CASE: BIOE273-7
DATE: 2/22/2022

UNDERSTANDING HEALTH SYSTEM ADOPTION: KAISER PERMANENTE

"Our clinicians are excited about digital health opportunities because there are
many pain points in US healthcare and these tools can augment care. We're not
an incubator or an accelerator– our job is to provide care to 12.5 million members.
But we work with digital health innovators to help them understand and meet our needs.
We want to be good stewards and partners."[1]
– Trina Histon, Senior Principal Consultant, Prevention, Wellness & Digital Health at Kaiser Permanente

Because integrated health systems shoulder the entire cost of patient care, they have a vested interest in keeping patients well, using the most cost-effective and efficacious means. As digital health tools gain acceptance as an accessible, low-cost way to help manage illness and promote wellness, health systems are increasingly working to incorporate these solutions into their ecosystems of care. Successful integrations not only help modernize the health system's approach, but represent a prestigious and potentially lucrative accomplishment for digital health innovators. But designing a healthcare app for consumers, and designing one for a health system, are different. To maximize their chance of success, innovators aiming for health system adoption should plan ahead to build on a solid clinical foundation, develop concrete outcomes measures and robust privacy protections, and be willing to partner with the health system for the long term.

Background

In 2017, a multi-disciplinary team at Kaiser Permanente (KP) co-led by Trina Histon and Scott Heisler embarked on a design project to add digital health and wellness tools to its portfolio of treatment options to support the mental health of its members. The initial motivation was to help the 20-25% of KP's behavioral health patients who didn't meet a clinical threshold for depression or anxiety, but were experiencing some level of crisis in their lives.

"Many of these patients choose not to seek professional care, for reasons that range from stigma regarding mental health conditions to the expense, inconvenience, or intensiveness of traditional mental health services," said Histon.[1] "However, studies show that, without treatment, many of these patients get worse and actually progress to becoming diagnoseable," she said. "So we were motivated to look at alternative approaches. And we recognized that digital health technologies – with a delivery mechanism that most of the population carries around in their pockets – seemed to have a large untapped potential."

To get started, the team launched a human-centered design project[2] to better understand patient and clinician needs and their experiences with digital mental health and wellness resources. While the design team initially contemplated developing their own, organization-specific app, they quickly determined that since so many high-quality mental health apps already existed, KP's efforts would be better spent selecting the best ones currently in the market and then supporting clinician and patient engagement.

Recognizing that "one size doesn't fit all," they vetted dozens of mental health and wellness apps with the goal of providing a curated selection for providers and patients to choose from. "It was important to offer a selection of apps to help us reach a broad cross section of patients, since people come from all walks of life and learn and engage in different ways," said Histon.

After selecting the six that showed the most promise, the design team built the organizational support and infrastructure to enable the apps to be provided by physician referral or selected directly by patients via self-care pathways on the KP website, www.kp.org/mentalhealthapps. The team rolled out the new solutions gradually over a three-year period.

As clinicians got more experienced in using and making referrals to these tools, the success of the program became apparent. "Early qualitative data gathered to help optimize the design of the digital ecosystem demonstrated the positive response of both patients and clinicians," recalled Histon. "Doctors and therapists reported promising signs of clinical improvement, and said that having these tools integrated into their approach to care delivery expanded the capabilities of their practice." She continued, "And patients reported that they found it empowering to have tools they could use in between or instead of traditional support services."

Evaluating the program's success quantitatively was a little more challenging given the relative newness of the field. However, KP developed a series of staged metrics to help them track results. "First we worked on a framework to measure engagement, looking at frequency, intensity, time, and types of use," said Histon. "As our deployment matures, we hope to use clinically benchmarked metrics like the Patient Health Questionnaire 9 [PHQ-9 for depression] and the General Anxiety Disorder 7 [GAD-7] to track the reduction in the burden of suffering for our patients."

As a result of the positive response to KP's adoption of digital mental health tools into its care practices, the design team is planning to integrate digital tools into other clinical areas, including primary care, substance use disorder treatment, adolescent mental health, and women's health. "Referring patients to a digital app gives physicians a concrete tool to leverage daily to help their patients," Histon said. "And they facilitate more frequent engagement, including care between provider visits, which strengthens the patient-provider relationship."

The project also has generated meaningful insights into how app developers should think, as well as concrete steps they should take, if their goal is to partner with an integrated health system. Below are some of the factors that Histon thinks are most critical to success.

Getting in the Door: Clinical Foundation, User Experience, Demonstrated Outcomes

To assess apps for inclusion in the KP program, the design team utilized the American Psychiatric Association app evaluation model and worked with an expert KP clinical review team. "The three things we focused on first were the clinical foundation the app was built on, the overall user experience, and early evidence of outcomes," Histon said.

The first three apps Histon and her team selected provided evidence-based interventions built on the principles of Cognitive Behavioral Therapy (CBT). Widely used by KP practitioners, CBT is a type of psychotherapy that helps identify and change underlying thought patterns that negatively influence behavior and emotions.[3,4,5]

"We looked for apps that had done an outstanding job of integrating these principles," said Histon. "The three we chose met these criteria but offered different user experiences. She continued, "CBT is a really interactive process. We felt that some people would want a coach for support and accountability through the homework activities, while others might want access to a lot of programming, or just to watch short videos and learn the processing skills of CBT."

The team went through a similar process to select three mindfulness/mediation apps. "While there is a wealth of research that shows that mindfulness meditation is effective to help people manage stress and improve overall well-being,[6,7] at the time only one of the apps had been studied and been proven to be evidence-based," [8] Histon recalled. "But we felt this was just a function of the newness of this space."

Again, the team selected three apps that offered varied user experiences. "For these, we were thinking about reading level and how much flexibility in learning style they supported," said Histon. "We also knew that while some Kaiser members embraced a more spiritual experience, others were looking for help having a difficult conversation at work and would be more comfortable with a more professional approach."

All six apps met the team's criteria of supplying high-quality data that demonstrated outcomes. Importantly, this data had to be more robust than numbers of downloads and activated users. "We have to be able to justify and show the value of a tool within our ecosystem," Histon said. "We recognize that companies are at different stages of funding and development, but we needed some early signals that their solution was, indeed, reducing depression or anxiety." [9,10,11]

Histon noted that some app developers who didn't have solid data to demonstrate efficacy had to work to develop higher caliber outcomes data to earn KP's business. However, building that data was a key step that would benefit them in future interactions. "Honestly, we've helped some of these companies grow up a little bit, which has been painful at times, but has probably made them more prepared to work with other health systems," she said.

In addition to evidence base, user experience, and outcomes, several other factors carried weight as well. One of the most significant of these was language. Because KP serves a highly diverse population, an English-only offering was not appealing to Histon and her team. "In the US, a lot of companies start out with a product that is English-oriented," she said. "But as an integrated health system, we need to go beyond the English language and do the cultural translation. I recognize that for an app company, that is almost like designing another app. But going in very narrow with just one language ignores a significant percentage of our members. It's a big pain point in the digital space."

Keeping Patients Safe: Data Privacy and Security

Over and above the factors referenced above, Histon emphasized another set of criteria that apps must fundamentally meet to be considered by health systems: data privacy and security. "Being HIPAA-compliant is just the starting point, said Histon. "App companies that work with us should be prepared for a robust and extremely detailed review from our technical risk office."

However, she said, providers like KP are sometimes willing to give developers time to get up to speed. "It's essential for us to understand that the app developers are thinking about privacy and security and have taken many of the right steps to get there. Being HIPPA-compliant is table stakes –really just the minimum requirement to even be considered. "But will work with a company to give them room to focus on innovating first, while educating them as to our expectations beyond HIPAA for data management, security

and privacy. Companies are then clear on what our end-stage requirements are for scale and broad deployment – which may be unique to how we manage privacy at KP."

Histon also recommended that app developers create a simple, clear patient-facing privacy policy that specifies who is seeing the data collected by the app, how it is going to be used, and the various opt-in and opt-out options. "You shouldn't need a law degree to understand the privacy policy," she said. "It also should be clear that if you disclose information that could result in harm to yourself or others, hospital protocols will be followed," she said. "Finally, every app should build in the ability to expunge that data – so if the patient closes their account, their data is gone with them," she said.

For security purposes, explained Histon, patient data at KP must be maintained on local (US)– not offshore – servers, and the employees working with that data must also be US-based. "We need to be sure those employees have gone through background checks," said Histon. "In other countries, they may do a reference check, but that isn't the same as a full background check," she said.

Histon continued, "Part of HIPAA covers who has access to data, so while this is a KP policy, I imagine other health systems in the US would also want their data housed in the US given cybersecurity threats, which have grown exponentially in the healthcare space." She concluded, "Finally – this should be obvious, but I'll point it out anyway – there should be no advertising within the app."

Ultimately, Histon advised that app developers pitching KP should not only be prepared to meet these criteria, but they should prepare in advance to be measured against their competitors. "Developers should recognize that they're not the only app in their clinical space," said Histon. "They should know who their competitors are, differentiate themselves, and be prepared to have their data compared side-by-side with someone else's.

Partnering for Success: Clinician Training and Support
According to Histon, the digital health developers that have the best chance of success in the integrated health system environment are those willing to work with the organization as a partners. "It's not just, we hand you money, you give us an app. It's more about an ongoing dialog where we share our needs and the developers work with us to meet our needs and grow the content over time," she said.

For example, in order to build the infrastructure necessary to incorporate digital apps into the KP care pathway, her design team had to develop a number of tools. "We sought to provide clinicians with the information they needed to feel confident about making referrals to the apps," said Histon. "We prepared documentation on how individual apps work and how to match them with patient symptoms. We also created a clinician toolkit that included demo videos, talking points, and referral workflows, among other materials,'" she said. To develop these materials, Histon's team relied on documentation and source materials prepared especially for them by the app companies.

The partnership should continue after the initial uptake, as well. "We meet with companies providing the apps in our portfolio at least biweekly to check in and provide feedback," Histon detailed. "To ensure a seamless experience for patients, we need to make organization-level decisions quickly and encourage clinicians to be flexible and stay open to app changes. Working with the developers, we provide continued training and education to help ensure long-term success."

What Stage to Engage?

According to Histon, there are opportunities for both established and up-and-coming digital health companies to engage with an integrated health system like KP. As a guideline, she advises that if the app is focused on a clinical area that is relatively mature area for digital health, like adult mental health, the

organization prefers to work with an established company. "If we're going to invest a lot of time and put this in people's hands, we want to be sure you're going to be around tomorrow," said Histon. However, for emerging clinical areas like youth mental health or cancer, the organization is more willing to explore and engage early. "This can be an advantage because the space is not as crowded and the developer can take the system's needs into account early on in the cycle of partnership," she said.

Either way, opportunities for digital health providers addressing important healthcare needs abound. "The pandemic's silver lining has been that healthcare organizations are trying to augment the telehealth highway with digital tools. There's a real opportunity to provide products and services that extend and enhance healthcare delivery," she said. "We started our dive into digital mental health with 23 clinicians. Today, we've trained over 2,400 clinicians across all of our eight markets."

Looking ahead, Histon noted that KP's work in building a digital mental health ecosystem is ongoing and that efforts to optimize how these tools continue to be part of standard care continue to mature. "The incorporation of digital health as an additional layer to support patient care offers great promise," she said. "I am excited to see how app companies and healthcare systems continue to partner in the future."

Key Insights

- **Understand Clinician Workflows**
  Histon looks for developers willing to work with clinicians to understand their practice cadence and workflows, and integrate referral processes into these workflows. "Ideally, our digital health partners are willing to come in, interview providers, and spend time observing how they practice so they can identify and address specific obstacles to adoption," she advised. "If this is something they can repeat periodically, it's even better."

- **Educate Clinicians and Develop Tools that Facilitate Success**
  Educating the clinician about the content of the app and providing suggested best practices for integrating the app into clinical practice helps physicians build comfort and confidence about using new digital tools. "Partner with the health system to develop training programs, a toolkit, champions, and practice scenarios," she suggested.

- **Limit Data Exchange**
  While collecting data that helps understand how an app is helping an individual who is anxious or depressed is desirable, doing so requires a sophisticated data strategy which may be challenging for early-stage companies to implement. Accordingly, Histon advise, "At the outset, keep it simple with aggregate data and dashboards that support minimum viable exchange." She noted that a richer data set will most likely require more complex vetting and organizational and patient permissions, potentially slowing implementation.

- **Corporate Culture Matters**

  Another key element of Histon's due diligence in selecting digital partners involves each company's leadership team and corporate culture. "It's a small world, and showing up with authenticity and transparency and a good corporate culture is important. We hear about companies that have toxic cultures, and we want to make sure we pick partners who align with our mission and vision and values. Remember, there are a lot of tangible criteria for partnership and some less tangible ones as well."

[1] All quotes are based on interviews conducted by the author unless otherwise specified.

[2] Don Mordecai, Trina Histon, Estee Neuwirth E, et. al., "How Kaiser Permanente Created a Mental Health and Wellness Digital Ecosystem," *NEJM Catalyst*, 2021. https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0295 (February 17, 2022).

[3] KS Dobson, "A Meta-Analysis of the Efficacy of Cognitive Therapy for Depression." *Journal of Consulting and Clinical Psychology*, June, 1989. https://pubmed.ncbi.nlm.nih.gov/2738214/ (February 20, 2022).

[4] LA Robinson, JS Berman, RA Neimeyer, "Psychotherapy for the Treatment of Depression: A Comprehensive Review of Controlled Outcome Research," *Psychological Bulletin*, July 1990. https://pubmed.ncbi.nlm.nih.gov/2200072/ (February 20, 2022).

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[6] Scott Bishop, Mark Lau, Shauna Shapiro, et al., "Mindfulness: A Proposed Operational Definition," *Clinical Psychology: Science and Practice*, 2004. https://onlinelibrary.wiley.com/doi/abs/10.1093/clipsy.bph077 (February 21, 2022).

[7] Anne Maj van der Velden, Willem Kuyken, Ulla Wattar, et. al., "A Systematic Review of Mechanisms of Change in Mindfulness-Based Cognitive Therapy in the Treatment of Recurrent Major Depressive Disorder," *Clinical Psychology Review*, 2015. https://pubmed.ncbi.nlm.nih.gov/25748559/ (February 21, 2022).

[8] Annika Howells, Itai Ivtzan, Francisco Jose Eiroa-Orosa., "Putting the "app" in Happiness," *Journal of Happiness Studies*, 2014. https://link.springer.com/article/10.1007/s10902-014-9589-1 (February 18, 2022).

[9] Derek Richards, Thomas Richardson, "Computer-Based Psychological Treatments for Depression: a Systematic Review and Meta-Analysis," *Clin Psychol Rev*. 2012. https://pubmed.ncbi.nlm.nih.gov/22466510/ (February 19, 2022).

[10] Felip K. Arnberg, Steven J. Linton, Monica Hultcrantz, et. al., "Internet-Delivered Psychological Treatments for Mood and Anxiety Disorders: a Systematic Review of their Efficacy, Safety, and Cost-Effectiveness," *PLoS One*, May 20, 2014. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0098118 (February 18, 2022).

[11] Mirai So, Sosei Yamaguchi, Sora Hashimoto. et. al., "Is Computerized CBT Really Helpful for Adult Depression? A Meta-Analytic Re-evaluation of CCBT for Adult Depression in Terms of Clinical Implementation and Methodological Validity," *BMC Psychiatry*, 2013. https://bmcpsychiatry.biomedcentral.com/articles/10.1186/1471-244X-13-113 (February 19, 2022).