LA County with summary statistics for items to supplement the Learning Update that was submitted on July 18, 2019.
- [August 15, 2019] UCI met with Cambria to continue conversations regarding UCI's involvement in the Pilot Process.
- [August 20, 2019] UCI shared the Baseline Assessment proposal with one Cohort #1 County.

September 2019
- [September 5, 2019] UCI met with Cambria to discuss UCI's role with focus groups and surveys during the Analysis Phase of the Help@Hand Pilot Process.
- [September 9, 2019] UCI hosted the Evaluation Advisory Board call to discuss quarter 3 updates, accomplishments, and issues on the Help@Hand project and evaluation. Feedback and guidance were also discussed.
- [September 13, 2019] UCI had a call with Cambria to discuss their Organizational Change Management Plan's follow-up protocols.
- [September 17, 2019] UCI presented the Organizational Processes Evaluation on the Tech Lead Call.

Ongoing Activities
- Led weekly Implementation Evaluation Core meetings.
- Led weekly User Experience Evaluation Core meetings.
- Led weekly all team evaluation meetings.
- Attended weekly Help@Hand Leadership Meetings.
- Attended Change Control Board meeting, which met weekly between March-April 2019 and bi-weekly as of May 2019 until it was suspended in September 2019.
- Attended weekly Tech Lead Collaboration Meetings.

<u>**Methodology**</u>

The primary methodologies used in each of the Cores are described in the section below. The next section describes the findings associated with each Core.

Implementation Core

Market surveillance
The market surveillance identifies mental health apps, monitors changes in app marketplaces overtime, and evaluates mental health apps to conduct an in-depth understanding of the app space defined by the Help@Hand project. The market surveillance has three main objectives:
   1. To survey the app marketplace in which the Help@Hand apps are placed, and to understand what other options users have to choose from when they search for these apps;
   2. To identify apps which are comparable to the Help@Hand apps;
   3. To identify baseline app usage data to compare Help@Hand apps to other comparators, in order to understand overall relative engagement and use of Help@Hand apps.

Figure 1. Stages of Market Surveillance.
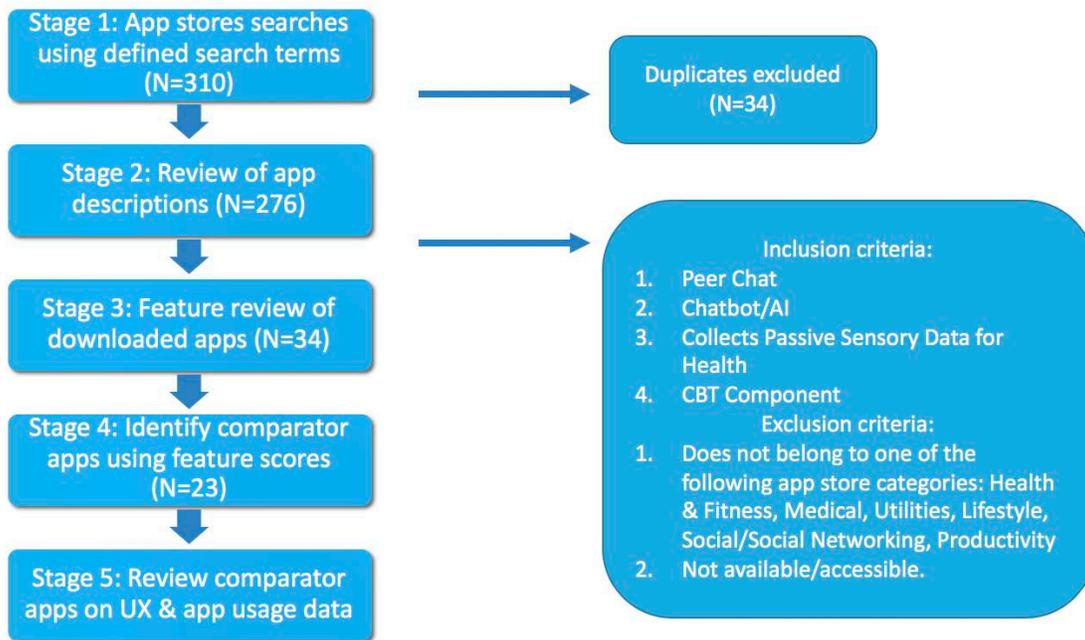
The stages of the market surveillance are outlined in Figure 1. Stages 1-4 have been fully completed and stage 5 is in progress. Below is a more detailed description for each stage performed to date.

Stage 1: Thirty-one keywords that are linked to the Help@Hand apps (as determined using market data and analytics platform Apptopia) were searched in the Google Play and iTunes app stores.

Stage 2: The top ten results from each keyword search were obtained, resulting in 276 apps which excludes duplicates. After using the inclusion & exclusion criteria defined in Figure 1, each of these apps were reviewed at the app description level resulting in the inclusion of 61 apps.

Stage 3: These 61 apps were downloaded by a trained app reviewer for a deeper dive into features and functionality, resulting in the exclusion of an additional 27 apps based on inclusion & exclusion criteria. Of the 34 remaining apps, a full feature review was completed to ascertain the presence or absence of 12 key features which are outlined in Table 1. These 12 features aligned with the criteria used to consider the suitability of vendors who pre-qualified for the initial procurement process.

Stage 4: Four of the 12 features (24/7 support, 1-on-1 support, AI/chatbot and digital phenotyping) were determined particularly relevant to project and county goals. These four features aligned with the three main components of the initial procurement process outlined in the project reference guide. Of the 34 apps reviewed, 23 contained at least one of these four features and were therefore considered "comparator apps."

Stage 5: In order to further understand these 23 "comparator apps," thorough reviews of the user experience of each of these apps were completed using the Mobile App Rating Scale (MARS). MARS is a well-known, validated, and standardized tool designed to assess the engagement, functionality, aesthetics, and information quality of health apps (Stoyanov et al, 2015). The full MARS scale and all items are in **Appendix C**. Reviews were completed by an external review team led by one of the developers of MARS based in Queensland, Australia who also has expertise in engaging young people in the review process of health apps. Each app was rated by two expert raters, both with psychology degrees, and one 'young person' consumer rater. All of the raters, including experts and the consumer were trained in the use of the MARS scale. Apps were explored in great detail; the minimum time spent exploring an app was 1 hour, and many apps took 3-4 hours to review for each rater. A consumer score and an expert score was obtained for each app (expert ratings were discussed to gain consensus). (One of the comparator apps, Sibly, was not accessible for a full MARS review so the total number of MARS reviews obtained was 22).

Table 1: Definitions of features assessed within comparator apps

Feature	Definition
1 on 1 support	1-on-1 support, specific to the individual, most likely delivered through a chat or messaging medium
24/7 support	User can interact with other users (peers or professionals) in a supportive capacity 24/7
Artificial intelligence or chatbot	User can have a conversation with an AI chatbot
Assessment of symptoms or condition	User can answer questions or input data to assess their current symptoms, conditions, or overall health status
Chatroom	Space where users can chat with one another in real time in instant messaging format
Didactic Content	Psychoeducation or other information and educational content
Digital phenotyping	Passively collected sensory data is used to assess, measure or predict health status or wellbeing
Forum	Space where users can join public conversations and post where other users can see
Interactive Tools (separate from programs)	Other parts of the app, outside of programs with content, which the user can interact with (e.g., journaling, mood-tracking)

Link to offline services or people	App actively connects the user with other services or people outside of the app, for example, notifies therapist if user is in a crisis
Passive sensor data collection	App passively collects sensor data (without user entry), which may include activity, health information, information on how the user interacts with their phone, (e.g. keystrokes), or location (e.g., GPS log)
Programs with linear content	Interactive programs or modules in which users progress through stages or steps in a linear way, with each stage or step building on content from the last

Environmental Scan
News stories continued to be collected via Google Alerts (automated emails compiling recent news stories) based on keywords related to Help@Hand (e.g., 7 Cups, Mindstrong, mental health apps, mental health, etc.) and the Cohort 1 counties (e.g., Los Angeles, Orange, Kern, Modoc, Mono). Collection of social media data or other newspapers has not begun since we have been unable to hire members of our team to support the environmental scan.

Site Visits: Leadership, Clinicians, and Peer Interviews and Surveys
Los Angeles Site Visit
During the evaluation period, we conducted a site visit with leadership and clinicians at Harbor UCLA DBT Clinic. A semi-structured interview guide (i.e., a guide with preset questions that also allows flexibility for the interviewer to ask additional questions as needed) was used to collect qualitative data. A survey consisting of standard and validated measures of organizational climate, leadership, attitudes towards evidence-based practices, perceived acceptability/appropriateness, and feasibility of Help@Hand products (i.e., Mindstrong) was used to collect quantitative data. We also included additional questions at the request of LA County to assist in considerations regarding the expansion and continued use of Mindstrong. These questions included the relative clinical value of the biomarkers and DBT Card as well as barriers and facilitators with regards to the use of Mindstrong with clients. Each interview was 30 minutes, while the survey took 45-60 minutes to complete. In total we completed 13 interviews and collected 20 surveys with leadership and clinicians at Harbor UCLA DBT Clinic on June 17, 2019.

The rapid assessment procedure-informed clinical ethnography (Palinkas et al, 2018) was used to summarize findings in the context of the Consolidated Framework for Implementation Research (Damschroder et al, 2009). The Consolidated Framework for Implementation Research is one of the Help@Hand evaluation's organizing frameworks for guiding and understanding the findings from evaluative efforts.

Future Site Visits
The evaluation team started to plan for the post-implementation site visit activities for Modoc County. Based on initial conversations with Modoc County Behavioral Health Leadership, remote data collection will be conducted in lieu of an in-person visit. This was requested by Modoc County due to significant staff turnover recently causing difficulties to accommodate an in-person visit. The remote data collection will consist of interviews with Clinic Leadership. The decision to modify the data collection procedures was reasonable given the current status of implementation of the Help@Hand products in Modoc. Specifically, Clinic Leadership described a "pause" in implementation coupled with significant staffing changes. The current plan will be to conduct this remote data collection in the next quarter.

Peer Program Evaluation

An interview with the Peer Lead at one Cohort #1 County and surveys from Peers in the same County were conducted at the end of July. Qualitative data from interviews with Peer Leads at each county are being content-analyzed and will be used to populate a summary table that will permit comparison of the structure and function of the Peer component to Help@Hand across counties. Data from the Peer survey were summarized using means and standard deviations for quantitative items and content analysis for qualitative items.

Assessing Usefulness and Impact of Learning Updates and Reporting

The evaluation team worked on developing a multi-component plan to follow up on the recommendations provided through Learning Updates and Quarterly Reports and to assess the benefit to the sites and counties. This process has been developed with consultation provided by Larry Palinkas (Professor at the University of Southern California, State-wide Evaluation Advisory Board member) and feedback by CalMHSA, Cambria, and Samantha Spangler, Research and Evaluation Director, CIBHS. The overall process of recommendations is displayed in the **Figure 2**.

Figure 2. Recommendation of a Process for Providing Feedback to Collaborative
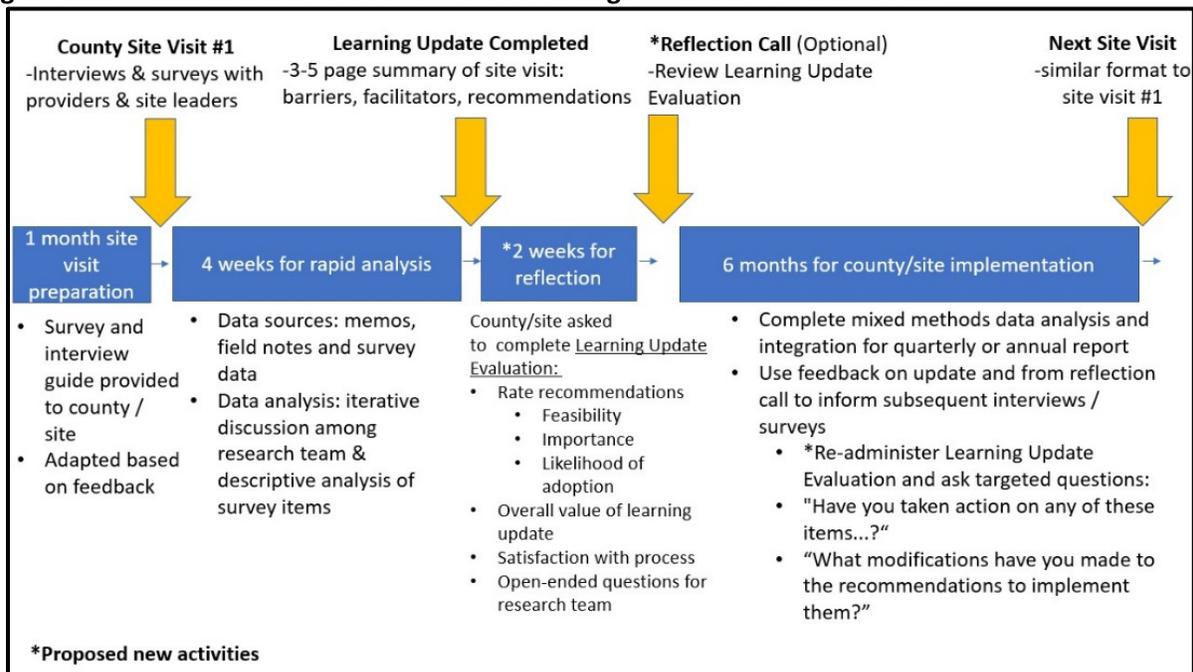
New activities are indicated by an asterisk (*). Noteworthy additions include the following: (1) a standard opportunity to provide a collaborative reflection on the learning update 2 weeks after delivery to the county; (2) assessment of the usefulness of learning updates; (3) assessment of the feasibility, importance, and likelihood of adoption of recommendations; and (4) use of feedback on update and from reflection calls to inform subsequent interviews and surveys. This process was designed to minimize burden of counties while maximizing opportunities to increase value and follow-up on learning updates. Many of these processes (i.e., reflection calls and follow-up) were already occurring with regards to past learning updates but standardizing this process is useful to ensure that counties are aware of opportunities and to increase opportunities to learn what aspects of providing learning updates and reports produce the most value to the evaluation and implementation of Help@Hand.

Technical Assistance
Implementation
The Implementation Evaluation Core provided technical assistance to Cambria that included providing feedback on implementation materials including the implementation playbook and the organizational change management template. Additionally, the evaluation team and Cambria discussed data collection procedures that occur during three periods (pre-training, post-training and post-go live), including the use of the Awareness, Desire, Knowledge, Ability, and Reinforcement (ADKAR) questions. These periods most closely align with the evaluation's notion of pre-implementation and implementation and as such assessments for those periods (post-training = pre=implementation; post-go live = implementation) will incorporate ADKAR questions.

Digital Mental Health Literacy
Martha Neary, co-lead of the market surveillance, provided Kelechi Ubozoh, CalMHSA Peer and Community Engagement Manager, feedback for the development of digital health literacy resources for counties. A two-page resource describing different components of health apps was developed in order to be distributed to counties. This resource can be found in **Appendix F**.

User Core
Given the pause on 7 Cups and Mindstrong and the new pilot process development, the User Experience Core began developing procedures for data collection and identifying needs of target audiences. These included a Baseline Assessment and remote surveys for Mindstrong Users. Below is a description of the processes and procedures created during the evaluation period.

Baseline Assessment
The evaluation team began developing standardized procedures for the establishment of baseline values of key variables in the target populations (i.e., a baseline assessment). The purpose of the baseline assessment is two-fold: (1) to establish baseline values of key variables, including core learning objectives; and (2) to allow Counties to identify the most important needs and desires of a community in order to guide future action. With the assessment, Counties would have access to timely data and feedback that might help inform implementation planning and decision making, as the project moves to its next stage. For example, these assessments could identify factors likely to influence the adoption of Help@Hand apps, identify target audiences' current mental health needs and beliefs, identify current apps/other technologies being used, establish baselines for outcome measure and digital mental health literacy, and explore recruitment strategies.

The evaluation team explored four possible approaches associated with this baseline assessment:
- A college student specific survey that would be fielded by Counties or by UCI;
- A general survey that could be fielded by Counties to their specific target audiences;
- A population-based sample of college students to create a "pool" of individuals willing to engage throughout the project; and
- Testing recruitment strategies for Help@Hand with RSE.

Details describing the considered approaches are noted below. The latter have not been implemented but can be implemented if there is interest from County Leadership.

College Student Specific Survey
The objectives for this effort are as follows:

- Identify existing needs to better understand how digital tools for mental health may address these needs;
- Identify characteristics of individuals who might benefit most from apps to support mental health; and
- Understand patterns of use of smartphones to gain better understanding of how college students use their devices when they are stressed to determine most appropriate interventions.

In July 2019, the evaluation team developed a proposal for the college student specific survey. The baseline assessment would be conducted with college students in cohort 1 counties and later expanded to cohort 2. The proposed methods are:

- *Participant recruitment*: We will seek a balance of large universities, Cal State schools, and community colleges within cohort 1 counties. Once colleges and universities are identified, we will contact the registrar's office to obtain a list of enrolled students. If registrar lists are not available, we will recruit participants via social media.
- *Breadth Analysis*: We will design a survey to assess needs and administer it through Qualtrics. If we are able to obtain registrar lists, we will send surveys to individuals on the list. If registrar lists are not available, we will advertise the survey on social media.
- *Deep Dive*: A deeper analysis will be done of a smaller group of students within our sample. We will use 1) a smartphone logging program (Kidlogger), which logs meta-data of phone use but not content, and 2) experience sampling to measure self-reported stress. The purpose of this assessment is to understand the context where students experience stress (e.g., time of day, day of week, apps being used). Further, we will test whether we can predict stress from smartphone use features. This will inform us on what tools are already being used during high and low stress and what types of interventions may be most useful.

The proposal for this approach was shared with two Cohort #1 Counties and CalMHSA representatives in August 2019 in order to solicit feedback. We plan to share the proposal with other Cohort #1 Counties. Overall, Orange County thought the approach was clear and concise, but suggested providing more information on the benefits of a baseline assessment and how it fits into the larger context of UCI's evaluation. Los Angeles County liked the idea of the breadth analysis but thought that the deep dive may be out of the scope of UCI's evaluation.

Los Angeles County expressed interest in understanding ways in which college students who are not currently using technology/apps to support mental health can be engaged. An adapted version of the college student specific survey is being developed in partnership with Los Angeles County.

General Survey
The objective of this effort is to create a generic survey that could be tailored and used by Counties. The same methodological approach described above for the college student specific survey could be used to understand other target audiences.

Population-Based College Student Sample
There are a number of colleges and universities in California actively engaged in multiple efforts to address behavioral health, and in particular mental health. The objective for this effort is to partner with other academic institutions to create a population-based sample of college students with the intention of creating a "pool" of individuals willing to engage with Help@Hand throughout the project.

The evaluation team reached out to Ronald Kessler, PhD, McNeil Family Professor of Health Care Policy at Harvard Medical School, to discuss possibilities for partnering in this effort. Expertise from Harvard University is available if Counties are interested in pursuing this approach.

Testing Recruitment Strategies for Help@Hand with RSE
The objective of this effort is to work with RSE and test potential strategies that might be used to bring potential target audiences to the Help@Hand Program. The general approach would involve using the expertise of RSE to creating a Search Engine Marketing (SEM) campaign in order to identity and engage target audiences, as well as deliver baseline surveys to understand factors that are likely to drive app adoption within these target audiences. In addition to qualitative and attitudinal data collected via the online baseline survey, quantitative data (i.e. clicks, bounce rate, time on page, etc.) can also be collected. Working with RSE in this capacity has the potential for identifying pay-per-click AdWords that may be effective for drawing the interest of particular kinds of target audience members, some of whom may be traditionally hard to reach.

Surveys, Interviews, Focus Groups: Potential Help@Hand Users
Given the pause on 7 Cups and Mindstrong, as well as the development of the new pilot process, there was no new planning related to potential Help@Hand Users during this evaluation period (other than that described as part of the pilot process).

Surveys and Interviews: Mindstrong Users
Site Visits
The User Experience Core began planning for a possible site visit with LA County's Mindstrong users. A similar effort was discussed with Modoc County. However, Modoc County reported that there are very few clients currently using Mindstrong in the county due to the pause on Mindstrong. As a result, Modoc County and UCI decided not to schedule a site visit to survey and interview Mindstrong users in Modoc County at this time.

Remote Survey Process Development
In August 2019, the evaluation team developed a process to conduct surveys with Mindstrong users remotely when in-person surveys and interviews are not an option. Based on previous interviews and surveys with Mindstrong users, the evaluation team learned that there are typically a number of users who decline to participate. In an effort to increase the number of respondents, this remote survey process proposes contacting users through multiple contact points and modes to capture the reason that users declined to participate. This proposed approach will be discussed with counties.

Surveys and Interviews: 7 Cups Users
The evaluation team developed a construct map and surveys to be completed by 7 Cups users. The construct map aims to better understand the most relevant constructs and to disentangle these constructs' relationships to outcomes in order to streamline data collection instruments and reduce participant burden. Using the construct map, a short and long version of a user survey was developed. The short survey was intended for a broad range and large sample of users over time that could possibly be deployed within the app. The long survey was also intended for a broad range of users but would focus on a smaller subset of users.

Technical Assistance
Help@Hand RSFQ and Pilot Process-Individual Pilot Level

A major transition that has occurred in the project is the move to the RFSQ and the pilot process.   As such, CalMHSA/Cambria reached out to the User Experience Core for technical assistance.

The objective of the Help@Hand pilots is to conduct an initial assessment of a product's compatibility with the Help@Hand collaborative to guide the Collaborative's decision to add the product to the portfolio. To be considered for a pilot, the vendor must complete a Request for Statement of Qualification (RFSQ). Counties and a judging panel will review applications and Counties may pilot products that are approved through the RFSQ. In this quarter, we had six meetings with Cambria from July 26, 2019 through September 26, 2019 to understand the RFSQ and Pilot Process, determine UCI's role in the Pilot Process, and identify areas where the UCI Evaluation team could promote standardization of data collection strategies and instruments as counties begin the Pilot Process.
On July 19, 2019 Cambria shared the Pilot Plan Executive Summary with UCI, a document outlining each stage of the Pilot Process. Through our conversations with Cambria this quarter, we learned that the Pilot Plan has undergone some changes since the initial release of the Executive Summary. The process as of September 3, 2019 is outlined below.

Figure 3. Stages of the Pilot Plan Process
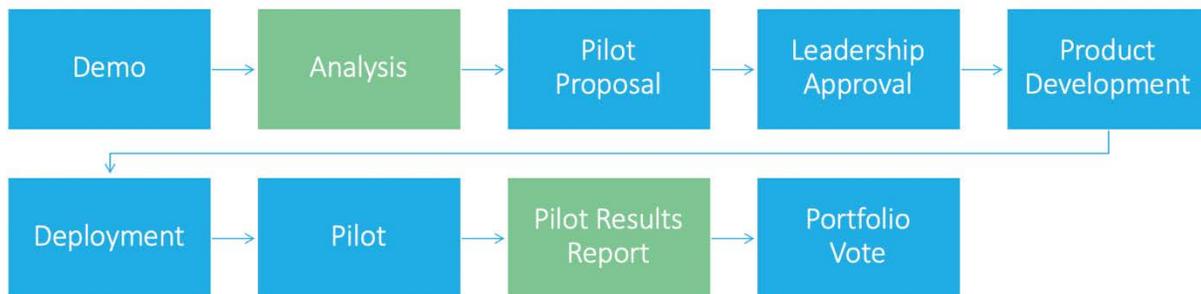
More details about the stages of the pilot plan process is below.
1. *Demo:* The vendor performs demonstrations of the products to Counties.
2. *Analysis:* Once a County is interested in a product, the County will perform a Fit Gap Analysis and Risk Analysis to determine whether the product is a good match for the County. If the product meets the County's requirements, the County may continue to explore the product through staff testing, focus groups, and other vetting activities.
3. *Pilot Proposal:* If the County would like to continue to explore the product after the Analysis stage, the County will develop an implementation plan and pilot proposal. These documents will include items such as development scope, cost, timelines, peer engagement, marketing, and evaluation components. The piloting County will present the proposal to Leadership for approval.
4. *Pilot Vote (Leadership Approval):* Leadership will vote to approve or deny the pilot.
5. *Product Development:* Once the pilot proposal has been approved by Leadership, the vendor will work to develop the requirements for the County's Minimally Viable Product (MVP) as outlined in the pilot scope of work. CalMHSA will work with the County/City through testing, validation, and acceptance of any and all development work for this stage.
6. *Deployment:* Once the County validates and accepts the MVP, the product is deployed in the County. Marketing and evaluation efforts begin in the community.
7. *Pilot (Implementation):* All parties will continue to communicate during the Pilot to document progress. Metrics will be gathered around categories that Counties define in the Pilot Proposal and the Pilot Results Report.

8. *Results (Pilot Results Report):* Counties will develop a Pilot Results Report that includes analysis on all applicable areas, such as: product management, peer engagement results, clinical quality review, user experience, vendor – County compatibility, cost analysis, and usage metrics.
9. *Portfolio Vote:* The Pilot Results Report will be shared with all Counties and Leadership. Leadership will vote to approve or deny the product being added to the Portfolio Library.

On July 26, 2019, UCI met with Cambria to discuss the Pilot Process and UCI's role in the process. We learned that Cambria had developed a high-level Pilot Process but would allow counties to develop their own Pilot Plan. UCI expressed that it would be helpful for Cambria to impose more structure in the process and work with counties to standardize data collection strategies and tools. Because of the UCI team's experience in vetting new technology, UCI suggested developing tools to promote standardization of data collection strategies. Cambria agreed that UCI should be involved in this process and another meeting should be scheduled to continue to discuss UCI's involvement.

We met with Cambria again on August 15, 2019. Cambria requested UCI's involvement during the Analysis and Pilot Results Phase of the Pilot Process as it relates to user experience (see **Figure 3**). During the Analysis Phase, UCI would provide recommendations for conducting focus groups and interpreting user feedback. In the Pilot Results Phase, UCI would help develop a tool to assess user adoption and engagement. Cambria agreed to send the UCI team the specific ask and purpose in order for UCI to have a clear understanding of this request and how it fits into the overall Pilot Process.

On September 5, 2019, Cambria shared the Needs Assessment and Risk and Liability Analysis worksheets that Counties will use for the Pilot Process with UCI. During this meeting, we learned that the focus groups during the Analysis Phase are meant to obtain stakeholders' feedback about products that may be piloted to help Counties determine whether they should continue to pursue the product. Cambria envisions these focus groups taking place over one or two days, but the specifics will be determined by each County.

After gathering more information about the context and purpose of the focus groups, the User Core developed a guide with recommendations for conducting focus groups with early users during the Analysis Phase of the Help@Hand Pilot Process. The guide was developed with the assumptions that participants in the focus groups had sufficient familiarity with the product, were representative of the target audience for the counties, and were similar to other participants in the same focus group (i.e., teens experiencing depression, socially isolated adults). The following constructs were included in the guide: u*ser needs, usability, lifestyle fit, product safety, security and privacy, satisfaction, and other barriers and/or facilitators*. Each construct was followed by a definition of the construct and potential questions that could be asked in a focus group relating to that construct. We also provided a list of best practices for conducting focus groups, including participant recruitment, conducting focus groups, storing data, and items that should be documented for evaluation purposes. In addition to the focus group guide, the User Core developed a Demographic Survey for Focus Groups intended to collect information on participants' experience with technology, mental health experiences, and other demographic information (age, location, employment status, highest level of education, etc.).

The focus group guide and demographic survey were shared with Cambria on September 25, 2019. Cambria requested that we include the following question to the focus group guide under *other security and privacy*: "How could the vendor or product instill confidence that your information is secure?" Cambria also suggested adding "*accessibility (physical)*" as a potential construct to explore as a barrier and/or facilitator in using this product. Cambria was concerned about asking for mental health

diagnoses on the demographic survey because some populations may not feel comfortable disclosing any mental health information. Instead, Cambria suggested inquiring about specific features that users would want in a product.

During the next evaluation period, we will incorporate Cambria's feedback to produce an updated version of the focus group guide and demographic survey.

Help@Hand RSFQ and Pilot Process-Overall
Parallel to the evaluation planning activities intended to support the counties in their piloting of apps being considered for inclusion in the Help@Hand portfolio, the UCI evaluation team also engaged in a planning process intended to identify barriers and facilitators to successful implementation of the piloting process itself, with the purpose of providing recommendations for fine-tuning the process to maximize success. A draft of the proposed process evaluation plan was shared with Cambria on Sept 4, 2019. Cambria expressed concern about the potential burden of providing the requested data regarding the timeline and progress of vendors/products through the proposed RFSQ and Piloting process. A revised (simplified) draft of the process evaluation was created by the UCI Team and shared with Cambria on October 4, 2019. Essentially, this plan requests access to program management data that will enable UCI to identify bottlenecks in the flow through the RFSQ/Pilot process. Where these bottlenecks are detected, qualitative data will be collected through interviews and surveys to representatives of the relevant stakeholders (e.g., Cambria, Catalyst, Counties, Leadership). Data from these qualitative data collection activities will be analyzed rapidly and synthesized into learning updates for the Help@Hand Leadership.

Because the implementation of the UCI Process Evaluation Plan is heavily dependent on the degree to which the piloting process itself rolls out as projected, UCI has built a set of assumptions into the proposal for a Process Evaluation of the RFSQ/Pilot process. These assumptions, which have been incorporated into the proposal submitted on October 7, include the following:
- The evaluation plan to be developed will be for those counties with a strong intention to pilot within the next 6 months;
- Some counties may not participate in the pilot process (i.e., those counties will only work with portfolio apps that have been piloted in other counties);
- The approved vendor list will be available by November 1;
- Demos will begin the week of November 11-15;
- The pilot configuration stage will begin in December;
- Pilots will be live January through March, 2020.

After submitting the second draft of this plan to Cambria and CalMHSA, UCI was instructed to hold off on further development of this plan while contract negotiations between UCI and Help@Hand took place.

Outcomes Core

California Health Interview Survey (CHIS)
There were no changes to the methodology described in previous reports.

California Health and Human Services Data
The evaluation team plans to perform a population analysis of inpatient and emergency department (ED) discharges, Medi-Cal claims, and vital statistics data to compare access to care, access to appropriate levels of care, and outcomes across Help@Hand and a set of California control counties. We are currently preparing the applications to the three State offices collecting these data and the State IRB whose approvals are required. In order to prepare these applications, the following work was done.

Analysis to Identify Control Counties for Help@Hand Counties
In preliminary discussions with the State, we were informed that we would not be permitted to access data for the whole state, but rather needed to identify control counties and justify our request. We have, therefore, performed a series of statistical analyses to identify the control counties.

The objective was to identify two control counties, and one alternative, for each Help@Hand county (up to three comparators for each county). We obtained the following data: County characteristics of socio-demographics, economics, education, utilization of Specialty Mental Healthcare Services (SMHS), and death rates due to self-harm for 2017 were obtained from the U.S. Census 5-year American Community Survey, California Health and Human Services open

Figure 4. Cohort #1 Counties and their Comparison Counties

data, and EpiCenter Health Data. The variables used were standardized to have a mean of 0 and a standard deviation of 1 to allow for each to have equal weight. Euclidean distances were then calculated between each California county.   For each Help@Hand county, we identified the closest three counties in terms of their Euclidean distance as the 'controls'. The control county selection process and the identified control counties were presented at the Evaluation Advisory Board meeting in September 2019. Evaluation Advisory Board Members were then invited to provide feedback. As there were no objections to the methods or Counties selected, the control counties were finalized for Cohort #1. **Figure 4** is a map of California where Cohort #1 counties are in red, and control counties are designated in blue. **Appendix G** has a more detailed description of the methodology.

Development of application material for three data requests from the State of California
We have been compiling the application to California Health and Human Services (CHHS) Committee for the Protection of Human Subjects (CPHS) Institutional Review Board (IRB). This application is requesting the approval to receive de-identified data from the Office of Statewide Planning and Development (OSHPD) for inpatient and emergency department records, the Department of Health Care Services (DHCS) for Medi-Cal claims data, and the California Department of Public Health (CDPH) for Vital Statistics data. We have also been working concurrently on the Data Requests that are required for each of these three departments.

Our current timeline for all four applications (three data applications and one comprehensive IRB) is November 1, 2019. In these applications, we are requesting data from 2015 to 2023. This assumes that the project will be extended to five years, although this has not yet been finalized in the evaluation contract. At this time, the most current year of data for each source is 2017 for Medi-Cal and 2018 for OSHPD and Vital Statistics' static files. Vital Statistics files are updated frequently and will not have a substantial lag between the end of a calendar year and receipt of a new dataset. In comparison, the lag time from data collection and dataset completion for OSHPD data is six months and Medi-Cal is 18 months. Once the datasets for OSHPD and Medi-Cal are complete, they can be requested from their respective department. Receipt of OSHPD data can take 6-9 months, and receipt of Medi-Cal data can take 6-12 months. The following Gantt Chart (**see Figure 5.**) represents a tentative timeline for when OSHPD and Medi-Cal data can be requested and are expected to be received through the end of the five-year project. Due to the implementation of the pilot process beginning in 2020, it can be assumed that apps will not be fully launched in counties until June of 2020 at the earlies. This delay prevents a population level evaluation analysis from being performed in the current three-year contract and would require an extension to five years to allow for this proposed element of the evaluation to be completed.

Figure 5. Tentative timeline for OSHPD and Medi-Cal data
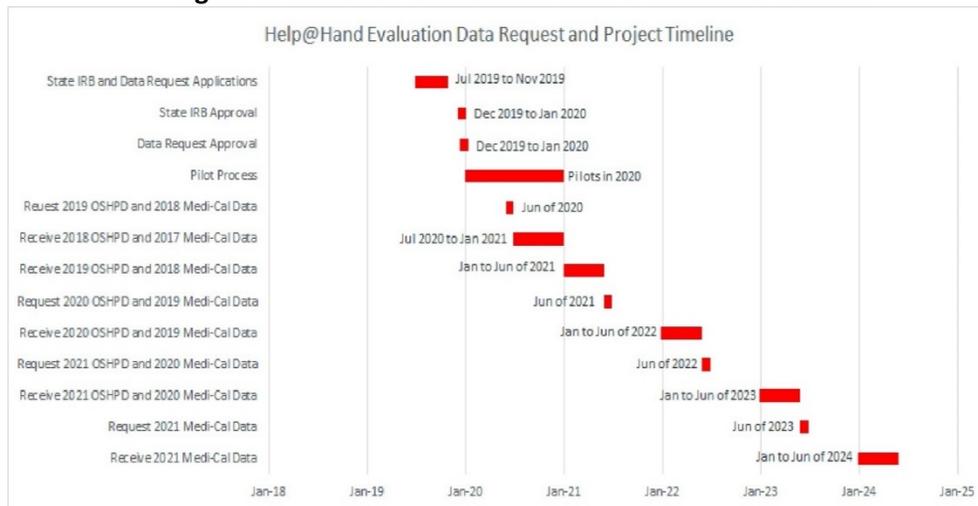
Aligning Measurement Strategy for Primary Learning Objectives
In the previous quarter, the evaluation team worked with 7 Cups to develop an in-app measurement strategy assessing the primary outcomes of Help@Hand, and was in the final stages of selecting the items. However, given the 'pause' that was instituted in May, we are waiting to have final agreement on these items, and will include a draft of these in the next quarterly report.

In addition, the evaluation team worked on organizing a two-day conference entitled "Conceptualizing and Measuring Mental Illness Stigma for Evaluation." This conference will be held October 17-18 at the UCLA Lake Arrowhead Conference Center with the aim to:
- To bring together experts in the area of mental illness stigma, including people with lived experience, individuals will specific knowledge about County, State, and National initiatives, and academic researchers;
- To understand the ways that mental illness stigma has been conceptualized both in the scientific literature and in practice among people with lived experience;

- To develop a measurement framework for assessing mental illness stigma specifically for the INN Tech Suite evaluation plan;
- To build meaningful partnerships based on mutual respect between participants.

Attendees were identified on behalf of their expertise and experience, as well as through recommendations from experts in the field. In preparation for the conference, the evaluation team is conducting a literature review to supplement definitions of different types of stigma measures frequently used in academic literature.

Data Repository and Decision Support Dashboard

Work in this area proceeded as follows.

County level characteristics data
The evaluation team started to create data sets that will be used in analyses supporting the three analytical cores- Implementation Core, User Experience Core, and Outcomes Core. Population-based datasets from publicly available sources were identified, collected, and are now included in the data repository for analyses and inclusion in the dashboard.

Data from the Census Bureau and the California Health and Human Services (CHHS) Open Data Source was also obtained. The Census Bureau data provides population estimates broken down by age, sex, race, and Hispanic origin for each county from 2010-2017. The CHHS Open Data that was accessed originated from the Office of Statewide Health Planning and Development (OSHPD) Patient Discharge Data 2009-2010, OSHPD Emergency Discharge data 2009-2010, and Adult and Youth Specialty Mental Health Service (SMHS) utilization as mandated by Assembly Bill 470 for 2014-2017. These data will be updated every year as more data become available. In the next quarter all these data sets will be compounded into a relational database to facilitate merging with any other data set that would require county level characteristics. **Table 2** lists the variables found in each of these datasets.

Table 2. Data Sources*

Data Source	Variables	Stratified by
Census Bureau population estimates for 2010-2017	• Population Estimate Count	• Year • California County • Age • Sex • Race • Hispanic Origin
CHHS Open Data: OSHPD Patient Discharge Data 2009-2014	• Count of Hospitalizations	• Year • California County • Type of Facility Control (i.e. District, non-profit, etc.) • Facility • Principal Diagnosis Group (PDG)

CHHS Open Data: OSHPD Emergency Department Data 2009-2014	• Count of ED Visits • Count of ED Admissions	• Year • California County • Type of Facility Control (i.e. District, non-profit, etc.) • Facility • Principal Diagnosis Group (PDG)
CHHS Open Data: Adult and Youth SMHS Utilization 2014-2017*	• Residential Treatment Service • Crisis Residential Treatment Service • Crisis Stabilization • Hospital Inpatient • Hospital Inpatient Administrative Day Service • Psychiatric Health Facility • Day Rehabilitation • Mental Health Services • Crisis Intervention • Case Management/ Brokerage: Targeted Case Management • EPSDT: Supplemental Specialty Mental Health Services - Therapeutic Behavioral Services • Intensive Home-Based Services • Day Treatment Intensive: Full Day • Day Treatment Intensive: Half Day • Intensive Care Coordination • Fee-for-Service	• Year • California County • Age • Sex • Race • Written Language

*Data shown comes from eight different datasets from the CHHS Open Data.

Coordination with OAC

The UCI Decision OC Pilot Dashboard project met with Brian Sala, Deputy Director, Evaluation and Program Operations and Dawnté Early, Chief, Research and Evaluation, both at the Mental Health Services Oversight and Accountability Commission (MHSOAC). The MHOAC is working on developing a statewide dashboard that will provide information by county to all stakeholders enabling them to participate in planning discussions about mental health services. It has contracted with the University of California, Los Angeles to do preliminary work and identify data sources that could support such a

dashboard. UCI shared with the MHOAC our mission, which differs from the Commission's, namely that the pilot project envisioned by Orange County and UCI is to develop a decision tool designed to facilitate decision making for use by County employees, and is not intended for the general public. UCI and the MHOAC have agreed to continue conversation and to share information and data to enrich both efforts and make them both more efficient.

Stakeholder Evaluation

Organizational Process Evaluation
Planning continued to build-out a mixed methods assessment regarding the organizational processes that have influenced the Help@Hand Project. The purpose of this proposed data collection is to understand the factors that impede and facilitate the implementation and sustainment of the Help@Hand project. The design of this assessment will be guided by the Exploration, Preparation, Implementation, Sustainment Framework (EPIS; Aarons, Hurlburt & Horwitz, 2011; Moullin, Dickson, Stadnick, Rabin & Aarons, 2019). The EPIS Framework highlights key phases that guide and describe the implementation process and enumerates common and unique factors within and across levels of the outer context (system, policy) and inner (organizational, provider, consumer) context, across factors that bridge outer and inner context, and the nature of the innovation being implemented and the role of innovation developers. The proposed data collection will include concurrent interviews (30-45 minutes) and online surveys (30 minutes) to be conducted every six months across the span of the project. Changes will be made to instrumentation and data collection to reflect progression through the phases of the EPIS framework. The proposed sample will include decision-makers and influencers at the highest level of each vendor and stakeholder group involved in the Help@Hand Project.

To develop the design of the organizational assessment and the specific instruments to be used, UCI collaborated with Cambria staff involved in the Help@Hand Project along with Dr. Cathleen Willging and Dr. Elise Trott Jaramillo at Pacific Institute for Research and Evaluation and Dr. Gregory Aarons at UC San Diego. Dr. Willging and Dr. Trott Jaramillo are applied anthropologists with expertise in qualitative methods and ethnography as applied to health sciences and implementation research and evaluation. Dr. Gregory Aarons is a Professor of Psychiatry at UC San Diego and close collaborator with Dr. Stadnick and Dr. Schueller. Dr. Aarons has expertise in organizational change strategies, implementation science, measure development and is the lead develop of the EPIS framework. Dr. Willging, Dr. Trott Jaramillo and Dr. Aarons have a strong history of collaborating on mixed methods research and evaluation projects similar to the Help@Hand Project. During the planning that took place in this reporting period, it was proposed that Dr. Willging and Dr. Trott Jaramillo would lead the interview guide development and conduct of the interviews in subsequent reporting periods, and that Dr. Aarons and Dr. Stadnick would lead the survey development, in collaboration with other members of the Implementation Core and the UCI Co-PIs, Dr. Sorkin and Dr. Mukamel.

UCI began scheduling interviews with MHSOAC, CalMHSA, County, and Vendor staff.

Preliminary Learnings and Findings

Below are preliminary learnings emerging from the data collection described in the Methodology section. Given the small samples sizes, findings should not be generalized beyond the settings in which the data were collected, but rather should be used for the purpose of making specific observations that might lead to insight when interpreted in context.

Implementation Core

Market surveillance
Feature Review Results
A table presenting the results of the feature review, including app names, is provided in Appendix D. This list is not intended to be an exhaustive list of apps, nor an identification of apps that might best meet the needs of Help@Hand. Rather, these apps represent likely apps people would find by searching app marketplaces and other sources and were identified to serve as a baseline for understanding availability of features in apps, app user experience, and app usage. Again, the process used to produce this list is based on a step-wise systematic search using keywords, relevance, and similarity. Our key findings are:
- There is substantial variability in the app marketplace (including features and platform variability)
- Apps change frequently, including updates and availability
- It's likely that no one app will meet diverse needs of projects, counties, and populations

Variability in the app marketplace: Very few apps had identical patterns of features, demonstrating the variability in the features and functionality of mental health apps. Although two apps may look similar at face value (e.g. "Cognitive behavioral therapy (CBT) apps" or "mindfulness apps"), the patterns of features they contain are likely to differ. Also, it is important to note that even if an app claims to be based on an evidence-based practice (like CBT), these apps often have considerable variability in their fidelity and representation of that evidence-based practice. For example, a published review of 100 "CBT" apps found that only 10% contained features consistent with CBT and only 2 had contained more than 50% of qualifying 'core principles' of CBT (Huguet et al., 2016). Therefore, apps must be considered based not just on their claims but also by review of their content. The most common features in the apps we reviewed were interactive tools, didactic content, and 1-on-1 support. Only 2 apps linked users to offline services. A few apps (N = 5) had AI chatbots or programs with content (N = 6).

With regards to digital phenotyping, we did not identify any apps other than Mindstrong with a digital phenotyping component from the searches. However, this was likely in part due to our methodology. We are modifying our methodology for the next round of market analysis to include both systematic search strategies and our own expertise in digital mental health to compile a broader list of relevant apps. This will help to capture and review other digital phenotyping apps (e.g. BiAffect, JOOL, CompanionMx, Ellipsis Health) in addition to other relevant apps which did not appear on our current list.[1]

---

[1] We also considered Ginger.io, as it was an early product incorporating digital phenotyping for mental health, however, upon discussion with the Ginger.io team they are not currently using digital phenotyping in their platform.

It is also important to note that not all apps are available on both iOS and Android operating systems (i.e., only available on iOS or vice versa), the two most dominant mobile operating systems on the market. Platform availability is therefore important to consider when aiming to capture a wider audience. Most users have access only to an iOS or Android device and are unlikely to purchase a new device to use a new app.

Constant change in the app marketplace given frequent app updates and changes in availability: During our review we noted that app updates were frequent and unpredictable. Updates sometimes resulted in significant branding changes (e.g., Pacifica changing to Sanvello, Reachout changing to We Are More). There were also sometimes significant changes such as feature or pricing changes or important bug fixes that affected the usability of the app (e.g., Replika adding a subscription cost to access some of its features). In other instances, apps would become unavailable or inaccessible during the process of review, which indicates that it is important to consider the longevity of an app especially if adopting or recommending its use.

Likelihood that no app will meet every project/county need: None of the apps we reviewed contained all of the 12 features assessed. As Table 3 demonstrates the range was 2-9 features with an average of 4.9. A full version of Table 3 that shows each feature that each app contained is provided in Appendix D.

Table 3. Total number of features contained in apps.

App name	Total # features in app (out of 12)
7 Cups	**9**
Sanvello	9
OOTify	8
rTribe	8
iPrevail	8
Reservoire	7
Wisdo	7
Replika	7
Mindstrong*	**6**
Woebot	6
Youper	6
TalkLife	6
Wolf+Friends	6
UP!	6
Joyable	5
Wakie	5
Tell A Buddy	5
Sleepio	5
What's Up	4
MoodTrack	4
HealthUnlocked Communities	4
Good Grief: Chat & Messaging	4
Reachout: My Support Network	4
PSY - mental health chat	4
Psychology Chat	4
MindCare	4
MoodPath	4
FearTools - Anxiety Aid	3
Cognitive Diary CBT Self-Help	3
Cognitive Styles CBT Test	3

Icoachi: self-care & self-love	3
MoodKit	3
MoodTools	3
Sibly*	2
CBT Thought Record Diary	2
Moodnotes	2

did not have full access to the app

We also display the frequency that each feature appeared in one of the apps reviewed in Figure 6. As can be seen the most common features were interactive tools and didactic content, whereas the use of AI chatbot, link to services, and digital phenotyping were rarer. Interactive tools appeared in 76.5% of reviewed apps and didactic content in 70.5% whereas AI chatbots appeared in 17.6%, link to services in 8.8%, and digital phenotyping in 2.9%.

Figure 6. The total number of apps containing each of the 12 features reviewed.
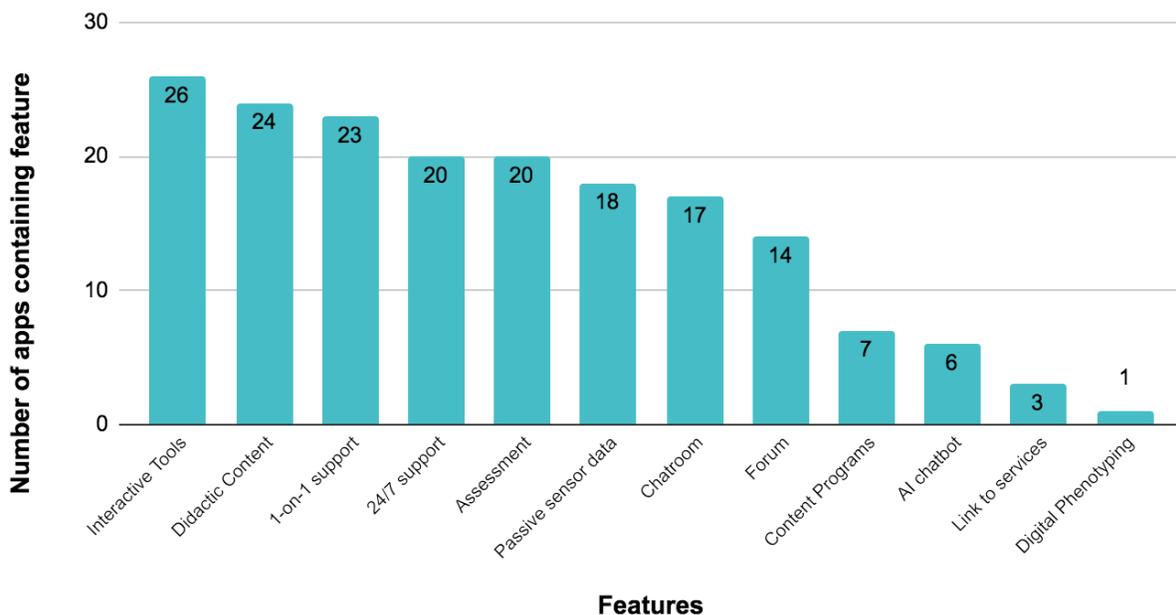
Table 4. Definitions of features assessed within comparator apps (Replicated from Table 1 on page 14)

Feature	Definition	# Apps Containing Feature
1 on 1 support	1-on-1 support, specific to the individual, most likely delivered through a chat or messaging medium	23
24/7 support	User can interact with other users (peers or professionals) in a supportive capacity 24/7	20
Artificial intelligence or chatbot	User can have a conversation with an AI chatbot	6
Assessment of symptoms or condition	User can answer questions or input data to assess their current symptoms, conditions, or overall health status	20
Chatroom	Space where users can chat with one another in real time in instant messaging format	17
Didactic Content	Psychoeducation or other information and educational content	24

Digital phenotyping	Passively collected sensory data is used to assess, measure or predict health status or wellbeing	1
Forum	Space where users can join public conversations and post where other users can see	14
Interactive Tools (separate from programs)	Other parts of the app, outside of programs with content, which the user can interact with (e.g., journaling, mood-tracking)	26
Link to offline services or people	App actively connects the user with other services or people outside of the app, for example, notifies therapist if user is in a crisis	3
Passive sensor data collection	App passively collects sensor data (without user entry), which may include activity, health information, information on how the user interacts with their phone, (e.g. keystrokes), or location (e.g., GPS log)	18
Programs with linear content	Interactive programs or modules in which users progress through stages or steps in a linear way, with each stage or step building on content from the last	7

This provides insight into what is available in the marketplace and demonstrates that it's unlikely that any one app will meet all needs. Instead of looking for an app to meet every need, it may be valuable to prioritize needs and therefore prioritize some features over others. For example, as part of our stepped review process, we chose 4 features which were most representative of the features outlined in the components of the project: 24/7 support, 1-on-1 support, AI/chatbot and digital phenotyping. Of the 34 apps reviewed, 11 apps did not have any of these 4 features. Only 2 apps contained 24/7 support, 1-on-1 support, and AI/chatbot.

User Experience Reviews
As noted in the methodology, we obtained expert and consumer reviews for 22 apps which had at least one of the four central features; 24/7 support, 1-on-1 support, AI/chatbot and digital phenotyping. (We could not gain access to Sibly, which did have at least one of these four components, to complete a review). The ratings are noted in the **Table 5** below.

Table 5. Expert and Consumer Reviews of Apps

App name	24/7 support	1-on-1 support	AI chatbot	Digital pheno-typing	Expert rating	User rating
Sanvello	•				4.80	4.79
Woebot		•	•		4.52	4.38
Youper		•	•		4.49	4.33
Replika		•	•		4.39	4.09
Wolf+Friends*	•	•			4.38	--
Joyable		•			4.29	4.88
iPrevail	•	•			4.16	3.56
UP!		•			4.06	3.55
rTribe	•	•			4.05	4.24
OOTify	•	•	•		3.79	4.09

HealthUnlocked Communities	•	•			3.58	3.90
Reservoire	•	•	•		3.56	4.43
Wisdo	•	•			3.38	4.25
TalkLife	•	•			3.34	3.51
We Are More	•	•			3.15	3.79
Wakie	•	•			3.08	3.45
PSY - mental health chat Psychological help	•	•			2.86	3.17
What's Up	•				2.67	3.83
MoodTrack	•	•			2.59	3.72
Good Grief: Chat & Messaging	•	•			2.50	3.68
Tell A Buddy	•	•			2.15	2.94
Psychology Chat	•	•			2.10	3.25

Based on these reviews, some key findings are:
- Consumer ratings and expert ratings differ
- Excitement about chatbot/AI apps; concern about community/forum apps

Consumer and Expert Ratings Differ: The consumer ratings differed from the expert ratings. It is worth noting that the experts have rated hundreds of apps and may be looking for different aspects or might consider similar features differently based on this experience as well as expertise in psychology. This highlights the importance of understanding multiple viewpoints in app evaluation, including both top-down (expert) and bottom-up (consumer) ratings and feedback. Consumers might have positive views of an aspect that apps view negatively and vice versa. In this set of ratings, consumer ratings tended to be slightly more favorable (positive) than the experts' ratings. It is also worth noting that our consumer rater opted not to review one app (Wolf+Friends) that they felt was not relevant to them. And not all consumers will find value in every app.

Excitement about chatbot/AI apps and concern about community/forum apps: As advised by the developer of MARS who has extensive experience rating health apps, we used 4.00 as an indicator of the higher quality apps. Of the apps which score 4.00 and above on both expert and user ratings, 60% contain a chatbot/AI feature (Youper, Woebot, Replika). This type of feature might improve the user experience on an app. Although it is also worth noting that our consumer rater was a young person. Raters noted the interactivity of the chatbot apps as *"very engaging."* Other apps scoring 4.00+ across both ratings were Sanvello and Joyable.

Although some community/forum apps (e.g. Wolf+Friends) received high scores, the lowest scoring apps tended to be those with community/forum features. All raters expressed concern about these types of apps, including that they "contain disturbing posts, no moderation, or really odd regulation rules ("ban those who mention suicide" in one of the two "Psychology" android apps)".

Environmental Scan
There were no learnings/findings for the environmental scan during this evaluation period.

Site Visits: Leadership, Clinicians, and Peer Interviews and Surveys
Los Angeles Site Visit
Thirteen interviews and 20 surveys were collected during our site visit at Harbor-UCLA to assess the current progress and learnings from Los Angeles' Mindstrong implementation. All individuals

interviewed or surveyed were clinical leaders or providers within the DBT clinic at Harbor-UCLA. Mindstrong implementation commenced in Dec. 2018. As of May 2019, 44 clients had installed Mindstrong and 22 providers had logged into the Mindstrong provider portal ("Care app"). The clinic had 23 total providers and thus the adoption of Mindstrong by providers as well as completion of interviews and surveys of the providers represents a majority of the clinic. Below is an overview of learnings from the site visit. The complete Learning Update is included in Appendix E.

As noted above, most providers were using Mindstrong and 44 clients installed Mindstrong with 19 still transmitting biomarker data and 12 record DBT diary cards within the previous month. Given that providers typically carry a caseload of 1-2 DBT clients, this represents a significant portion of caseloads who have used and are still using Mindstrong.

Overall, our interviews and surveys revealed mixed enthusiasm for the use of Mindstrong in the Harbor-UCLA DBT clinic. There was a general sense that it had been useful for many clients and added value to treatment. However, there were also concerns and questions about the clinical validity and utility of some features. Many providers reflected positively on the use of the digital DBT diary card[2] to improve treatment as they reported clients frequently do not complete the paper diary cards and then have to complete the diary cards in session which takes up time in sessions and means that diary cards are not completed throughout the week. The digital diary cards could therefore provide a better view into clients' functioning between sessions, and the data was more useful within sessions.

The biomarkers were generally viewed less favorably, with providers noting clients' frustration over the Mindstrong keyboard, lack of clinical validity and utility, and lack of integration between the diary cards and the biomarkers. Providers noted several initial challenges to implementation such as the lack of hardware (e.g., computers in provider offices to review client Mindstrong data in session) and software needed to use Mindstrong, issues with integrating Mindstrong into the clinical workflow and DBT treatment model, client characteristics (e.g., severe pathology, close to treatment termination), and lack of interest from some providers to use digital tools. Many of these challenges, however, have been overcome due to strong clinical leadership in implementing Mindstrong and a responsiveness from Mindstrong to provide technical support and updates.

Peer Program Evaluation
Across the three Counties who have participated in the data collection related to the Peer component thus far (Kern, Los Angeles and Orange County), a total of 13 Peers have completed the on-line survey. Responses indicate that approximately half of the Peers had received no formal training to prepare them for their engagement with Help@Hand, although 42% of those not trained formally were trained informally. The majority of the Peers (83%) had not previously used an app to seek mental health care or peer support. A number of questions on the on-line survey were specific to Mindstrong and 7 Cups, so the survey instrument will need to be revised moving forward, to accommodate the pivot in the Help@Hand direction to accommodate a wider range of technological tools. In response to questions about Mindstrong and 7 Cups, Peers expressed overall a high level of confidence in their ability to help someone learn to use the technology, but overall did not feel that the apps were very useful for assisting patients seeking social support or support for mental health needs. On average, Peers were somewhat confident in the way that their county was implementing the Tech Suite.

---

[2] The DBT diary card feature had been developed at request by and in collaboration with the Harbor-UCLA DBT clinic and this clinic was its first deployment for Mindstrong.

Interviews with the three Peer Leads across the 3 Counties who have provided Peer data thus far continues to demonstrate that the Peer component is evolving dynamically and shows considerable variability across Counties. The Peer Leads are consistent in their affirmation of the important role that Peers can and will play in Help@Hand, and the focus remains on their role in communicating directly with the members of the target population who are the potential recipients of the program elements.

User Core

Baseline Assessment
There was no data collection or analysis activity during this evaluation period.

Surveys, Interviews, Focus Groups: Potential Help@Hand Users
There was no data collection or analysis activity during this evaluation period.

Surveys and Interviews: Mindstrong Users
There was no data collection or analysis activity during this evaluation period. A site visit with LA County Mindstrong users is anticipated for the next evaluation period

Surveys and Interviews: 7 Cups Users
Given the pause on 7 Cups, there was no data collection or analysis activity during this evaluation period.

Outcomes Core

California Health Interview Survey (CHIS)
Data collection for the CHIS is being sub-contracted by CalMHSA to the University of California, Los Angeles, UCLA Center for Health Policy Research. The State of California—Health and Human Services Agency, Committee for the Protection of Human Subjects (CPHS) reviewed and approved the data collection for the California Health Interview Survey, as issued under the California Health and Human Services Agency's Federalwide Assurance #00000681 in September, 2019. UCLA, Office of Human Research Protection also designated UCLA as the IRB of record for Aus Marketing Research System, Inc. in September, 2019. Data collection for the 2019 cycle began September 2019, and will continue until December 31, 2019 (Adult survey) and January 31, 2019 (Teen survey.). Data will be ready for final release in October, 2020. See the Quarter 2 report for list of specific items added to 2019 data collection.

California Health and Human Services Data
There was no data collection or analysis activity during this evaluation period.

Aligning Measurement Strategy for Primary Learning Objectives
There was no data collection or analysis activity during this evaluation period.

Data Repository and Decision Support Dashboard
There was no data collection or analysis activity during this evaluation period.

Stakeholder Evaluation

Organizational Process Evaluation
There was no data collection or analysis activity during this evaluation period.

Recommendations to CalMHSA
- Continue to work with Counties to standardize data collection methods and instruments where possible.
- Continue efforts to address digital literacy across the Collaborative, and develop and/or expand process for tracking programmatic influences.
- Continue to build models for integrating peer involvement in the Help@Hand program, and develop and/or expand processes for tracking this integration.

Recommendations to Help@Hand Counties
When implementing in into a clinical system (recommendations that come from Mindstrong follow-up):
- If Los Angeles County finds Mindstrong valuable to Dialectical Behavioral Therapy (DBT) programs, consider aligning subsequent Mindstrong implementation with wider efforts to roll-out DBT countywide.
- Address technical infrastructure issues prior to deployment – e.g., availability of WiFi, devices, operating systems, desktops in provider offices.
- Identify and support clinical champions at additional sites if Mindstrong is implemented more broadly.
- Consider aspects of training and supervision which need to be provided by the UCLA DBT Clinic rather than Mindstrong. For example, consider including review of Mindstrong use by providers as a recurring agenda item during team supervision meetings.
- Leverage opportunity of new influx of trainees.
- Address issues of fit and timing of introduction with providers and clients.
- Consider offering dedicated time for clinicians to review their client's Mindstrong data and document these activities.
- Leverage opportunity of introducing Mindstrong to new clients, particularly those with no prior use of paper DBT diary cards.
- Continue to support and recognize clinical champions.

Recommendations to Vendors

Recommendations for All Vendors
- None noted.

Recommendations for Mindstrong
- Improve usability of the Mindstrong keyboard.
- Incorporate observations and learnings of clinical workflow and technology infrastructure to support clinic-specific adaptations to Mindstrong prior to subsequent deployments.
- Tailor training to address specific competencies and needs of providers.
- Consider integration of biomarker data with the DBT diary cards. Given that the diary card was developed at request of Harbor-UCLA DBT clinic it is not well integrated into other Mindstrong features.
- Provide additional materials and training to facilitate understanding and use of the biomarkers.
- Continue to provide easy access to technical assistance to clients and providers (e.g., to support downloading of Mindstrong, setting up a user profile, troubleshooting).

Recommendations for 7 Cups
- None Noted.

Recommendations to Evaluators (from the Evaluation Advisory Board[3])
- The evaluation team needs to pay attention to political dynamics- the state environment and the county micro-environment- emerging issues need to be documented;
- Emphasize political implementation- get more time with county leadership to understand politics;
- Have an expert on staff who will lead system-level evaluation (e.g. organizational) framework and incorporate the counties' needs;
- This is a technical assistance consultation team that could be actively engaged in recommending the counties what they need to do;
- Evaluators can recommend how to simplify processes;
- Move beyond watching what is happening to making it happen;
- The advisory board can empower the evaluation team to simplify matters;
- Reports should highlight barriers to implementation- provide recommendations for what science says is needed to move forward;
- Assumption was the app was turn-key but turned out to be hybrid, and such develop processes to highlight resulting challenges (e.g. inadequate staffing numbers)
- Counties need formative evaluation feedback; and
- Ask for support from county partners.

---

[3] The recommendations to the evaluators are recommendations given by the Evaluation Advisory Board during the Evaluation Advisory Board meeting on June 25, 2019. Recommendations were captured in draft minutes which were circulated by the Board Chair to other Board members for review and feedback. Final minutes with included recommendations were provided to the UCI Evaluation Team on August 19, 2019.

Planned Activities for Next Evaluation Period

The following are planned activities for the next quarter:

- Continue with market surveillance analysis – incorporate app analytic data;
- Hire staff to conduct the environmental scan;
- Implementation Evaluation will conduct follow-up implementation data collection with Modoc (remote);
- Conduct cross-site data analysis of pre-implementation site visits;
- Continue to interview and survey Peers to ascertain the structure and function of the Peer component of the Help@Hand;
- Begin developing a process where peers can provide feedback on data collection instruments and potentially be involved with recruitment efforts;
- User Experience Core will continue to work with the counties to review and tailor data collection instruments;
- User Experience Core will work with Los Angeles and Modoc counties to coordinate site visits for data collection;
- Continue to engage in conversations with Cohort 1 counties to identify strategies to assess needs of their target audiences and establish baselines for outcome measures;
- Plan and hold the "Conceptualizing and Measuring Mental Illness Stigma for Evaluation" Conference.
- Work with counties to obtain administrative data on clinics in order to understand clinic size, demographics, and complexity which can inform which site visit methodology;
- Work with Cambria/CalMHSA to establish a plan for evaluation of the user experience during the pilot process;
- Produce a document with recommendations for the evaluation of piloted products;
- Submit an IRB Modification Request as data collection instruments and sites are solidified;
- Seek IRB approval from data collection sites, as necessary;
- Host the CalMHSA Evaluation Advisory Board Meeting on December 13, 2019; and
- Continue to revise and refine data collection instruments to collect quality data without burdening participants. Develop new data collection instruments based on programs targeted.

References

Aarons, G., Hurlburt, M., & Horwitz, S. (2011). Advancing a Conceptual Model of Evidence-Based Practice Implementation in Public Service Sectors. *Administration And Policy In Mental Health And Mental Health Services Research*, *38*(1), 4-23. doi: 10.1007/s10488-010-0327-7

CalMHSA. (2019, June-September). *Leadership Committee Meeting.* Help@Hand Archives, Sacramento, CA.

CalMHSA. (2019, June-September). *Tech Lead Collaboration Meeting.* Help@Hand Archives, Sacramento, CA.

CalMHSA. (2019, June-September). *Change Control Board Meeting.* Help@Hand Archives, Sacramento, CA.

Carey, B. (2019). California Tests a Digital 'Fire Alarm' for Mental Distress. Retrieved 11 December 2019, from https://www.nytimes.com/2019/06/17/health/mindstrong-mental-health-app.html

Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implementation science, 4(1), 50.

The Forecast Help@Hand. News Updates [Internet]. 2019 June to September. Available https://tinyurl.com/waxqrrs

Huguet, A., Rao, S., McGrath, P. J., Wozney, L., Wheaton, M., Conrod, J., & Rozario, S. (2016). A systematic review of cognitive behavioral therapy and behavioral activation apps for depression. PloS one, 11(5), e0154248.

Leins, C. (2019). Mobile Apps Could Transform California's Mental Health System. Retrieved 6 December 2019, from https://www.usnews.com/news/best-states/articles/2019-07-26/mobile-apps-could-transform-californias-mental-health-system

Moullin, J., Dickson, K., Stadnick, N., Rabin, B., & Aarons, G. (2019). Systematic review of the Exploration, Preparation, Implementation, Sustainment (EPIS) framework. *Implementation Science*, *14*(1). doi: 10.1186/s13012-018-0842-6

Palinkas, L. A., & Zatzick, D. (2018). Rapid Assessment Procedure Informed Clinical Ethnography (RAPICE) in Pragmatic Clinical Trials of Mental Health Services Implementation: Methods and Applied Case Study. Administration and Policy in Mental Health and Mental Health Services Research, 1-16.

Stoyanov, S. R., Hides, L., Kavanagh, D. J., Zelenko, O., Tjondronegoro, D., & Mani, M. (2015). Mobile app rating scale: a new tool for assessing the quality of health mobile apps. JMIR mHealth and uHealth, 3(1), e27.

Appendix A: County Specifics

Kern County

Tech Lead(s)	• Lamar K. Brandysky, LMFT
Team Composition	• Project Lead (LKB), Peer Lead (YT), 2 Peers (MG, JB)
Products In Use/ Planned	• Focusing on Peer App Brochure
Implementation Approach	• Meet with Peer Focus Group weekly to review and revise Apps and Brochure.
Target Audience(s)	• MHP Beneficiaries, Partners in care (DHS, Probation, Law Enforcement, Public Health)
Other Unique Qualities (about your implementation, target audience, or other aspect of your Tech Suite program)	• Peer focus group meets weekly to provide insight and real-life experience with apps. Peers review proposed Apps for usability, engagement, variety and privacy, to name a few parameters. • Have offered to edit Kern's App Brochure to make versions unique to specific counties.
Implementation Champion Clinic(s)	• Consumer Family Learning Center Peers and the Self-Empowerment Team
Milestone(s)	• Each App in the brochure has been vetted by a focus group of peers, and then reviewed the next quarter to assure relevance. • Production of a brochure of publicly available apps for county-wide distribution. • Edited Kern's App Brochure in order to have a Modoc version. • In process of assisting Santa Barbara County to complete their implementation of an App Brochure.
Lesson(s) Learned (since the beginning of the project)	• The proposed Apps need to be thoroughly vetted prior to piloting with clients. A prime role of County mental health is to assure the provision of safe products to their vulnerable population.
Recommendations for the Tech Suite	• Focus on producing a product. Time and energy can be spent of process and procedures with no resulting product.

Los Angeles County

Tech Lead(s)	• Ivy Levin, LCSW • Alex Elliott, MSW
Team Composition	• Project Sponsor (Jonathan Sherin) • Program Lead/Project Manager (Katherine Steinberg) • Peer Lead (Keris Myrick) • Communications Lead (Mimi McKay) • Technical Leads (Mirian Avalos and Jim Spallino) • Clinical/Evaluation Lead (Lisa Benson) • Clinical and Tech Leads (Ivy Levin and Alex Elliott) • Privacy SME (Ginger Fong)

	• Security SME (Vahe Haratounian) • Peer Workforce (Painted Brain) • DBT Clinical Champion (Lynn McFarr)
Products In Use/ Planned	• Mindstrong Health • More to be determined
Implementation Approach	Mindstrong: integrate Mindstrong biomarker data into clinical practice, initially in DBT clinic, for current clients in order to engage, educate, and activate current clients by a) supporting proactive rather than reactive engagement with clients b) offering useful monitoring of clients between visits c) increasing understanding of symptoms for both providers and clients Future Implementation Approaches to be determined
Target Audience(s)	• Transitional age youth and college students • County employees • Individuals and family members who may not be comfortable accessing care pathways within the Community Mental Health System seeking de-stigmatized access to care and supports for well-being. • Existing mental health clients seeking additional sources of support or seeking care/support in a non-traditional setting • People with complex needs potentially with multiple and repeated hospitalizations

Other Unique Qualities (about your implementation, target audience, or other aspect of your Tech Suite program)	• Modified Mindstrong Health app for use in Dialectical Behavioral Therapy (DBT)
	• Diary card added to Mindstrong app for DBT pilot
	• Not using Mindstrong clinical services
	• Objectives/Target Audience:
	    • **Primary Objective:** LAC Tech Suite will focus on engaging college, graduate, and vocational students with a set of technology applications that aim to meet their mental health and wellbeing needs and/or assist in linking them to appropriate levels of care and supports
	    • **Secondary Objective:** LAC Tech Suite will improve mental health and wellbeing of LA County Employees by increasing access and engagement to digital technologies supporting mental health and wellbeing
	    • **Tertiary Objective:** LAC Tech Suite will improve mental health and wellbeing of LA County Residents by increasing access and engagement to digital technologies supporting mental health and wellbeing
	    • **Quaternary Objective:** LAC Tech Suite to Improve engagement among individuals receiving services at LAC DMH (such as those with personality disorders, schizophrenia, or mood disorders) through digital mental health and wellbeing tools

Implementation Champion Clinic(s)	• Harbor UCLA DBT program for Mindstrong
Milestone(s) (between June-Sept 2019)	• Mindstrong continues to be used at Harbor UCLA DBT Clinic despite Mindstrong's decision to pause contract • Worked on readiness internally to DMH including aligning around goals and understanding needs from the perspective of leaders and front line staff • Collaborated with Monterey to provide feedback on their RFI and hosted them in LAC to present to LAC leadership as well as representatives from OC and Kern • Began to design trifold brochure that can be customized to clinics regarding digital health recommendations based on learnings from clinic front line • Worked with Painted Brain to develop and field an app usage survey across all 8 service areas in the county • Painted Brain completed outline for digital health literacy curriculum and completed version 1.0 of module 1 of the curriculum • Painted Brain hosted Appy Hour to collect community feedback on module 1 of the digital health curriculum • LAC hosted a community meeting to collect feedback on planning and digital health curriculum needs in LA County • Began developing fast track process for digital health with LACDMH IT process • Conducted interviews and observations among each of the target populations to better understand unmet needs and how technology might support those needs (ie: interviews among county employees, ride-alongs with first responders, interviews on community college campuses, etc) • Developed relationships community college champions for deeper needs assessment and pilot exploration • Development of digital health opportunities outside of the CalMHSA coordinated efforts including an opportunity to bring Headspace to county employees and bringing UCLA's STAND program to community college students • Developed relationships with Veteran's Champion in LAC to better understand unmet needs and how technology might support those needs.
Lesson(s) Learned	• Ensure more training and monitoring is done for implementation sites to allow for greater iteration and engagement opportunities • Even more due diligence is required around product functionalities and offerings to confirm they meet county expectations and needs prior to contracting • Continue to collect understanding of unmet needs for target audience to help inform technology selection, piloting, and scaling • Articulate success metrics and plan for collection ahead of pilot implementation (identify the quantitative and qualitative metrics to

	measure effectiveness with digital mental health and wellness applications) • Refocus technology selection from customization and development to employment of technologies currently in use in health and academic settings • Establish a central point-person as the lead project manager and leadership representative to triage and delegate tasks to team members and govern implementation and contracting • Planning for launch of internal LAC DMH learning collaborative to help with readiness of internal stakeholders • Utilize hands-on demos, videos, and visualizations to engage stakeholders in learning about the features of Tech Suite technologies
Recommendations for the Tech Suite	• Work closely with internal DMH IT department starting early in process, particularly as it relates to privacy and security reviews • Maintain realistic goals about how long it will take to get a pilot through IT review and up and running • Plan early what success metrics will be met for advancing to spread of technology with the county. Consider the spread plan during pilot planning • Engage expertise in digital health piloting • Consider piloting technologies that require only minimal customization to the public mental health space, rather than product development. Wait on customization efforts until after initial usability is demonstrated • Consider a phased approach to roll-out, starting with only 1 or 2 counties per technology, with clear success metrics • Execute vendor contracts linked to clear milestones of project success • Iterate on project budget to ensure it reflects the vision for a suite (or menu) of technologies to increase access to mental health and wellbeing and ensure transparency to counties about budget and costs of deliverables requested • Facilitate more open sharing, communication and learning across counties and among counties and vendors (include tech, evaluation, marketing vendors and CalMHSA) • Stay up to date on the mobile digital health technologies and allow for new technologies to be a part of the selection on on-going basis • Bring lessons learned from other organizations that have created tech suites back to this collaborative • Compare products on the Tech Suite bench to what is available in the digital mental health and wellness market • Eliminate barriers to individuals' participation in the tech suite by spending time understanding what those potential barriers might be • Despite pressure around reversion, ensure appropriate due diligence and clarity around the process and timeline before pushing timelines forward • Facilitate meaningful collaboration and sharing among counties (facilitate a shared understanding of what collaboration means to the collaborative)

	• Ensure all information is provided to the counties in a timely manner so that counties can drive decision making and apply learnings in an expedited manner
	• Ensure there is clarity with budgeting on what dollars are available from funding for local operationalization so counties can plan and execute on plans efficiently
	• Stay up to date on the free mobile digital health technologies that are available such as apps available through County libraries and the Statewide Peer Run Warm line
	• Monitor Tech Suite technologies analytics dashboards to inform quality improvement, outreach and engagement strategies
	• Eliminate barriers to individuals' participation in the tech suite by spending time understanding what those potential barriers might be (i.e. increase the number of USB ports in clinics and drop-in centers to support charging devices, assist clients with accessing phones through the California Lifeline Program)

Modoc County

Tech Lead(s)	• Rhonda Bandy, PhD
Team Composition	• Modoc County Behavioral Health (MCBH) Branch Director, MCBH MHSA Coordinator, Behavioral Health Peer Specialist
Products In Use/ Planned	• Mindstrong • 7 Cups—Growth Paths only
Implementation Approach	• Mindstrong for current clients • 7 Cups as a public wellness and prevention approach
Target Audience(s)	• Current clients • County residents (as new apps are onboarded.)
Other Unique Qualities (about your implementation, target audience, or other aspect of your Tech Suite program)	• Mindstrong is available to all behavioral health clients in the County. We will offer county-owned phones to clients not able to participate due to lack of equipment when Mindstrong is able to support us, hopefully in January 2020.
Implementation Champion Clinic(s)	• Modoc County Behavioral Health
Milestone(s) (between June - Aug 2019)	• Phone protocols developed, but not implemented. • Joined the Help@Hand Roadmap Workgroup.
Lesson(s) Learned	• Patience—waiting for CalMHSA to finalize contracts, provide budget, get time extension with OAC, and Help@Hand leadership to establish future strategic direction.
Recommendations for Help@Hand	• Make specific effort to keep the Help@Hand collaborative culture between counties to capture county learning.

Mono County- All Help@Hand involvement is currently on hold.

Orange County

Tech Lead(s)	• Sharon Ishikawa, PhD • Flor Yousefian Tehrani, PsyD, LMFT
Team Composition	• Peer Lead • 2 Peers • IT, Compliance, Contracts, PIO, County Counsel, as needed • Cambria (3.5 FTE) to support Mindstrong implementation/launch
Products In Use/ Planned	• Mindstrong Crisis Prevention Services • 7 Cups, contingent upon information on number of Growth Path end users for OC (individuals who started to use and continue to use Growth Paths as a result of Help@Hand)
Implementation Status	• Mindstrong—not in use yet • 7 Cups—not in use yet
Target Audience(s)	Mindstrong: • Adults 18+ • Diagnosis of SMI • English speaking • Individuals who own a smartphone with unlimited data, talk and text o May be expended depending on additional research on Lifeline phones and Mindstrong data usage 7 Cups: • To be determined
Other Unique Qualities (about your implementation, target audience, or other aspect of your Tech Suite program)	• Serving individuals regardless of insurance type/status
Implementation Champion Clinic(s)	• UCI Medical Center • College Hospital • Mission Hospital
Milestone(s) (between Jun - Sept 2019)	• Mindstrong: Tentative pilot launch date in January 2020 o Pending guidance from Manatt and County Counsel on FDA • Additional programs: waiting for lessons learned from above pilots
Lesson(s) Learned (since the beginning of the project)	• Shared vision and support from executive leadership • Prioritize system prep, program prep and implementation planning over launching • Involve tech experts in the planning, development and management at the overall collaborative and local level (counties who don't have this could rely on CalMHSA or the vendor)

	• Communication w/vendors, checking in to ensure information and messaging is accurate/reflects a shared vision
	• Tech vendors should be held to equitable standards
	• Create a checklist of pre-launch activities (i.e., coordinate meetings w/Compliance, IT, County Counsel, QI)
	• Ability to course correct, shift/change when needed
	• Frequently define terms, especially in the beginning, to ensure shared understanding
	• Collaborate/communicate with the program managers and staff in programs where app will be launched
	• Obtain feedback from clinicians/peers early on to assess interest/readiness to use the app services
	• Continually manage expectations at all levels (i.e., community, programs, vendors)
	• Risk and Liability workgroup, legal counsel, and crisis response protocols are critical elements to the project
	Challenges:
	    • Managing the details with a small team
	    • Creating an environment where counties and vendors can openly discuss challenges, concerns and issues

Recommendations for the Tech Suite	• Flow of communication (i.e., within/between/among CalMHSA, counties, vendors) • Plans and frequency of coordinated calls between counties • Status update following the Cambria meetings • Systematic process for testing/vetting apps, including issues related to user safety • Process for procuring and demoing new apps/vendors, as well as for adding new components to the Suite • How will the planning, development and implementation process be streamlined and sustainable in the future (e.g., security vetting, compliance, etc.)? • What does it mean for counties to collaborate? • Consider risk and liability as part of County planning and readiness

Appendix B: App Vendor Milestones and Accomplishments

No vendor milestones or accomplishments reported in this quarter.

Mobile Application Rating Scale (MARS)

App Classification

The Classification section is used to collect descriptive and technical information about the app. Please review the app description in iTunes / Google Play to access this information.

App Name: _____

Rating this version: _____ **Rating all versions:** _____

Developer: _____

N ratings this version: _____ **N ratings all versions:** _____

Version: _____ **Last update:** _____

Cost - basic version: _____ **Cost - upgrade version:** _____

Platform: ☐☐ iPhone ☐☐ iPad ☐☐ Android

Brief description: _____

_____

Focus: what the app targets (select all that apply) (select all that apply)

☐☐ Increase Happiness/Well-being
☐☐ Mindfulness/Meditation/Relaxation
☐☐ Reduce negative emotions
☐☐ Depression
☐☐ Anxiety/Stress
☐☐ Anger
☐☐ Behavior Change
☐☐ Alcohol /Substance Use
☐☐ Goal Setting
☐☐ Entertainment
☐☐ Relationships
☐☐ Physical health
☐☐ Other _____

Theoretical background/Strategies (all that apply)

☐☐ Assessment
☐☐ Feedback
☐☐ Information/Education
☐☐ Monitoring/Tracking
☐☐ Goal setting
☐☐ Advice/Tips/Strategies/Skills training
☐☐ CBT – Behavioral (positive events)
☐☐ CBT – Cognitive (thought challenging)
☐☐ ACT – Acceptance commitment therapy
☐☐ Mindfulness/Meditation
☐☐ Relaxation
☐☐ Gratitude
☐☐ Strengths based
☐☐ Other _____

Affiliations:

☐☐ Unknown ☐☐ Commercial ☐☐ Government ☐☐ NGO ☐☐ University

Age group (all that apply)

    ☐☐ Children (under 12)
    ☐☐ Adolescents (13-17)
    ☐☐ Young Adults (18-25)
    ☐☐ Adults
    ☐☐ General

Technical aspects of app (all that apply)

    ☐☐ Allows sharing (Facebook, Twitter, etc)
    ☐☐ Has an app community
    ☐☐ Requires login
    ☐☐ Sends reminders
    ☐☐ Needs web access to function

App Quality Ratings

The Rating scale assesses app quality on four dimensions. All items are rated on a 5-point scale from "1.Inadequate" to "5.Excellent". Circle the number that most accurately represents the quality of the app component you are rating. Please use the descriptors provided for each response category.

SECTION A

Engagement – fun, interesting, customisable, interactive (e.g. sends alerts, messages, reminders, feedback, enables sharing), well-targeted to audience

1. **Entertainment: Is the app fun/entertaining to use? Does it use any strategies to increase engagement through entertainment (e.g. through gamification)?**

   1   Dull, not fun or entertaining at all
   2   Mostly boring
   3   OK, fun enough to entertain user for a brief time (< 5 minutes)
   4   Moderately fun and entertaining, would entertain user for some time (5-10 minutes total)
   5   Highly entertaining and fun, would stimulate repeat use

2. **Interest: Is the app interesting to use? Does it use any strategies to increase engagement by presenting its content in an interesting way?**

   1   Not interesting at all
   2   Mostly uninteresting
   3   OK, neither interesting nor uninteresting; would engage user for a brief time (< 5 minutes)
   4   Moderately interesting; would engage user for some time (5-10 minutes total)
   5   Very interesting, would engage user in repeat use

3. **Customisation: Does it provide/retain all necessary settings/preferences for apps features (e.g. sound, content, notifications, etc.)?**

   1   Does not allow any customisation or requires setting to be input every time
   2   Allows insufficient customisation limiting functions
   3   Allows basic customisation to function adequately
   4   Allows numerous options for customisation
   5   Allows complete tailoring to the individual's characteristics/preferences, retains all settings

4. **Interactivity: Does it allow user input, provide feedback, contain prompts (reminders, sharing options, notifications, etc.)? Note: these functions need to be customisable and not overwhelming in order to be perfect.**

   1   No interactive features and/or no response to user interaction
   2   Insufficient interactivity, or feedback, or user input options, limiting functions
   3   Basic interactive features to function adequately
   4   Offers a variety of interactive features/feedback/user input options
   5   Very high level of responsiveness through interactive features/feedback/user input options

5. **Target group: Is the app content (visual information, language, design) appropriate for your target audience?**

    1   Completely inappropriate/unclear/confusing
    2   Mostly inappropriate/unclear/confusing
    3   Acceptable but not targeted. May be inappropriate/unclear/confusing
    4   Well-targeted, with negligible issues
    5   Perfectly targeted, no issues found

A. Engagement mean score = _____

SECTION B

Functionality – app functioning, easy to learn, navigation, flow logic, and gestural design of app

6. **Performance: How accurately/fast do the app features (functions) and components (buttons/menus) work?**

    1   App is broken; no/insufficient/inaccurate response (e.g. crashes/bugs/broken features, etc.)
    2   Some functions work, but lagging or contains major technical problems
    3   App works overall. Some technical problems need fixing/Slow at times
    4   Mostly functional with minor/negligible problems
    5   Perfect/timely response; no technical bugs found/contains a 'loading time left' indicator

7. **Ease of use: How easy is it to learn how to use the app; how clear are the menu labels/icons and instructions?**

    1   No/limited instructions; menu labels/icons are confusing; complicated
    2   Useable after a lot of time/effort
    3   Useable after some time/effort
    4   Easy to learn how to use the app (or has clear instructions)
    5   Able to use app immediately; intuitive; simple

8. **Navigation: Is moving between screens logical/accurate/appropriate/ uninterrupted; are all necessary screen links present?**

    1   Different sections within the app seem logically disconnected and random/confusing/navigation is difficult
    2   Usable after a lot of time/effort
    3   Usable after some time/effort
    4   Easy to use or missing a negligible link
    5   Perfectly logical, easy, clear and intuitive screen flow throughout, or offers shortcuts

9. **Gestural design: Are interactions (taps/swipes/pinches/scrolls) consistent and intuitive across all components/screens?**

    1   Completely inconsistent/confusing
    2   Often inconsistent/confusing
    3   OK with some inconsistencies/confusing elements
    4   Mostly consistent/intuitive with negligible problems
    5   Perfectly consistent and intuitive

B. Functionality mean score = _____

SECTION C

Aesthetics – graphic design, overall visual appeal, colour scheme, and stylistic consistency

10. **Layout: Is arrangement and size of buttons/icons/menus/content on the screen appropriate or zoomable if needed?**

    1   Very bad design, cluttered, some options impossible to select/locate/see/read device display not optimised
    2   Bad design, random, unclear, some options difficult to select/locate/see/read
    3   Satisfactory, few problems with selecting/locating/seeing/reading items or with minor screen-size problems
    4   Mostly clear, able to select/locate/see/read items
    5   Professional, simple, clear, orderly, logically organised, device display optimised. Every design component has a purpose

11. **Graphics: How high is the quality/resolution of graphics used for buttons/icons/menus/content?**

    1   Graphics appear amateur, very poor visual design - disproportionate, completely stylistically inconsistent
    2   Low quality/low resolution graphics; low quality visual design – disproportionate, stylistically inconsistent
    3   Moderate quality graphics and visual design (generally consistent in style)
    4   High quality/resolution graphics and visual design – mostly proportionate, stylistically consistent
    5   Very high quality/resolution graphics and visual design - proportionate, stylistically consistent throughout

12. **Visual appeal: How good does the app look?**

    1   No visual appeal, unpleasant to look at, poorly designed, clashing/mismatched colours
    2   Little visual appeal – poorly designed, bad use of colour, visually boring
    3   Some visual appeal – average, neither pleasant, nor unpleasant
    4   High level of visual appeal – seamless graphics – consistent and professionally designed
    5   As above + very attractive, memorable, stands out; use of colour enhances app features/menus

C. Aesthetics mean score = _____

SECTION D

Information – Contains high quality information (e.g. text, feedback, measures, references) from a credible source. Select N/A if the app component is irrelevant.

13. **Accuracy of app description (in app store): Does app contain what is described?**

    1   Misleading. App does not contain the described components/functions. Or has no description
    2   Inaccurate. App contains very few of the described components/functions
    3   OK. App contains some of the described components/functions
    4   Accurate. App contains most of the described components/functions
    5   Highly accurate description of the app components/functions

14. **Goals: Does app have specific, measurable and achievable goals (specified in app store description or within the app itself)?**

    N/A Description does not list goals, or app goals are irrelevant to research goal (e.g. using a game for educational purposes)
    1   App has no chance of achieving its stated goals
    2   Description lists some goals, but app has very little chance of achieving them

3   OK. App has clear goals, which may be achievable.
4   App has clearly specified goals, which are measurable and achievable
5   App has specific and measurable goals, which are highly likely to be achieved

15. **Quality of information: Is app content correct, well written, and relevant to the goal/topic of the app?**

N/A There is no information within the app
1   Irrelevant/inappropriate/incoherent/incorrect
2   Poor. Barely relevant/appropriate/coherent/may be incorrect
3   Moderately relevant/appropriate/coherent/and appears correct
4   Relevant/appropriate/coherent/correct
5   Highly relevant, appropriate, coherent, and correct

16. **Quantity of information: Is the extent coverage within the scope of the app; and comprehensive but concise?**

N/A There is no information within the app
1   Minimal or overwhelming
2   Insufficient or possibly overwhelming
3   OK but not comprehensive or concise
4   Offers a broad range of information, has some gaps or unnecessary detail; or has no links to more information and resources
5   Comprehensive and concise; contains links to more information and resources

17. **Visual information: Is visual explanation of concepts – through charts/graphs/images/videos, etc. – clear, logical, correct?**

N/A There is no visual information within the app (e.g. it only contains audio, or text)
1   Completely unclear/confusing/wrong or necessary but missing
2   Mostly unclear/confusing/wrong
3   OK but often unclear/confusing/wrong
4   Mostly clear/logical/correct with negligible issues
5   Perfectly clear/logical/correct

18. **Credibility: Does the app come from a legitimate source (specified in app store description or within the app itself)?**

1   Source identified but legitimacy/trustworthiness of source is questionable (e.g. commercial business with vested interest)
2   Appears to come from a legitimate source, but it cannot be verified (e.g. has no webpage)
3   Developed by small NGO/institution (hospital/centre, etc.) /specialised commercial business, funding body
4   Developed by government, university or as above but larger in scale
5   Developed using nationally competitive government or research funding (e.g. Australian Research Council, NHMRC)

19. **Evidence base: Has the app been trialled/tested; must be verified by evidence (in published scientific literature)?**

N/A The app has not been trialled/tested
1   The evidence suggests the app does not work
2   App has been trialled (e.g., acceptability, usability, satisfaction ratings) and has partially positive outcomes in studies that are not randomised controlled trials (RCTs), or there is little or no

contradictory evidence.

3   App has been trialled (e.g., acceptability, usability, satisfaction ratings) and has positive outcomes in studies that are not RCTs, and there is no contradictory evidence.

4   App has been trialled and outcome tested in 1-2 RCTs indicating positive results

5   App has been trialled and outcome tested in $\geq$ 3 high quality RCTs indicating positive results

D. Information mean score =_____*

* Exclude questions rated as "N/A" from the mean score calculation.

App subjective quality

SECTION E

1. **Would you recommend this app to people who might benefit from it?**

1	**Not at all**	I would not recommend this app to anyone
2		There are very few people I would recommend this app to
3	**Maybe**	There are several people whom I would recommend it to
4		There are many people I would recommend this app to
5	**Definitely**	I would recommend this app to everyone

2. **How many times do you think you would use this app in the next 12 months if it was relevant to you?**

    1   **None**
    2   1-2
    3   3-10
    4   10-50
    5   >50

3. **Would you pay for this app?**

    1   No
    3   Maybe
    5   Yes

4. **What is your overall star rating of the app?**

1	★★	One of the worst apps I've used
2	★★★★	
3	★★★★★★	Average
4	★★★★★★★★	
5	★★★★★★★★★★	One of the best apps I've used

Scoring

App quality scores for

SECTION

A: Engagement Mean Score = _____

B: Functionality Mean Score = _____

C: Aesthetics   Mean Score = _____

D: Information Mean Score = _____

App quality mean Score   = _____

App subjective quality Score = _____

App-specific

These added items can be adjusted and used to assess the perceived impact of the app on the user's knowledge, attitudes, intentions to change as well as the likelihood of actual change in the target health behaviour.

SECTION F

1. **Awareness: This app is likely to increase awareness of the importance of addressing [insert target health behaviour]**

   Strongly disagree   Strongly Agree

       1   2   3   4   5

2. **Knowledge: This app is likely to increase knowledge/understanding of [insert target health behaviour]**

   Strongly disagree   Strongly Agree

       1   2   3   4   5

3. **Attitudes: This app is likely to change attitudes toward improving [insert target health behaviour]**

   Strongly disagree   Strongly Agree

       1   2   3   4   5

4. **Intention to change: This app is likely to increase intentions/motivation to address [insert target health behaviour]**

   Strongly disagree   Strongly Agree

       1   2   3   4   5

5. Help seeking: Use of this app is likely to encourage further help seeking for [insert target health behaviour] (if it's required)

Strongly disagree   Strongly Agree

       1   2   3   4   5

6. Behaviour change: Use of this app is likely increase/decrease [insert target health   behaviour]

Strongly disagree   Strongly Agree

       1   2   3   4   5

Appendix D: Market Surveillance Feature Review Results

	24/7 support	1-on-1 support	AI chatbot	Digital Pheno-typing	Passive sensor data	Chatroom	Forum	Content Programs	Assess-ment	Interactive Tools	Didactic Content	Link to services	Total # features in app
7 Cups	●	●	●			●	●	●	●	●	●		9
Sanvello	●				●	●	●	●	●	●	●	●	9
OOTify	●	●	●		●		●		●	●	●		8
rTribe	●	●			●	●		●	●	●	●		8
iPrevail	●	●				●	●	●	●	●	●		8
Reservoire	●		●			●	●		●	●	●		7
Wisdo	●	●			●	●	●		●	●			7
Replika		●	●		●			●	●	●	●		7
Mindstrong*	●			●	●				●	●		●	6
Woebot		●	●		●				●	●	●		6
Youper		●	●		●				●	●	●		6
TalkLife	●	●			●	●	●			●			6
Wolf+Friends	●	●			●	●				●	●		6
UP!		●			●				●	●	●	●	6
Joyable		●				●		●	●		●		5
Wakie	●	●			●	●	●						5
Tell A Buddy	●	●				●	●			●			5
Sleepio							●	●	●	●	●		5
What's Up	●						●			●	●		4
MoodTrack	●	●				●				●			4
HealthUnlocked Communities	●	●				●	●						4
Good Grief: Chat & Messaging	●	●			●	●							4
We Are More	●	●				●	●						4
PSY - mental health chat	●	●				●	●						4
Psychology Chat	●	●			●	●							4
MindCare					●				●	●	●		4
MoodPath					●				●	●	●		4

FearTools - Anxiety Aid									●	●	●		3
Cognitive Diary CBT Self-Help					●					●	●		3
Cognitive Styles CBT Test					●				●		●		3
Icoachi: self-care & self-love									●	●	●		3
MoodKit									●	●	●		3
MoodTools									●	●	●		3
Sibly*	●	●											2
CBT Thought Record Diary										●	●		2
Moodnotes										●	●		2
Total # apps with this feature	20	23	6	1	18	17	14	7	20	26	24	3	

*Did not have full access to the app

Appendix E: Implementation Core Learning Update from LA County Site Visit

<table>
<tr><td>**UC Irvine**
100 Theory, Suite 120 | Irvine, CA 92697
Tel: 949.824.0149 | Fax: 949.824.3985</td><td>iTEQC</td></tr>
</table>

IMPLEMENTATION CORE LEARNING UPDATE – LA COUNTY
SITE VISIT DATE: JUNE 17, 2019

AUTHORS: Stephen Schueller, UCI; Nicole Stadnick, UCSD

REPORT DATE: 6/24/2019

Members of the UCI Evaluation Team completed a post-implementation[4] evaluation site visit at the Harbor UCLA Medical Center in Los Angeles, CA on June 10, 2019. This is the UCI Evaluation Team's second site visit to the Harbor UCLA Medical Center[5]. The purpose of the site visit was to meet with administrative and clinical leadership (including supervisors and managers) and clinical providers who are part of the Dialectical Behavior Therapy (DBT) clinic to learn more about their experiences with the LA County Tech Suite approximately 6 months following the "launch" of Mindstrong at the Harbor UCLA Medical Center.

UCI Attendees: Stephen Schueller, Nicole Stadnick, Daniela Macias, John Bunyi

Special thanks to the following people for assistance in preparing this learning update: John Bunyi, Daniela Macias, Martha Neary, Katelyn Davis

SITE VISIT SCHEDULE (MONDAY, JUNE 17, 2019)

Harbor UCLA Medical Center (1000 W Carson St, Torrance, CA 90509)

Time	UCI Team	Description
8:30am-12pm	Stephen/Nicole/John/Daniela	Provider/Supervisor Interviews (11 interviews)
12-1pm	Stephen/Nicole/Daniela/John	All Staff, Survey Administration + Lunch
1-1:30pm	John/Nicole	Provider/Supervisor Interview
3:30-4pm	John/Daniela	Provider/Supervisor Interview

---

[4] Post-implementation evaluation activities occur after the launch of a Tech Suite product to gain knowledge of the implementation processes and impact on the setting of deployment.
[5] The first visit occurred on September 10, 2018.

OVERVIEW

During our visit we conducted 13 interviews using a semi-structured interview guide[6] to collect qualitative data and administered 20 provider surveys to collect quantitative data. All individuals interviewed or surveyed were clinical leaders or providers within the DBT clinic at Harbor-UCLA. We used the Rapid Assessment Procedure-Informed Clinical Ethnography[7] to analyze the qualitative data in the context of the Consolidated Framework for Implementation Research (CFIR)[8], which is one of the organizing frameworks guiding our evaluation efforts. We also reviewed descriptive statistics (i.e., means and frequencies) of the quantitative data. These results were combined to produce this learning update. Employment status and discipline of respondents are displayed below.

	Interview Respondents	Survey Respondents	Total Clinicians
Staff	7/13 (52%)	14/20 (70%)	12/23 (52%)
Trainees	5/13 (38%)	6/20 (30%)	11/23 (48%)
Clinical Psychologists	7/13 (52%)	11/20 (55%)	10/23 (43%)
Social Workers	5/13 (38%)	9/20 (45%)	13/23 (57%)

We also received information from Los Angeles County Department of Mental Health (LACDMH) outlining activities that had been completed with regards to Mindstrong (Appendix A, pg. 11), as well as metrics on the use of Mindstrong in the clinic through May 2019 (Appendix B, pg. 12).

SUMMARY AND SYNTHESIS

Overall, our interviews and surveys revealed mixed enthusiasm for the use of Mindstrong in the Harbor-UCLA DBT clinic. There was a general sense that it had been useful for many clients and added value to treatment. However, there were also concerns and questions about the clinical validity and utility of some features. Many providers reflected positively on the use of the digital DBT diary card[9] to improve treatment as they reported clients frequently do not complete the paper diary cards and then have to complete the diary cards in session which takes up time in sessions and means that diary cards are not completed throughout the week. The digital diary cards could therefore provide a better view into clients' functioning between sessions, and the data was more useful within sessions. The biomarkers were generally viewed less favorably, with providers noting clients' frustration over the Mindstrong keyboard, lack of clinical validity and utility, and lack of integration between the diary cards and the biomarkers. Most providers were using Mindstrong, with 22 providers logging in to the provider portal ("Care app") and 15 of those currently active within the month of May 2019. As of May 2019, 44 clients had installed Mindstrong with 19 still transmitting biomarker data and 12 record DBT diary cards within

---

[6] A semi-structured interview guide contains preset questions and probes but allows the interviewer flexibility to ask additional questions as needed.

[7] Palinkas, L. A., & Zatzick, D. (2018). Rapid Assessment Procedure Informed Clinical Ethnography (RAPICE) in Pragmatic Clinical Trials of Mental Health Services Implementation: Methods and Applied Case Study. *Administration and Policy in Mental Health and Mental Health Services Research*, 1-16.

[8] Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implementation science*, *4*(1), 50.

[9] The DBT diary card feature had been developed at request by and in collaboration with the Harbor-UCLA DBT clinic and this clinic was its first deployment for Mindstrong.

the previous month. Given that providers typically carry a caseload of 1-2 DBT clients, this represents a significant portion of caseloads who have used and are still using Mindstrong. Providers noted several initial challenges to implementation such as the lack of hardware (e.g., computers in provider offices to review client Mindstrong data in session) and software needed to use Mindstrong, issues with integrating Mindstrong into the clinical workflow and DBT treatment model, client characteristics (e.g., severe pathology, close to treatment termination), and lack of interest from some providers to use digital tools. Many of these challenges, however, have been overcome due to strong clinical leadership in implementing Mindstrong and a responsiveness from Mindstrong to provide technical support and updates.

We provide some key recommendations at the clinic-, county-, and vendor-level which draw from the full learning details which begin on page 4.

Recommendations for Harbor-UCLA DBT Clinic:
- Consider aspects of training and supervision which need to be provided by the UCLA DBT Clinic rather than Mindstrong. For example, consider including review of Mindstrong use by providers as a recurring agenda item during team supervision meetings.
- Leverage opportunity of new influx of trainees.
- Address issues of fit and timing of introduction with providers and clients.
- Consider offering dedicated time for clinicians to review their client's Mindstrong data and document these activities.
- Leverage opportunity of introducing Mindstrong to new clients, particularly those with no prior use of paper DBT diary cards.
- Continue to support and recognize clinical champions.

Recommendations for LA County:
- If LA County finds Mindstrong valuable to DBT programs, consider aligning subsequent Mindstrong implementation with wider efforts to roll-out DBT countywide.
- Address technical infrastructure issues prior to deployment – e.g., availability of WiFi, devices, operating systems, desktops in provider offices.
- Identify and support clinical champions at additional sites if Mindstrong is implemented more broadly.

Recommendations for Mindstrong:
- Improve usability of the Mindstrong keyboard.
- Incorporate observation and learning of clinical workflow and technology infrastructure to support clinic-specific adaptations to Mindstrong prior to subsequent deployments.
- Tailor training to address specific competencies and needs of providers.
- Consider integration of biomarker data with the DBT diary cards. Given that the diary card was developed at request of Harbor-UCLA DBT clinic it is not well integrated into other Mindstrong features.
- Provide additional materials and training to facilitate understanding and use of the biomarkers.
- Continue to provide easy access to technical assistance to clients and providers (e.g., to support downloading of Mindstrong, setting up a user profile, troubleshooting).

LEARNING UPDATE DETAILS

CFIR DOMAINS OF EVALUATION	SUMMARY OF RESULTS
Intervention Characteristics	In the surveys, providers were asked to rate the overall usefulness of Mindstrong as well as the main features of Mindstrong. They also completed validated measures of a*cceptability* (perception that the app is satisfactory), *appropriateness* (perceived fit of the app with the setting), and *feasibility* (extent to which the app can be successfully used in the setting). We also asked specific questions about the perceived clinical utility of the **biomarkers** and the **DBT diary** cards, as well as the perceptions of the sufficiency of resources to support the implementation and use of Mindstrong. The *means* and *standard deviations* or counts are displayed below. Higher *mean* scores (closer to 5) indicate more favorable attitudes. For items that were combined into scales we also present the alpha (α) values which are a measure of internal consistency demonstrating how closely a set of items are as a group. Alpha values closer to 1.00 demonstrate stronger consistency. *We caution against over-interpretation of these survey data. Of the 20 respondents, only 16 (80%) reported use of Mindstrong with their clients and again, many providers had few clients who had used Mindstrong. This is a small number of respondents, but does represent a majority of the providers in the DBT clinic (20/23 or 87%).*

Overall Ratings of Mindstrong (n=19)	*Mean* rating out of 5 *(Completely disagree [1] to completely [5] agree)*, (standard deviation in parentheses)
Acceptability. *Example item (of 4): "Mindstrong meets my approval"* Scale α = 0.92	3.4 (0.4)
Appropriateness. *Example item (of 4): "Mindstrong seems fitting for my work"* Scale α = 0.95	3.8 (0.3)
Feasibility. *Example item (of 4): "Mindstrong seems possible"* Scale α = 0.89	3.6 (0.5)

Usefulness of Mindstrong Features (n=12)	*Mean* rating out of 5 (*Not at all useful [1] to extremely useful [5])*, and (standard deviations)
Mindstrong (overall)	3.3 (1.0)
Biomarker data	1.9 (1.2)
DBT diary card	3.4 (1.2)

Communication from Mindstrong (i.e., alerts or notifications)	1.8 (1.0)

Impact of Mindstrong on… (1 = negative effect, 3 = no effect, 5 = positive effect)	Biomarker Mean (SD) (n=12)	DBT Diary Card Mean (SD) (n=13)
Ability to identify the need for clinical intervention before clients reach a crisis situation	3.0 (0.4)	3.4 (0.5)
Your ability to monitor your clients' symptoms and functioning	3.1 (0.8)	3.7 (0.9)
Your clients' insight into their symptoms and functioning	3.1 (0.8)	3.5 (0.5)
Your clients' motivation to participate in treatment	2.9 (0.6)	3.0 (0.6)

Opinions of Mindstrong Resources (19 Respondents)	Too little n (%)	Just right n (%)	Too much n (%)
Training to use MS	8 (42%)	11 (58%)	0 (0%)
Materials to facilitate introduction of MS to clients	11(58%)	8 (42%)	0 (0%)
Materials to facilitate the use of MS in sessions	10 (53%)	9 (47%)	0 (0%)
Supervision for using MS in your practice	14 (74%)	5 (26%)	0 (0%)

Providers also completed a 10-item measure assessing the benefit of the biomarkers (14 respondents) or DBT diary card (13 respondents) to clinical practice. This measure was adapted from a validated measure used to assess providers perceptions of health apps.[10] Example items included: "There are worthwhile mental health benefits from reviewing the biomarkers / diary card data" or "I don't trust the biomarker / diary card data Mindstrong provides." Larger numbers represent more favorable perceptions with 1 = strongly

---

[10]Holtz, B., Vasold, K., Cotten, S., Mackert, M., & Zhang, M. (2019). Health Care Provider Perceptions of Consumer-Grade Devices and Apps for Tracking Health: A Pilot Study. *JMIR mHealth and uHealth*, *7*(1), e9929.

disagree and 5 = strongly agree. ***The mean value was 2.9 (SD=1.0) for the biomarkers and 3.9 (SD=1.1) for the DBT diary card.*** The scale α was 0.73 for the biomarkers and α = 0.64 for the DBT diary card measures.

The interviews were consistent with these survey responses. Most of the providers reflected positively on the use and potential of Mindstrong, remarking that it helps make treatment and county resources seem innovative and "cool." The DBT diary card was viewed positively because it increased rates of completion between sessions and more regular access for providers to clients' functioning. In addition, providers described liking recent updates especially the week view for diary card entries. There was considerably less enthusiasm for the biomarker data. This dampened enthusiasm was due to several factors including: the collection of biomarker data through the Mindstrong keyboard that was described as "clunky," lack of provider clarity as to how to use those data in clinical practice, and concerns about the clinical validity of the data. Also the provider dashboard was only viewable through the website, which made it hard to use on a mobile device and necessitated use of a computer during session to discuss client data (both biomarker data and diary Card entries).

Facilitators: The usefulness of the DBT diary card to clinical practice. Clients tend to use the DBT diary card which increases ability to use that information in sessions. Most providers described that once logged in, the Mindstrong app was viewed as easy to use and learn, generally free from technical bugs.

Barriers/Obstacles: Dislike of the Mindstrong keyboard, which led some clients to stop using it; lack of clarity around the meaning and interpretation of biomarkers; initially, the day (versus week) view of the DBT diary card; initially, the clinician dashboard included the names of all clients using Mindstrong; lack of a mobile app version for providers to review client data; some difficulty downloading the app and logging in regularly. Additionally, some providers expressed concern about treatment adherence to DBT when clients or providers could not access the Mindstrong diary cards to complete or review them**.**

Recommendations: Improve usability of Mindstrong keyboard. Additional support for providers to use Mindstrong in the forms of training, materials (e.g., best practices for using Mindstrong in treatment sessions), and supervision. Better integration between biomarkers and the DBT diary card. Clarification of how the biomarkers could be useful for providers and clients to guide treatment. Additional information regarding the clinical validity of the biomarkers especially for clients whom which DBT is indicated**.**

Inner Setting	**Facilitators:** Providers expressed very positive views about the organizational climate and culture in this setting. In particular, providers working in this clinic saw themselves as innovators who were able to successfully implement new treatments and procedures. As an academic medical clinic, the providers had high degrees of training as well as openness and curiosity to try new things. The regular flow of trainees (practicum students and postdocs, who start each September) provides an opportunity to reset expectations while learning from past cohorts of clinical staff. The training environment also provides opportunities in didactics, supervision, and meetings to discuss issues related to Mindstrong.
	Barriers/Obstacles: Providers discussed some initial challenges to implementing Mindstrong including the lack of devices in some treatment rooms, software incompatibility during the launch, and poor WiFi in the clinic. Many of these issues were addressed such as LACDMH-issued iPhone devices to providers or using laptops but issues still remain as Mindstrong is not optimally viewed on an iPhone. Some providers expressed concern about the reliance on a digital format for clients to report their diary card entries and review them in session because of real and potential disruptions to the treatment process and therapeutic alliance. There is also mixed enthusiasm for the implementation of Mindstrong with some concerns that Mindstrong is largely interested in collecting research data from a vulnerable clinical population to improve and advance their product.
	Recommendations: Consider activities to help launch the new class of trainees, such as lessons learned from initial Mindstrong deployment. There seems to be especially strong enthusiasm from the current students and trainees and using them to help develop these materials or trainings might be helpful. Trainings should address issues of clinical utility and clinical validity. For example, clearly demonstrating the value added to the clinic with consideration of the clinical workflow. Also, presenting data suggesting that Mindstrong and the biomarkers are efficacious and valid for whom DBT is indicated (i.e., borderline personality disorder). Incorporating data from the initial deployment at Harbor-UCLA would be useful as well as other relevant new findings. Trainings might also directly address the providers' concerns regarding the benefit providers and clients gain from such public-private partnerships. Regularly scheduled supervision meetings could benefit from consistent and dedicated time for discussion of Mindstrong use and integration into clinician's practice.
Outer Setting	**Facilitators:** County-wide efforts to implement DBT might provide unique opportunities to disseminate Mindstrong if LACDMH finds that Mindstrong adds value in DBT clinics.
	Barriers/Obstacles: The federally mandated "Access to Care" initiative, which requires that any client requesting services be seen within 10 days, has created pressure on providers to complete more intakes. This initiative is viewed as a competing, and perhaps higher, priority to Mindstrong implementation. Some providers expressed views that the needs of their

	clients have not been fully considered in the Mindstrong implementation with regards to their access to and familiarity with technology and coping abilities to tolerate and try new treatment approaches. **Recommendations:** Align Mindstrong with other county priorities. If the utility of Mindstrong applied to DBT can be demonstrated, situating it within the wider implementation of DBT could be beneficial. Continue to consider the characteristics of clients for whom Mindstrong may be the best fit.
Characteristics of Individuals • Clinical Supervisors • Providers	**Facilitators:** Providers were generally comfortable with using technology and several reported use of mental health apps in their practice (outside of LACDMH) prior to the use of Mindstrong. Dr. McFarr was seen as a strong clinical champion promoting the use of Mindstrong through emails and meetings. The majority of providers expressed confidence about continued use of Mindstrong, particularly with the strong support of Dr. McFarr and the continued improvements to the Mindstrong app. Providers viewed themselves as innovators and the academic medical setting brought in providers with deep expertise and curiosity as well as a steady flow of trainees. **Barriers/Obstacles:** Providers expressed concern and confusion about the validity of Mindstrong's biomarkers and their utility in clinical practice. Providers lacked confidence about how to use the biomarkers to adjust their interventions. Some providers seemed to prefer paper forms of the DBT diary card, especially with clients who had already initiated treatment prior to the deployment of Mindstrong. **Recommendation:** Many providers attributed success in provider and client use and persistence in using Mindstrong due to Dr. McFarr's consistently voiced support. Future Mindstrong implementations should focus on replicating this clinical championing that Dr. McFarr has created (e.g., through regular and visible activities like supervision meetings, clinic communications). Separate considerations might be created for providers and clients who are new versus established as to when Mindstrong might be most useful or indicated. Training and materials on Mindstrong should address issue of clinical validity as more information is required to determine if clinical validity and clinical utility of Mindstrong for this context exists.
Process	**Facilitators:** Providers described that meetings and supervision were helpful to encourage their use of Mindstrong and to troubleshoot problems. Mindstrong was helpful and responsive to provider needs and suggestions, especially Hannah Weisman who was mentioned by several providers. **Barriers/Obstacles:** Many clinical workflow and technical infrastructure issues to support Mindstrong implementation were not addressed prior to implementation leading some providers to be less enthusiastic about adoption. These issues included lack of necessary computers or phones to use Mindstrong within sessions, the fact that to use Mindstrong provider portal in session clients would be able to view provider's entire caseload, the lack of a week view of diary card data. Many providers may have a small caseload of

DBT clients (i.e. most providers only have 2 DBT clients at a time), which limited opportunities to use Mindstrong. It was not atypical to have providers report 1 or 2 clients who had used Mindstrong, but discontinued use because of poor compatibility or their episode of care was ending. In the month of May for example, 15 providers logged into the provider portal but only 14 clients were actively using the app.

Recommendation: Address clinical workflow issues prior to implementation. This might look different across clinics depending on staffing and workflow. Refine processes through which frontline clinician feedback is collected and prioritized to inform adaptations to Mindstrong. For example, collecting key points raised in meetings and supervisions. Mindstrong might benefit from better understanding of specific clinical workflow concerns prior to initial trainings. For continued use at Harbor-UCLA, consider involvement of current Mindstrong providers to inform training of the next class of trainees.

APPENDIX 1
Summary of Mindstrong Activities at Harbor-UCLA

Date	Activity	Description
12/6/2018	Mindstrong Launch Debrief (Teleconference)	Meeting between LA, Harbor-UCLA to gather feedback and learning from the launch
12/17/2018	LA Process Map Work	LA team and CalMHSA collaborate on document outlining Mindstrong workflow in clinical environments
1/3/2019	Harbor UCLA DBT Staff Meeting	Harbor-UCLA DBT staff meeting to hear an update from Harbor-UCLA DBT clinicians about the launch of Mindstrong
1/3/2019	Harbor/Mindstrong Planning Call	Feedback session on implementation with the DBT team and Mindstrong via WebEx
1/16/2019	UCLA & Mindstrong Biomarkers	Meeting between LA, Harbor-UCLA on developing training on biomarkers
1/25/2019	Biomarker Training Prep Meeting	
2/4/2019	Biomarker Training	Additional biomarker training with Harbor-UCLA and Mindstrong via WebEx
2/6/2019	Mindstrong Implementation Check-in	Meeting between LA team and Modoc County Tech lead to share learnings
2/15/2019	Mindstrong Implementation in DBT Program	Meeting with Kern County lead, Harbor-UCLA, and LA to share learning
2/15/2019	LACDMH – Mindstrong Feedback Discussion	Meeting between Mindstrong, Harbor-UCLA, CalMHSA, LA County, and UCI teams
4/8/2019	Biomarker Training	Mindstrong team provided preliminary data analysis on biomarker data to Harbor-UCLA DBT team during staff meeting
4/12/2019	Mindstrong Discussion	Internal LA team Mindstrong implementation discussion
5/31/2019	Discuss Site Visit Survey and Interview Guide	UCI and LA county teams meet to discuss Harbor-UCLA interview and survey
6/7/2019	UCI Implementation Core Site Visit at LA DMH Call	UCI, LA County, Harbor-UCLA meet to discuss site visit

APPENDIX 2
Mindstrong Usage Metrics Harbor-UCLA (through May 2019)

Clinician Metrics

Total Clinicians on Care	42
Clinicians Active on Care in May (Login/Logout)	15
Clinicians Active on Care since April (Login/Logout)	22

Client Metrics

Total Clients ever Installed	44
Number Clients Ever Generated Biomarker	39
Number Clients Currently Generating Biomarker	19
Number Clients Active on App in May	14
Number Clients Recently Recording in DBT Diary Card	12

Appendix F: Finding and Using Apps for Mental Health & Wellness

There are lots of apps on the app stores to help with mental health. Because there are so many, it can be hard to pick the right one. **Here are some things to look out for which can help you make your choice.**

When looking for an app, the iTunes and Google Play stores are a good place to start. You could also try Googling something like "depression apps". There are also sites which review mental health apps, like PsyberGuide.org, ORCHA.co.uk, MindTools.io.

Every app *should* have a privacy policy that tells you what happens to any information you enter. You can find the policy in the app store, at the end of the app page. If an app doesn't have a policy, or you aren't sure how secure it is, avoid entering any data.

When looking for a mental health app, the date the app was last updated can be a good thing to look at. You can find the date of last update in the app store in Version History (iTunes) or Additional Information (Google Play). A date within the last six months is a good sign that the app developer fixes bugs and updates the app often.

For many people, what the app looks like, and how fun and easy to use it is, is important. Looking at screenshots in the app stores can help give you an idea of the look and feel of the app before you download it.
What does this mean?
Here's a couple of words you may see as you're looking for apps and what they mean.

Subscription. While there are many free apps out there, some apps ask you to pay a set price, often every month.

In-app/Digital Purchases. Some apps are free to get on your phone, but you'll need to make a once-off payment to "unlock" some parts of the app.

System Compatibility. This tells you what software system you need on your phone to use the app. Here's how to check what system you have:
iPhone: Settings > General > Software Version
Settings > About *or* System > Android Version

Size. The amount of storage the app will take up on your phone.

Privacy Policy. This is a file which tells you what the app does with the information you enter. Every app should have one. It should say how an app collects information, who it is shared with and where it is kept.

Content rating/Age rating. Like an age rating on a movie, this tells you what age the app is suitable for. The age rating tells you if an app *could* be used by an age group, but that doesn't mean it s*hould* be. An app may have an age rating for "everyone", but that doesn't mean it's the most fun app for kids.

Artificial Intelligence/ChatBot. Some apps can copy how a human talks and mimic a real-life conversation, though it's actually a computer.

"Editors Choice" or "Android Top Pick". These are apps which the app stores have chosen to feature, usually based on how well the app works, what it looks like, and what other users say about it.

When you've chosen an app, here are some things to keep in mind.

When you find an app, using it as part of your daily routine can be helpful. Maybe you brush your teeth and then use your app, or use it before you go to bed. Most apps also allow you to set reminders to help you remember to use it.

There are lots of ways apps can be helpful for mental health, and you might think about using other types of apps for support. For example, you could make a Spotify playlist with songs that you find helpful, or look at YouTube videos for self-care ideas.

One of the best things about mental health apps is that they can be used quickly and on-the-go. Even using an app for a couple of minutes at a time can have benefits. In a study of one set of apps for depression and anxiety, users found the apps helped them even when they used them for just over a minute each time.

Although apps can help us, it's really important to have real-life support for your mental health. Why not use apps as a starting point for talking about mental health, just like you might suggest a helpful app to a friend? The more we make talking about mental health common, the better chance we have of helping with stigma.

Here's another way to find mental health apps
PsyberGuide.org is a non-profit website that reviews mental health apps to help you make good app choices. There are over 200 apps on the app guide, which you can visit at psyberguide.org/apps

Appendix G: Identification of control counties for the Help@Hand counties

Objective: To identify 2 counties (and 1 alternate) that are similar to the Help@Hand (intervention) counties and can serve as control counties in analyses.

Approach:

1) **Determine county characteristics to establish similarity:**
    - o **Socio-demographics:[a]**
      Total population
      Distribution of age by gender
      Distribution of race/ethnicity
    - o **Economics:[a]**
      Mean Household income
      Percent under the Federal Poverty Level
      Percent receiving SSI, Public Cash or SNAP
    - o **Education[a]**
      Distribution by age
    - o **Utilization of Specialty Mental Health Services[b]**
      Percent of total population receiving services
      Distribution by gender
      Distribution by age
      Distribution by race/ethnicity
    - o **Suicide rates[c]**
      Self-Harm Death par 100,000

2) **Determine Variable weights: Variables were standardized to a mean of zero and a standard deviation of 1. This results in equal weights for all variables.**

3) **Calculate Euclidean distance between all counties based on the above characteristics. Where *h* is the intervention county, *c* is a control county, and *n* is the number of variables.**

$$d(h,c) = d(c,h) = \sqrt{(h_1 - c_1)^2 + \cdots + (h_n - c_n)^2}$$
$$= \sum_{i=1}^{n} \sqrt{(h_i - c_i)^2}$$

4) **For each intervention county identify the two closest control counties. Identify an alternate as the third closest county. Intervention counties cannot serve as controls.**

5) **The data presented in the following tabs is arranged as follows: each intervention county's data appear in its own tab, sorted by intervention county population from largest to smallest. The intervention county data are shown in red. Dark blue indicates the closest match, medium blue the second closest, and light blue the third closest. At the top of the worksheet is a map showing the location of each of the counties, their names and their Euclidean distances. The data that**

underlies the calculation are: US Census, 5 year American Community Survey (2017); California
Health and Human Services open data (2017); and EpiCenter Health Data (2017).

Help@Hand (Inn Tech Suite) Advisory Board Meeting Slides

6/25/2019

In-Person Meeting

INN Tech Suite Advisory Board Quarter 2 - Update

UC Irvine

Welcome & Introductions

UC Irvine

Agenda & Meeting Objectives

Update of Accomplishments of INN Tech Suite & Evaluation

What is the purpose of the INN Tech Suite?

The Innovation Technology Suite Project (INN Tech Suite Project) is a threeyear demonstration project, funded and currently directed by the following counties in the State of California: Kern, Los Angeles, Modoc, Mono, and Orange.

This California statewide collaborative project is designed to bring interactive technology–based mental health solutions into the public mental health system through a highly innovative set, or "suite", of mobile applications.

The intended outcomes of this project are to accomplish the following five learning objectives:

1. Detect and acknowledge mental health symptoms sooner;

2. Reduce stigma associated with mental illness by promoting mental wellness;

3. Increase access to the appropriate level of support and care;

4. Increase purpose, belonging, and social connectedness of individuals served; and,

5. Analyze and collect data to improve mental health needs assessment and service delivery.

UC Irvine

What is the role of the Advisory Board?

The state-wide advisory board will provide critical guidance and insight into the following areas:

• Evaluation methods should be appropriate to the intervention model being used in respect to scope and data collection;

• Evaluation should include measures of both process outcomes (implementation) and behavioral/health status outcomes (changes in participants) relevant to the goals of the intervention;

• Evaluation is designed to address key target audiences and includes considerations of county-level variability;

• Evaluation is seen as a vehicle for program improvement (internal use) and program accountability (external use) and should provide information for the purposes of potential replication of the project;

• Evaluation findings from CALMHSA-funded programs will contribute to the existing knowledge base on what works in the field of minority health;

• Evaluation practices will be aligned with identified best and promising practices that are promoted nationally and federally through SAMHSA, NIMH and/or CDC

UC Irvine
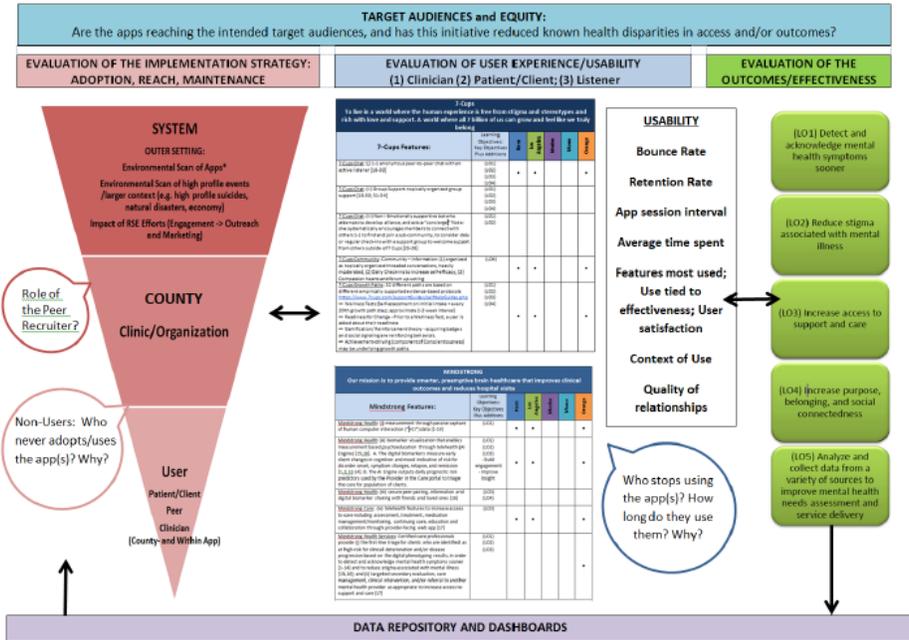
Accomplishments to Date
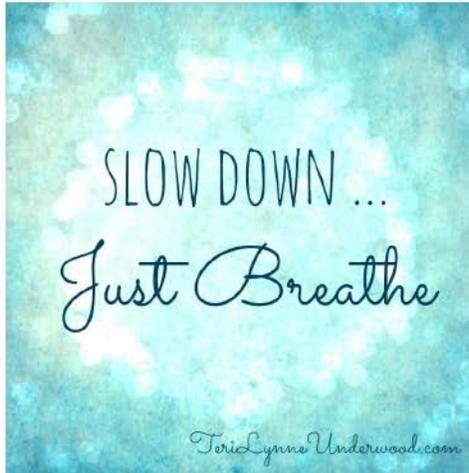
UC Irvine

BREAK

Update on User Experience Core

UC Irvine

Overview

Preliminary Learnings and Recommendations*
- ◦ Heuristic Evaluation of 7 Cups
- ◦ Heuristic Evaluation of Client-Facing Mindstrong App
- ◦ Surveys, Interviews, and Focus Group with Potential Users
- ◦ Surveys and Interviews with Mindstrong Users

Discussion & Feedback

*This is not meant to assess the validity of the Tech Suite

Heuristic evaluation: An overview

A method to assess whether technologies follow usability guidelines. It can identify potential issues that could affect user adoption, use, and abandonment of the technology

Heuristics (Nielsen and Molich, 1990):

Visibility of system status	Match between the system and real world	User control and freedom	Consistency and standards	Error prevention	Help users recognize, diagnose, and recover from errors	Help and documentation	Recognition rather than recall	Tailoring to the level of the user	Aesthetic and minimalist design

Methodology

7 Cups:
- ◦ 18 individuals with experience in Human Computer Interaction in February 2019

Mindstrong:
- ◦ 10 individuals with experience in Human Computer Interaction in April 2019

Results were open-coded, themes identified

7 Cups-
Heuristic Evaluation

iIEQC

7 Cups Heuristic Evaluation

Recommendations:

- Amount of information presented at once could be reduced (Noni)
- Customize the website to fit users' level of experience
- Introduce a FAQ; "pin" helpful forum threads within the community
- Address potential privacy issues: system knows one's county location
- Create a consistent experience on mobile and web versions
- Vet Listeners better (e.g. a confederate flag was a Listener's icon)
- Increase diversity of Listeners
- Reduce nudging to be a Listener (can be inappropriate)

UC Irvine

iIEQC

Mindstrong Client-Facing App Heuristic Evaluation

Mindstrong Heuristic Evaluation

- Overall: App is easy to use

Recommendations

- Provide feedback to the user that biomarker data is being generated when using the app
- Clear explanation of biomarkers and plots in simple language (moving average; personal baseline)
- To develop trust, provide a basic explanation of how biomarkers are computed
- Clear explanations needed: What smartphone data is being collected
- Inform users what stored smartphone data is *not* being accessed
- For users with less technical skills, explain how to interact with the graphs
- Provide better documentation

Key Takeaways- Heuristic Evaluation

- Important to strike the right balance of information presentation and navigation choice to meet varying user needs that can range from being in a crisis mode to an exploratory, curious mindset.

- Critical to build trust in the information (biomarkers, Mindstrong) and individuals (Listeners, 7 Cups)

- Better privacy protection (perceived or real) should be a high priority

Surveys, Interviews, Focus Groups- Users/Potential Users

Methodology

Purpose: To assess factors that may influence adoption and continued use of mental health apps and websites

Methods:
- Conducted surveys (n=31), a focus group (n=14), and interviews (n=7) with community members in Modoc County on March 18, 2019
- Pre-hard launch: Most were not Tech Suite users
- Investigated mental health technology use, interest in using mental health websites and apps, awareness of Mindstrong and 7 Cups, access, stigma, privacy, and community needs

Caveat: Data presented only pertains to one county and is not generalizable across the Tech Suite

Learnings: Community Needs

Timely Support

Empathetic, Personalized Support

"I need to talk at 3:00 in the morning. I'm fine here at [location]. It's just when the [location] is closed, what do I do?" [S1]

Learnings: Community Needs

Timely Support

Empathetic, Personalized Support

*"...You need someone that's going to **understand what's going on and empathize**. I mean, everyone's battling their own issues, and everyone possibly has their own little mental things going on... I don't want to talk to somebody that's going to really just give me out of a textbook. I want somebody who actually knew or **had been in a similar situation** or **isn't afraid to share** [inaudible]. But something out of a textbook? I can just go get a book and read it myself. I want somebody that is **generally there and understands**."* [S9]

Learnings: Interest

Interest in Using Technology for Mental Health

	Disagree	Neither Agree Nor Disagree	Agree
Websites	15%	5%	75%
Mobile apps	10%	30%	60%

■ Disagree ■ Neither Agree Nor Disagree ■ Agree
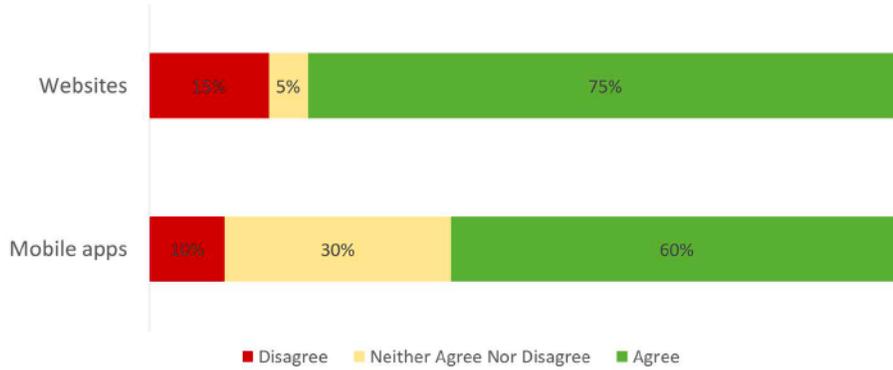
Learnings: Factors that May Influence Adoption & Use

Access
◦ 21% somewhat or strongly disagreed that they have access to a stable internet connection

Stigma
◦ Stigma around mental health and moderate internalized stigma

Privacy
◦ Small community and 7 Cups Listener concerns

iTEQC

Key Takeaways- Users/Potential Users

Optimism and interest in technology to support mental health

Barriers may hinder success

Recommendations:
- Consider how to overcome barriers to adoption through mechanisms, such as providing access to smartphones, Internet, and covering related financial costs
- Address people's concerns about privacy and confidentiality of their data
- Word-of-mouth and peer/family networks might be good avenues to explore for introducing technologies

UC Irvine

iTEQC

Surveys & Interviews- Mindstrong Users

Methodology

Purpose:
- To investigate factors that influence adoption and use and assess impact of Mindstrong on outcomes
- To investigate how and why Mindstrong is used and explore in more depth participants' experiences with Mindstrong

Methods:
- Conducted surveys (n=4) and interviews (n=4) with individuals who had used Mindstrong in Kern county on April 18, 2019

UC Irvine

Learnings: Factors that May Influence Adoption & Use*

Construct	Mean (SD)	Scale
Performance Expectancy	3.8 (1.6)	1-Strongly Disagree to 5-Strongly Agree
Social Influence	3.3 (1.7)	1-Strongly Disagree to 5-Strongly Agree
Facilitating Conditions	4.4 (0.7)	1-Strongly Disagree to 5-Strongly Agree
Stigma**	2.2 (1.2)	1-Strongly Disagree to 4-Strongly Agree
Social Connectedness**	3.3 (2.7)	1-Strongly disagree to 6-Strongly agree (higher = less connected)
Privacy**	1.8 (1.2)	1-Strongly Disagree to 5-Strongly Agree (higher = more privacy concerns)
Therapeutic Alliance	40.5 (9.0)	1-Not at all like me to 4-Very much like me (ranging from 12-48)

*We caution that this is a small sample size (n=4) & only pertain to users in 1 county. No conclusions can be drawn at this time. ** Wide range across scores

UC Irvine

Learnings: Usefulness & Usability*

App Feature (1-SD to 5-SA)	Mean (SD)
Mindstrong overall	4.0 (1.4)
Dashboard with biomarkers	4.0 (1.4)
Chatting with a healthcare provider	4.5 (1.0)
Mental health information	4.3 (1.5)

Survey Item (1-SD to 5-SA)	Mean (SD)
I understood what my biomarkers on my dashboard meant.	4.8 (0.5)
It was easy to use Mindstrong to talk with a healthcare provider or therapist.	5.0 (0.0)

*We caution that this is a small sample size (n=4) & only pertain to users in 1 county. No conclusions can be drawn at this time.

UC Irvine

Learnings: Reflection & Connection

Dashboard with biomarkers: Facilitating reflection

Chatting with a healthcare provider: Facilitating connection

"...It brought a lot of light to **my own introspection**, and it **helped me kind of look in my own mind** in a way and think, 'Okay. It seems like I've actually got **an understanding as to how I process information**. Let's actually **better myself** now.' And I kind of feel like it helped me find that path entirely." [P2]

*We caution that this is a small sample size (n=4) & only pertain to users in 1 county. No conclusions can be drawn at this time.

UC Irvine

Learnings: Reflection & Connection

Dashboard with biomarkers: Facilitating reflection

Chatting with a healthcare provider: Facilitating connection

> "I really liked the interaction with the clinicians. It was just I was going through such a difficult time at that period of my life. And t**o be able to just touch base with them, have them touch base with me**, to see how I was doing when my biomarkers were a little wonky. Or if they could see something was going on with my biomarkers, **they would contact my therapist and my therapist was, 'Hey. You doing okay?' And I would say, 'No, I'm not doing okay.'** And they would call me and then I'd have an extra therapy session or something along those lines. So it's definitely **helpful as far as form of extra support** when I was struggling." [P1]

*We caution that this is a small sample size (n=4) & only pertain to users in 1 county. No conclusions can be drawn at this time.

UC Irvine

Learnings: Perceived Impact*

Survey Item (1-SD to 5-SA)	Mean (SD)
Mindstrong has helped me get **access to support sooner** than I would have if I did not use it.	4.8 (0.5)
Mindstrong is effective in helping me **manage my mental health symptoms**.	4.3 (1.5)
Mindstrong is useful in my **recovery process**.	4.3 (1.5)
Because I used Mindstrong, I am more likely to **reach out for help**.	4.3 (1.5)
Using Mindstrong makes me **feel better about having mental health issues**.	3.3 (1.7)
Using Mindstrong makes me **feel connected** to other people.	3.8 (1.9)

Construct (0 to 40; higher = better well-being)	Before Mindstrong Mean (SD)	After Mindstrong Mean (SD)
Well-being (from Outcome Rating Scale)	8.7 (5.4)	23.0 (14.5)

*We caution that this is a small sample size (n=4) & only pertain to users in 1 county. No conclusions can be drawn at this time.

UC Irvine

86

iTEQC

Key Takeaways- Mindstrong Users

Early findings show potential for Mindstrong to be useful to some clients

More research is needed to understand the perspectives of different types of users

Recommendations:
- Consider developing a process that includes next steps or suggestions when Mindstrong is removed from clinics and/or when clients' care needs change

UC Irvine

iTEQC

Discussion & Feedback

Discussion Questions

1. How to handle small sample sizes and Ns in dissemination -- clinicians vs. peers vs. Clients

2. How to recruit a comparison group

"What mental health needs is more sunlight, more candor, more unashamed conversation."

Glenn Close

GoodTherapy.org

LUNCH BREAK (11:45AM – 12:30PM)
&
WORK GROUP BREAK-OUT SESSION (12:30PM – 1PM)

Update on Implementation Core

Overview of the Implementation Evaluation Plan

Contextual Factors: Climate and App Market

Counties

Peer Recruiters

Organizations /Clinics
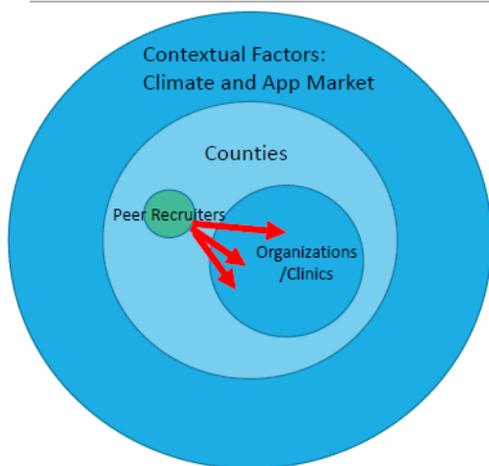
System – Environmental Scan Core
- Climate Evaluation
  - Communication Campaign Tracking
- Market Surveillance

County, Clinic/Organization, Peer Recruiters
- Surveys
- Interviews
- Workflow observations
- Administrative claims data

Visit to Modoc
County
Behavioral
Health

March 18, 2019

UC Irvine

Visit to Harbor
UCLA DBT Clinic

June 10, 2019

Summary of Q2 Data Collection Activities

Semi-structured interview guide (qualitative data)
◦ 30 minutes to complete

Survey (quantitative data)
◦ organizational climate, leadership, attitudes towards evidence-based practices, and perceived acceptability, appropriateness, and feasibility of Tech Suite products (i.e., 7Cups and Mindstrong)
◦ 45-60 minutes to complete

In total we completed 25 interviews and collected 35 surveys across our pre-implementation site visit in Modoc County (Modoc County Behavioral Health Department) and our post-implementation site visit in Los Angeles County (Harbor UCLA DBT Clinic)

For each site visit we used the rapid assessment procedure-informed clinical ethnography (APA format) to summarize our findings from the visit in the context of the Consolidated Framework for Implementation Research (APA format)

Learning updates then provided to Modoc County and LA County (LA county pending)

UC Irvine

Preliminary Learnings & Recommendations
Modoc County Visit

Common Facilitators
• Positive organizational culture with high clinic morale (e.g., high retention rate over the previous 6+ years)
• Positive impressions of Tech Suite products (7Cups & Mindstrong) and excitement for the potential to transform clinical care by increasing availability (7Cups)
• Frequent meetings among the clinical team where Tech Suite products are discussed which contributes to accountability & knowledge sharing

Common Barriers
• Technology infrastructure (lack of smartphones, poor connectivity)
• Some providers were not trained or reported a need for additional training after having some experience with Mindstrong
• No clear person to turn to with questions about Tech Suite when Tech Suite lead was off-site (Tech Suite Lead for Modoc is not a full FTE)

UC Irvine

Preliminary Learnings & Recommendations
Modoc County Visit

Recommendations

- Address technology infrastructure (note: Modoc is working to provide smartphones and data plans to their clients)

- Provide additional training as well as training materials

- Develop clinical champions who can assist others in using the Tech Suite products

Overview of the Market Surveillance

Process for better understanding the app eco-system

Completed Stages 1 and 2 in Q1

Started Stage 3 in Q3

Figure 1: Framework for market analysis

Stage 1: Search App Stores Using defined search terms

Include ten most popular apps from each search
Exclude duplicates

Stage 2: App Description Review (identify comparable apps) ~310 apps

Inclusion criteria
(contains one or more):
1. Peer Chat
2. Chatbot/AI
3. Collects Passive Sensory Data
4. CBT Component

Exclusion criterion
1. Does not belong to one of the following app store categories:
   a. Health & Fitness
   b. Medical
   c. Utilities
   d. Lifestyle
   e. Social/Social Networking
   f. Productivity

Stage 3: Full review of app features 61 apps

Redo Quarterly

Stage 4: Identify Competitor Apps (Using feature scores) ~30 apps

Stage 5: Review competitors
-UX/MARS reviews
-Obtain usage data (AppAnnie)

Stage 6: Data Analysis & Report Writing

Summary and Synthesis of Market Surveillance

Using keyword searches we identified 61 "competitor" apps.

A "competitor" app had keywords related to the Tech Suite project areas of peer support or digital phenotyping OR overlapping keywords with Tech Suite products (7 Cups or Mindstrong)

Completed a feature review of 15 of the 61 competitor apps

	Chatroom	Forum	1-on-1 support	24/7 support	Link to services	Content Programs	AI chatbot	Passive sensor data	Digital pheno-typing	Assess-ment	Inter-active Tools	Didactic Content
App #1		•	•	•			•	•		•	•	•
App #2		•					•	•		•	•	•
App #3	•	•		•	•	•		•		•	•	•
App #4		•					•	•		•	•	•
App #5						•		•		•	•	•
App #6	•	•	•	•			•				•	•
App #7	•	•	•	•				•		•	•	
App #8	•		•	•		•		•		•	•	•
App #9								•		•	•	•
App #10		•				•	•	•		•	•	•
App #11	•	•	•	•				•		•	•	•
App #12	•		•			•				•		•
App #13		•				•				•	•	•
App #14											•	•
App #15		•		•						•	•	•
7 Cups	•	•	•	•		•	•			•	•	•
MS			•	•	•			•	•	•		

Questions & Discussion

Data Collection:

1. Depth versus breadth (clinic/clinician; peer activities)
2. Post-implementation
3. Anticipating app additions with RFSQ
4. Using data about implementation activities to determine implementation progress (similar to Stages of Implementation Completion or the SIC)

Data Analysis:

1. Timing for cross-county comparisons

Data Reporting/Dissemination:

1. Better ways to communicate our findings and recommendations?

Data Collection for Post-implementation

1. What to do when things have changed a lot since the first visit?
   ◦ Kern example

2. Measurement at the second time point:
   ◦ Harbor UCLA example
   ◦ Condensing survey while still conducting a multi-faceted data collection
   ◦ Conducting remote vs. In-person data collection activities

3. Timing and depth of follow-up implementation data collection activities:
   ◦ When should activities occur? Time-based vs. Milestone-based
   ◦ How much and what should we collect?

Anticipating app additions with RFSQ

1. RFSQ process
   ◦ Creation of a "bench" of products that meet technical and clinical specifications (RFSQ)
   ◦ Pilot projects of products selected from the technology "bench"
   ◦ Scaling of successful pilots across additional locations or counties

2. How do we adapt our methodologies to think about the technology implementation process vs. the implementation of specific technologies?

3. What concerns might we need to consider as the number of innovations within Tech Suite increase?
   o Across county variance increases
   o Number of products considered increases

Summary of Q2 Peer Data Collection Activities

- March: On-site Interviews of Peer Leads
- April: Interview with Peer Lead of LA County
- May: Surveys of 6 Peers of LA County
- May: Observation of Peer Summit in Santa Barbara

Summary of Q2 Peer Data

- The Peer component of the Tech Suite has rolled out slowly, owing to delays in implementation and shifts in direction of the overall program

- The structure and function of the Peer component continues to evolve and varies from county to county.

- There is a current focus on digital literacy and strategies are being developed for Peers to address this more fundamental challenge while selection and refinement of apps is ongoing.

Questions & Discussion

1. How might we best proceed with engaging Peers as stakeholders in the evaluation process?
   ◦ Reviewing data collection materials
   ◦ Recruiting users for user evaluation
   ◦ Data interpretation

2. How to respond to the shift in focus to digital literacy?
   ◦ How might this inform the plan for Cohort 2?

Discussion of Outcomes and Data Sources

But the real secret to lifelong good health is actually the opposite: Let your body take care of you.

Deepak Chopra

BREAK

iTEQC
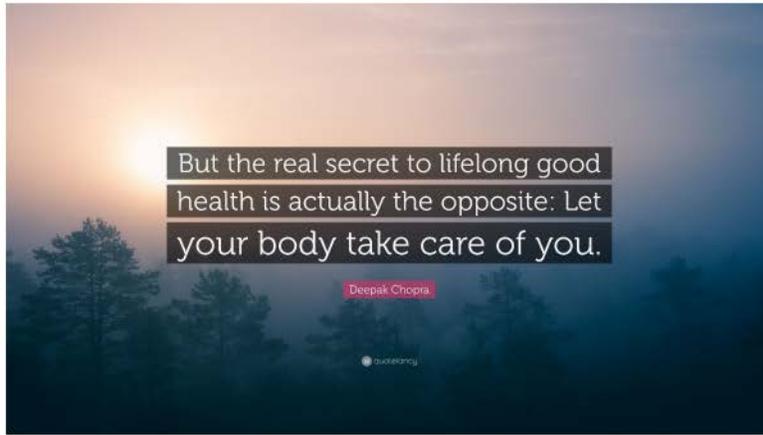
Advisory Board Discussion & Feedback to Evaluation Team

Help@Hand (Inn Tech Suite) Advisory Board Meeting Slides

9/9/2019

iTEQC

Help@Hand (INN Tech Suite) Evaluation Advisory Board

QUARTER 3 UPDATE TO EVALUATION ADVISORY BOARD

9/9/2019

UC Irvine

---

iTEQC

Meeting Objectives

Meeting Objectives
- Provide updates on Help@Hand evaluation
- Elicit feedback and guidance

Time	Topic	Presenter(s)
5 mins	Welcome and Introductions	Sergio Aguilar-Gaxiola MD PhD, Dana Mukamel PhD
10 mins	Help@Hand Project Updates	Dana Mukamel PhD
20 mins	Update on Implementation Core • Organizational Process Evaluation • LA Harbor UCLA Site Visit • Market Analysis Update • Peer Evaluation	Stephen M. Schueller PhD Nicole A. Stadnick PhD Margaret Schneider PhD
10 mins	Update on User Experience Core • Mindstrong User Survey Process • Baseline Assessment/ College Student Project	Gloria Mark PhD Lizz Eikey PhD
5 mins	Update on Outcomes Core • Comparison Counties	Dana Mukamel PhD
10 mins	Wrap Up and Next Steps	Dana Mukamel PhD

UC Irvine

iTEQC

Help@Hand Project Update

- Developed RFSQ to procure more apps
  - Selected Catalyst to administer the RFSQ
  - Anticipated timeline

- County Leadership is developing a roadmap identifying strategic priorities to guide the Collaborative work and achieve the project vision

- Mental Health Digital Literacy Sessions with participating Counties in Cohort 1 and 2

- CalMHSA Leadership changes
  - Wayne Clark, Executive Director of CalMHSA, retires on Sept 27th
  - Ann Collentine, Deputy Director for Program at CalMHSA, transition off the project. Jeremy Wilson, Program Director at CalMHSA, will transition to leading the Help@Hand project over the next few months.

UC Irvine

iTEQC

Pilot Process Overview (From Cambria)

Objective: Conduct initial assessment of product's compatibility with the Help@Hand collaborative to guide the collaborative's decision to add the product to the Portfolio Library

Demo → Analysis → Pilot Proposal → Leadership Approval → Product Development

Deployment → Pilot → Pilot Results Report → Portfolio Vote

UC Irvine

100
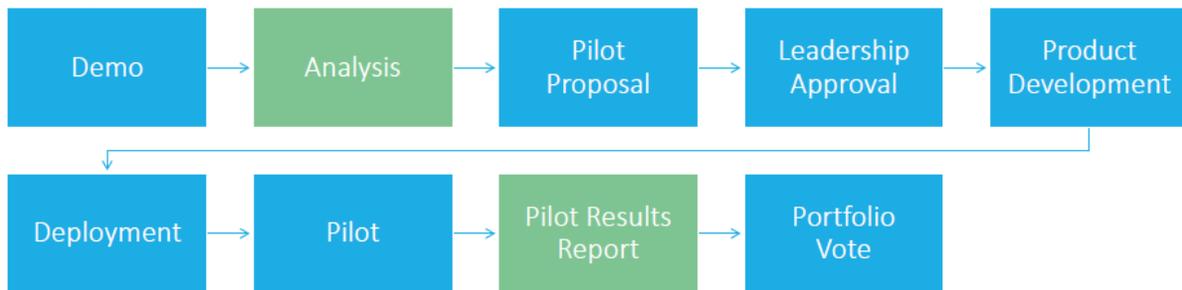
Implementation Evaluation Core

Organizational Processes Evaluation
Site Visit at Harbor-UCLA: Mindstrong Implementation Evaluation
Market Analysis
Peer Evaluation

EVALUATION LEADS: STEPHEN SCHUELLER & NICOLE STADNICK
PEER EVALUATION LEAD: MARGARET SCHNEIDER

Implementation Core Updates

o Expanded evaluation activities to include Organizational Process Assessment

o Conducted second (post-implementation) site visit to LA County (DBT Clinic)

o Developing plan to follow-up on UCI Evaluation recommendations

o Refined Market Analysis process

o Conducted new data collection to evaluate the Peer model and activities

UC Irvine

Organizational Processes Evaluation

Purpose: To understand the factors that hinder and facilitate the implementation and sustainment of the Help@Hand project.

New Collaborators
- Catie Willging & Elise Trott, Pacific Research Institute for Research & Evaluation
- Greg Aarons, UC San Diego

Methods
- Concurrent interviews (30-45 minutes) and online surveys (30 minutes) conducted every 6 months (2019 – 2024).
- Changes will be made to instrumentation and data collection to reflect progression through the phases of the EPIS framework.
- Participants will include leadership from CalMHSA, MHSOAC, Cambria, the tech vendors and the Counties (n = ~60)

UC Irvine

EPIS Framework Constructs
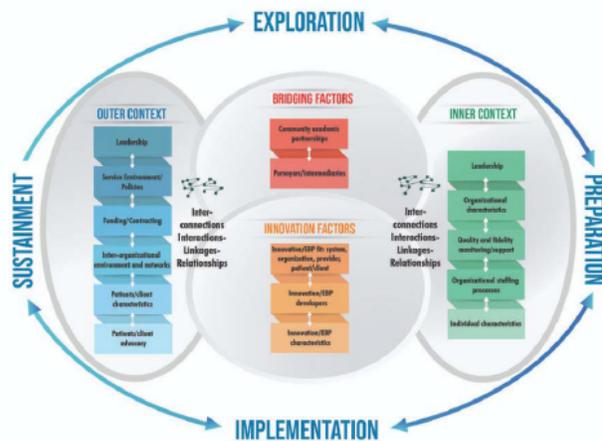
EPIS Constructs Assessed in Organizational Process Evaluation

- **Outer Context:**
  - Funding/Contracting
  - Leadership

- **Innovation Factors:**
  - Fit between vendors (e.g., tech vendors) and County needs and priorities

- **Bridging Factors:**
  - Inter- and intra- county collaboration
  - Role of purveyors/intermediaries (Cambria & CalMHSA)

UC Irvine

Site Visit at Harbor-UCLA
Mindstrong Implementation Evaluation

About Harbor-UCLA DBT Clinic

- 23 clinicians (clinical psychologists, social workers, postdoctoral fellows, and student trainees/interns)
- DBT is a cognitive behavioral therapy developed to treat suicidal and other self-destructive behaviors especially for individuals with Borderline Personality Disorder
- DBT clients complete a daily DBT Diary Card to track use and effectiveness of therapy skills. Mindstrong developed a digital DBT Diary Card for the implementation of Mindstrong at Harbor-UCLA DBT Clinic

Implementation Status

- 44 Clients has installed Mindstrong
  - 19 clients generated biomarker data and 12 clients recording in DBT diary card (as of May 2019)
- 42 Clinicians set up on Care portal
  - 15 clinicians active on Care in May with 22 active on Care since April

UC Irvine

Site Visit: Process

Site Visit (June 17, 2019)

- Interviews (n=13)
- Surveys (n=20)

Rapid Data Analysis

- Fields Notes and Memos
- Descriptive Statistics from Surveys (Means, Percentages, Standard Deviations)
- Summary in the Form of a Learning Update

Learning Update

- Draft Sent to LA County (June 26, 2019)
- Feedback from LA County
- Final Learning Update Sent to LA County (July 18, 2019)

Site Visit: Insights and Takeaways

Positives

- Enthusiasm for Mindstrong and perceived value added to treatment
- DBT Diary Card especially was viewed positively
- Responsiveness of Mindstrong to needs of clinic
- Strong clinic leadership (Dr. Lynn McFarr as "champion" of implementation)

Barriers

- Usability of Mindstrong especially keyboard, understanding of biomarkers, integration of biomarkers and DBT diary cards
- Initial lack of tailoring to clinic workflow (I.e., day view of diary card, other client information displayed on Care portal, hardware and software availability)
- Training into Mindstrong, especially related to the biomarkers

Site Visit: Impact of Learnings Evaluation

Examples of Recommendations

- *For Harbor-UCLA DBT Clinic*: Leverage opportunity of new influx of trainees
- *For LA County*: If LA County finds Mindstrong valuable to DBT programs, consider aligning subsequent Mindstrong implementation with wider efforts to roll-out DBT countywide.
- *For Mindstrong*: Improve usability of the Mindstrong keyboard.

Standardizing process of feedback and measuring impact of feedback

- Provide along with the learning update a pragmatic assessment of impact
  - Assessment of the feasibility and importance of recommendations
  - Likelihood of adoption
  - Overall value of the learning update
  - Open-ended questions

- Incorporate information from these questions into subsequent site visits to assess changes / alterations since previous site visit

Market Analysis

Market analysis has 3 main objectives

- To survey the app marketplace in which the Help@Hand apps place, to understand what other options users have to choose from when they search for these apps

- To identify apps which are comparable to the Help@Hand apps

- To identify baseline app usage data to compare Help@Hand apps to other comparators, in order to understand overall relative engagement and use of Help@Hand apps

UC Irvine

Market Analysis: Stages completed to date

- Completed a thorough & systematic search of the app stores for comparable apps
- Used inclusion & exclusion criteria defined by the app components outlined in the project reference guide to narrow down search results to 65 apps
- Downloaded all apps from this list, fully explored functionality and completed a full feature review to determine the presence or absence of 12 features (e.g. 24/7 support, 1-on-1 support, digital phenotyping, AI chatbot)
- Compiled a list of apps we consider "competitors" to Help@Hand apps, based on features present

In progress: Obtaining User Experience reviews and app usage data for "competitor apps"

UC Irvine

Market Analysis: Preliminary Learnings & Next Steps

- The app marketplace is extremely varied; we see very few apps with identical patterns of features

- We did not identify any apps other than Mindstrong with a digital phenotyping component, however this was likely in part due to our methodology. We are modifying our methodology for the next round of market analysis to include both systematic search strategies and our own expertise in digital mental health to compile a broader list of relevant apps.
    - This will help to capture digital phenotyping apps in addition to other relevant apps which did not appear on our current list
    - We've identified a number of digital phenotyping apps which we will list in the Q3 report and include in future app reviews (e.g. Ginger.io, BiAffect, JOOL, CompanionMx, Ellipsis Health)

- Aside from digital phenotyping, we selected three features as priority when searching for apps which would fit into the Help@Hand project - 24/7 support, 1-on-1 support, AI Chatbot. Only 2 of the apps reviewed contained all three of these components

Peer Evaluation

Purpose: To document the utilization of Peers (individuals with lived experience) for Help@Hand outreach to the community. Information will be used to examine the role of the Peer component in Help@ Hand implementation and impact.

Process
- Semi-structured interviews with key informants in each Cohort I county to identify initial structure and function of the Peer component.
- Surveys with Help@Hand Peer outreach workforce

Peer Evaluation: Completed to Date

Key Informant Interviews with Kern, Los Angeles, Modoc, and Orange (N = 4)
- Employment model
- Size of Peer workforce
- Recruitment and training of Peer outreach workers
- Peer responsibilities

Surveys with Peer outreach workforce in Kern, Los Angeles, Modoc, and Orange (N = 19)
- Experience with digital mental health apps
- Help@Hand training
- Self-efficacy for Help@Hand outreach
- Outcome expectancies for Help@Hand apps

Data will be summarized and presented in the UCI Annual Report.

Peer Evaluation: Possible New Component

Extending efforts to engage with Help@Hand stakeholders, the UCI Evaluation Team is considering adding an annual information-sharing event for disseminating information about the evaluation directly to the Peers.

The rationale for this component would be twofold:
- As the outreach arm of Help@Hand, UCI would like the Peers to be receiving first-hand information about ongoing evaluation efforts (methods, processes, and findings)

- Engage with the Peers periodically and eliciting their input may assist with the framing of evaluation findings in such a way that they will be optimally relevant to the project stakeholders.

User Experience Core

EVALUATION LEADS: GLORIA MARK & LIZZ EIKEY

UC Irvine

User Experience Core Updates

- o Hired User Core Project Manager
- o Worked on Institutional Review Board (IRB) Application
- o Created Mindstrong User Survey Process
  - o Plan to collect data in September/October
- o Discussed UCI Involvement in Pilot Process
- o Developing College Student Baseline Assessment

UC Irvine

Mindstrong User Survey Process

Purpose: To assess use and perceptions of Mindstrong, along with factors that affect adoption/use or lack of adoption/use, including technology acceptance, perceptions of Mindstrong, usability, privacy, social connectedness, and stigma.

Process
- Will collect data from Mindstrong users at LA Harbor UCLA
  - Users who are still using Mindstrong
  - Users who have abandoned Mindstrong

- Data collection approach is tiered to be able to capture respondents in person and by telephone (i.e., brief phone survey for hard to reach participants)

UC Irvine

Baseline Assessment: Potential Approaches

Develop baseline assessment process	• Develop a process to identify needs of a target audience • Begin with college student convenience sample
Population based sample of college students	• Establish baseline of outcome measures and digital mental health literacy • Identify individuals willing to engage with us throughout the project
Test strategies with RSE/counties	• Test methods to recruit users (paper/electronic/online ads) • Compare populations reached by different methods

UC Irvine

Outcomes Core

EVALUATION LEADS: DANA MUKAMEL & DARA SORKIN

UC Irvine

Outcome Core Updates

o Developing a data request to the State of California
  o Inpatient and ED Admissions (All Payers)
  o Medi-Cal Claims (All Covered Services)
  o Vital Statistics (suicides and death due to drug overdose)

oIdentifying 2 control counties for each of the 15 Help@Hand Counties

UC Irvine

Methodology to identify control counties

Identify control counties based on similarities in 2017 data for

- Total Population
- Socio-demographics/economics
- Mental health services utilization
- Deaths due to self harm

Method

1. Calculate Euclidean distance between each intervention county and all other counties based on all 39 variables
2. Choose the 2 control counties (which are not Help@Hand counties) with the closest distance to each Help@Hand county as its control
3. Review the list of controls and the 3rd best alternative within the evaluation team and with the Advisory Board

UC Irvine

Control County Example: Orange
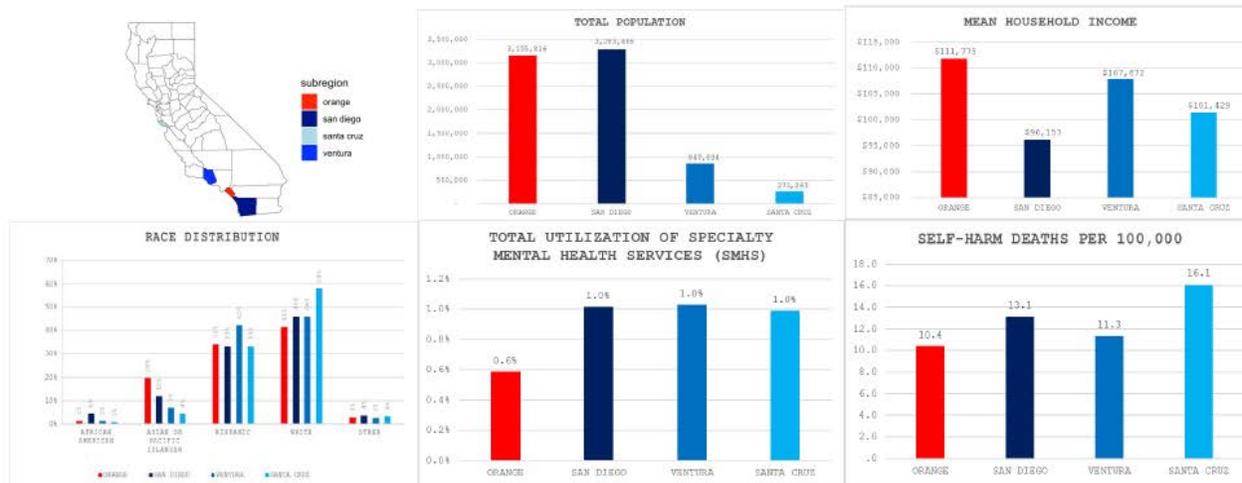
UC Irvine

Discussion

- The choice of method

- The choice of variables for comparison

- The control counties – "the gut test"

NEXT MEETING: ALL DAY, IN-PERSON

Friday December 13, 2019