



CALIFORNIA
HEALTHCARE
FOUNDATION



The Online Couch: Mental Health Care on the Web

June 2012

The Online Couch: Mental Health Care on the Web

Prepared for

CALIFORNIA HEALTHCARE FOUNDATION

by

Jane Sarasohn-Kahn

THINK-Health and *Health Populi* blog

About the Author

Jane Sarasohn-Kahn, MA, MHSA, is a health economist and management consultant who works with the broad range of stakeholders at the intersection of health and technology. She writes the *Health Populi* blog.

Note: Inclusion of products and suppliers in this report does not constitute an endorsement or recommendation.

Acknowledgments

The author wishes to thank the following individuals, who shared their perspectives on technology and mental health to inform this report: Azy Barak, PhD, University of Haifa; Jack Barrette, WEGO Health; Mary Cain, HT3; Leigh Calabrese-Eck, Eliza Corporation; Jon Cousins, Moodscope; John DeSouza, MedHelp; Brian Dolan, MobiHealthNews; Alexandra Drane, Eliza Corporation; Pramod Gaur, UnitedHealth Group/Optum; Mark Goldenson, Breakthrough; John Grohol, PsyD, Psych Central; Lauren Hale, patient blogger, My Post Partum Voice; Benjamin Heywood, PatientsLikeMe; Sharon Hicks, University of Pittsburgh Medical Center; Barb Johnston, HealthLinkNow; Monique Levy, Manhattan Research; Ted Lutterman, National Association of State Mental Health Program Directors Research Institute; Margie Morris, Intel; DeeAnna Merz Nagel, LPC, Online Therapy Institute; Sandra Naylor Goodwin, PhD, California Institute of Mental Health; Monica Oss, Open Minds; Eve Phillips, Empower Interactive; Linda Rosenberg, National Council for Community Behavioral Health; John Smith, Beating the Blues; Derrick Stratman, Beating the Blues (US); Chato Stewart, patient blogger, Mental Health Hero; Natasha Tracy, patient blogger, Bipolar Burble; Carolyn Turvey, MD, University of Iowa and American Telemedicine Association TeleMental Health SIG; Peter Yellowlees, MD, University of California, Davis; Danielle Zavala, patient blogger, the Dani Z Blog.

About the Foundation

The **California HealthCare Foundation** works as a catalyst to fulfill the promise of better health care for all Californians. We support ideas and innovations that improve quality, increase efficiency, and lower the costs of care. For more information, visit us online at www.chcf.org.

Contents

2 I. Introduction

3 II. Background

4 III. Technology-Enabled Treatment for Depression

Computer-Based Cognitive Behavioral Therapy

Online Counseling (via email, chat, video)

Online Social Networks

Mobile Platforms for Self-Tracking and Support

Games for Behavioral Health

Virtual Reality

15 IV. Challenges and Perspectives

Market Challenges

Provider Perspectives

Payment Issues

The Outlook for Technology-Enabled Mental Health

20 Endnotes

24 Appendix: Online Cognitive Behavioral Therapy
*A Survey by the California Institute for
Mental Health — March 2012*

I. Introduction

Some of the new platforms and formats, as well as their business and privacy characteristics, might help overcome some of the traditional barriers to mental health care.

AT SOME TIME IN THEIR LIVES, ONE IN FOUR WOMEN AND one in 10 men in the US will need treatment for depression. Yet only one-third of people with depression seek help, and many of them discontinue treatment prematurely. There are a number of barriers to treatment for depression, as discussed below.

The focus of this report is the emerging array of technology-enabled psychotherapeutic interventions that are expanding access to free and low-cost care for people with mild-to-moderate depression. Web-based interventions come in a variety of forms, from static information websites to online therapy, patient-led support groups, and interactive, multimedia therapeutic programs.¹

Importantly, some of these new platforms and formats, as well as their business and privacy characteristics, might help overcome some of the traditional barriers to mental health care.

Mild-to-moderate depression and anxiety are in the segment of mental health that is amenable to cognitive behavioral therapy (CBT), which focuses on changing the way people think, feel, and behave. One of the most promising technology-enabled therapeutic interventions with a growing evidence base is computerized CBT (CCBT). This report describes CCBT and other technology applications that support people managing depression. These can be organized around the type of involvement of the patient, peer-to-peer networks, and clinicians, and the nature of the technology platform being used — from telephone, video, and chat to online social networks.

Finally, the report discusses implications for consumers and professionals, barriers to the adoption of technology-enabled mental health programs, and future prospects.

II. Background

THE US AND FRANCE HAVE THE GREATEST prevalence of depression in the world.² In the US, one-quarter of adults, about 60 million people, experience depression in a given year.³ The poorest Americans experience depression at twice the rate of people with higher incomes.⁴ More non-White than White persons in the US are diagnosed with depression, and more women than men.

Economic burden of depression. More days of work loss are caused by mental illness than by any other chronic condition, including diabetes, asthma, and arthritis. Mental illness and substance abuse annually cost employers an estimated \$80 billion to \$100 billion in indirect costs alone.⁵ Often referred to as “the common cold of mental illness,” depression disability can be expensive, long-lived, and challenging to manage. Depression is the number one treated condition in employee assistance programs (EAPs) according to Magellan Health Services, an EAP provider. Early identification and treatment of depressed employees is critical for reducing disability days and improving worker productivity.

The mental health provider shortage. Mental health services are delivered by psychiatrists, psychologists, social workers, psychiatric nurses, and marriage and family therapists. The US mental health workforce faces a shortage of providers and other professionals, particularly for individuals in rural areas, children, and the elderly. Demand for psychiatrists is growing faster than for any other medical specialty, but fewer medical students are entering careers in psychiatry and more than half of all psychiatrists are age 55 and older.⁶ There is also a high vacancy rate for community-based counselors

and psychiatric nurse practitioners throughout the country.⁷

Barriers to patients seeking face-to-face care. There are many reasons patients don't speak with doctors about depression, including a belief that a primary care physician is an inappropriate source of care for emotional problems, uncertainty about how to raise the topic of depression, concerns about distracting the doctor from other health issues, aversion to antidepressant medications and psychotherapy, loss of emotional control, and the stigma attached to a diagnosis of depression or psychiatric treatment.⁸ In addition, many people lack insurance coverage for mental health treatment. Finally, for people living in rural areas, the scarcity of nearby mental health services and the travel required to reach available services often prevents them from accessing needed care.⁹

A major reason people don't seek treatment for depression is the perceived stigma. Dr. Peter Yellowlees of the University of California, Davis, a long-term practitioner of telehealth for mental health care, has observed that therapy via videoconference can be easier for some patients. “Video can offer a bit of extra space,” he said. “People are often more honest on computers than face-to-face. If you want to ask a difficult question, it can be better to do it on a computer compared with being face-to-face with paper and pencil.”

III. Technology-Enabled Treatment for Depression

IN 2009, AZY BARAK OF THE UNIVERSITY of Haifa and colleagues developed a typology of Internet-supported therapeutic interventions because the field, in their words, “suffered from a lack of clarity and consistency.”¹⁰ This is still the case. Among the long list of labels applied to technology-enabled treatment for depression are web-based therapy, eTherapy, cybertherapy, eHealth, e-Interventions, computer-mediated interventions, and online therapy (or counseling).

Table 1 shows examples of technology-enabled interventions for mental health, based on the platform used and patient/peer/professional involvement. Self-driven consumer programs are used solely by patients with little to no clinical/professional support or input. Some of these programs are marketed directly to consumers.

Following are descriptions of online behavioral health interventions, the evidence behind them, and examples in each category. Examples were chosen because they are among the most mature in their

categories and have generated a body of data that provides insights to how the interventions work in real life with real patients, or because they are new models. Each set of examples is meant to be illustrative and does not represent every program in its category.

Computer-Based Cognitive Behavioral Therapy

Computer-based cognitive behavioral therapy (CCBT) cost-effectively leverages the Internet for coaching patients in self-driven or provider-assisted programs. Technological advances have enabled computer systems designed to replicate aspects of cognitive behavior therapy for a growing range of mental health issues.¹¹ CCBT can be deployed across a range of communications platforms, increasingly over networks via the Internet, interactive voice response systems over the phone, and via hand-held devices such as mobile phones and tablet computers.

Table 1. Technology-Enabled Behavioral Health/CBT Platforms and Examples

	TARGET USER BASE		
	SELF-DRIVEN CONSUMER	PEER-TO-PEER (P2P)	PROFESSIONAL/CLINICAL
Web 2.0 (e.g., social networks)	<ul style="list-style-type: none"> Virtual reality-based therapy Online CBT 	<ul style="list-style-type: none"> Virtual reality-based therapy Social networks for P2P support Online CBT with P2P support 	<ul style="list-style-type: none"> Virtual reality-based therapy with therapeutic support Online CBT with therapeutic support
Web 1.0 (e.g., search)	<ul style="list-style-type: none"> Mobile apps (e.g., mood-tracking, stress management) Games for MH/BH Online self-help exercises 		<ul style="list-style-type: none"> Online self-help exercises with therapeutic support
Video / Chat / Text			<ul style="list-style-type: none"> Online counseling

Some researchers believe that CBT is the most effective non-pharmacological treatment for many mental disorders, especially anxiety and depression.¹² CCBT teaches self-help skills (often using homework to bolster lessons learned and practiced), is problem-focused, and is to be accomplished in a set amount of time.

The largest evidence base supporting CCBT comes out of the United Kingdom. In the UK, the National Institute for Clinical Excellence's (NICE) 2006 Technology Appraisal recommended two CCBT packages for use in the National Health Service (NHS), one for depression (Beating the Blues), the other for panic and phobia disorders (FearFighter). NICE extended its recommendation for CCBT to depression in 2009, saying that CCBT should be available as an option for people who have mild or moderate depression.¹³

There are dozens of peer-reviewed studies confirming the efficacy of CCBT. They cite its cost-effectiveness, patient acceptance, and benefits to primary care workflow. Watkins, et al., found that CCBT is as effective as pharmacotherapy in the short term and in the long term sometimes superior.¹⁴ Research found that even with therapist support, CCBT saves providers time in managing patients with mild-to-moderate depression.¹⁵ This is especially valuable given that CCBT can be disseminated to large parts of the general population, bolstering the argument for CCBT to be deployed where most people seek health care: in primary care settings.¹⁶

Beating the Blues

COMPUTERIZED CBT BORN IN UK

Beating the Blues (BtB) is a computerized cognitive behavioral therapy treatment program for depression and anxiety. The program was designed and developed by Dr. Judy Proudfoot and her team at the Institute of Psychiatry, Kings College, London,

in 1997. Over the years, the BtB clinical team has worked with script writers (some from the BBC) and distance learning experts to improve the program. Proudfoot and colleagues conducted the first randomized controlled trial for BtB, which resulted in a landmark publication in 2003.¹⁷

The trial studied 167 adults suffering from anxiety and/or depression who were not receiving any form of psychological treatment or counseling. Patients were randomly assigned to receive either BtB or usual treatment, some with and some without medication. Patients who received BtB showed significantly greater improvement in depression and anxiety compared to those who received the usual treatment after two months and six months. The researchers concluded that CCBT under minimal clinical supervision could bring about improvements in depression and anxiety both with and without pharmacotherapy.

In 2006, NICE recommended that NHS primary care providers implement BtB to help improve access to cognitive behavioral therapy. In 2012, about 80% of primary care providers in the NHS were using BtB for their patients. It is used as a step-therapy protocol to deal with therapy waiting lists: patients diagnosed with mild-to-moderate depression are prescribed BtB, and, as a result, the NHS has found that seven in 10 have not required face-to-face treatment with therapists. Most improve, and those whose conditions do not improve still need just one-third the number of face-to-face interventions as those undergoing usual treatment.

The success of BtB in the UK has led health systems in other countries, including Australia, New Zealand, the Netherlands, Canada, Egypt, and Malta to adopt the program. In 2012, BtB hit the shores of the US, being adopted by the University of Pittsburgh Medical Center.

When the University of Pittsburgh Medical Center evaluated various CCBT programs, it found only five among the dozens of programs on the market that had been subjected to peer review. The one that met the university's programmatic objectives was BtB. UPMC partnered with Ultrasis, the company behind BtB, to form U2 Interactive, which markets the product.

UPMC has since rolled out BtB to its 1.5 million health plan members, along with members of the medical center's employee assistance program, which covers another half-million people. In the third phase of rollout, UPMC will put BtB in all of the organization's patient-centered medical homes.

In early 2012, U2 Interactive began work with MultiCare Health System in Tacoma, Washington, which will deploy BtB across its community and hospital-based behavioral health services. Ultrasis is also working to deploy BtB with the U.S. Department of Defense and the Veterans Administration, which is rolling out a peer-to-peer counseling model bringing social networking into the program. The VA will assess the potential for BtB to be delivered in its peer-to-peer model by veterans who are trained to act as mentors and given ongoing support by existing clinical services. John Smith, executive director of Ultrasis, said, "Our next step is to get embedded close to the primary care doctor interface with patients."

Empower Interactive

CCBT GROWING OUT OF A CD-ROM

Empower Interactive's lead product is Good Days Ahead, a web-based CBT program that combines games, exercises, and videos to teach people how to manage stress, anxiety, and depression. It is offered in two ways: as a clinical version that can be combined with talk therapy (in-person or online) in which clinicians have access to patients' progress as they use

the program; and in a consumer/wellness version, with self-guided tools that teach coping techniques. Good Days Ahead incorporates interactive media, including videos, quizzes, and exercises. In the videos, Dr. Jesse Wright, the creator of the program who is director of the University of Louisville Depression Center and a leading authority on computer-assisted CBT, explains CCBT concepts. Other videos feature a character named "Joan," who demonstrates how CBT helps her. A version available later in 2012 will include apps and games.

Eliza

INTERACTIVE VOICE RESPONSE FOR MOOD SUPPORT

Working with health plan clients, Eliza's automated, interactive, phone-based outreach engages people in conversation about the importance of preventive health while incorporating a standardized depression screening tool (the PHQ-2). Speech-recognition software tailors conversations between "Eliza" and patients to help manage patients' health conditions. Based on members' spoken responses, Eliza connects them with resources to address their condition. One such program resulted in identifying health plan members who screened positively for depression during a call, with between 31% and 40% (depending on age) requesting a follow-up questionnaire on depression that they could share with their physician.

Eliza found in its data that the most important initial intervention point for patients newly diagnosed with depression is immediately after they are prescribed an antidepressant. Patients' doctors don't always adequately describe side effects or tell them when the medications are likely to "kick in."

The company contracts with health plans, payers, and providers to contact patients through whatever communications platform people prefer: via phone, email, or text message.

Online Counseling (via email, chat, video)

Online therapy, or eTherapy, is a therapeutic intervention that is administered individually or in groups by a trained mental health professional, and may occur via email, chat, forums, and audio or video through a webcam. Over the past decade, more psychologists have begun to offer “telepractice,” which is also referred to as telepsychology, telemental health, and the more general term telehealth.

Online therapy is marketed to patients by both individual professionals and through commercial online-therapy services that operate as Internet-based group practices. These services often verify therapists’ credentials and provide them with marketing support, electronic health records systems, and technology platforms.

One of the largest telehealth networks operates in the province of Ontario, Canada. Researchers there studied clinical outcomes of telepsychiatry compared with face-to-face psychiatric consultation, and the clinical trial found equivalent patient outcomes and similar levels of patient satisfaction. Costs were at least 10% lower per patient in the group treated via telepsychiatry.¹⁸

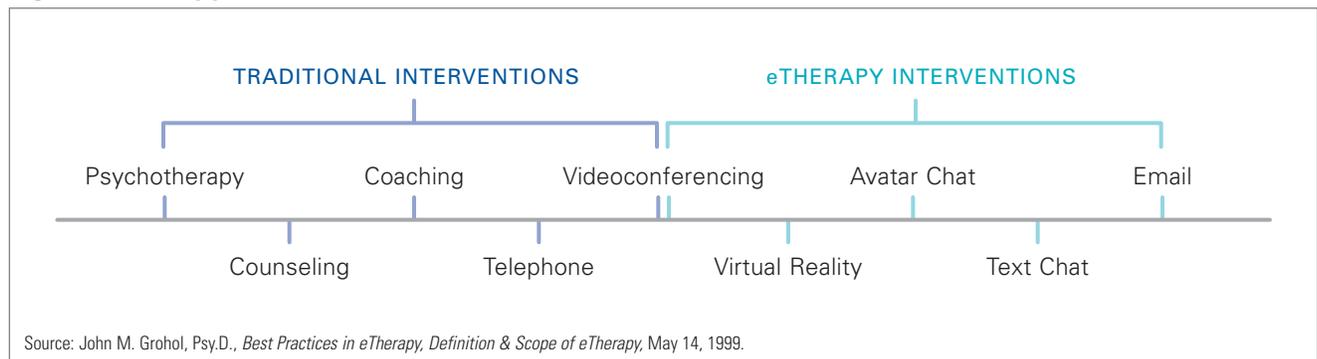
Dr. John Grohol, who in 2001 founded PsychCentral, a site that now has some 250,000 members in its social network communities, wrote a seminal article on best practices in eTherapy in 1999.

He defines professional interventions via online counseling across a continuum (see Figure 1).

Email is part of the interventions continuum envisioned by Grohol. Email has numerous potential therapeutic uses and in some situations may be especially helpful to clients. Some psychotherapy clients may be more receptive to communicating with providers via email, especially when addressing issues that may be difficult to discuss face-to-face (such as drug and alcohol addiction or sexual issues). People dealing with issues that have an element of risk (e.g., addictions and phobias), are good candidates for email therapy. Email can also be used in conjunction with other technologies for therapeutic purposes.¹⁹

Videoconferencing is a live, interactive two-way video-audio electronic meeting between at least two remote sites using video cameras, monitors, and communications technology.²⁰ The mode has the potential to deliver psychotherapy to people who don’t have access to face-to-face services delivered locally. Many studies have demonstrated the benefits of psychotherapeutic videoconferencing to remote populations, in such different places as rural America and aboriginal settlements in outback Australia.^{21,22} Patients who may feel stigmatized due to their conditions may also be attracted to treatment via

Figure 1. eTherapy Interventions Lie on a Continuum



Source: John M. Grohol, Psy.D., *Best Practices in eTherapy, Definition & Scope of eTherapy*, May 14, 1999.

videoconferencing platforms rather than in-person therapy.

Critics of videoconferencing — and other technology platforms — in behavioral health treatment point to the importance of the therapeutic alliance and rapport, the collaborative bond between therapist and client, as a foundation for positive outcomes. But research on therapy delivered via webcam and smartphone video has demonstrated that the process and client-counselor relationships are similar to face-to-face therapy.^{23,24} Cognitive behavioral therapy conducted between therapist and patient over the phone (T-CBT) led to near-equivalent improvement in depression, according to a peer-reviewed study in the *Journal of the American Medical Association* published in June 2012.²⁵ Other evidence shows that therapeutic alliances created via videoconferencing are as feasible and effective for many patients as face-to-face interventions.²⁶ For eTherapy, Barak, et al. found no statistically significant difference between interventions done in real-time (“live” synchronous, via chat, audio, or webcam) versus asynchronous (via email and forums).²⁷ Several studies have evaluated the delivery of CBT via videoconferencing using a closed-circuit television system and found that both therapists and clients adapted to the mode of treatment delivery with little difference in therapeutic outcome.²⁸ Video therapy might also be a “safe space” for discussing difficult or painful issues that could facilitate rapport.²⁹

Breakthrough

eTHERAPY PLATFORM

Breakthrough offers a technology platform enabling video counseling and psychiatry for consumers who are seeking licensed professionals for individual treatment and who can benefit from online therapy as a supplement to their face-to-face treatment.

Mark Goldenson, founder of Breakthrough, believes therapy delivered this way can be more private, more convenient, and often more affordable.

On the Breakthrough website, a patient can search for a provider based on factors such as insurance plan and therapeutic concern to be addressed. Breakthrough provides a description of each counselor, and also provides a video that the patient can preview. Consumers can then select a provider who is licensed in their state and meets other criteria important to them (e.g., gender, area of specialization).

Once set up with an account, the patient can schedule time with the provider through the Breakthrough website. Breakthrough hosts the videoconference between client and provider. To use the service, consumers ideally have a high-speed Internet connection, a web camera, and microphone or headset.

Breakthrough markets its service to health insurance plans, which provide — and pay for — online counseling as part of a benefits package. The company recently contracted with a health plan to provide videoconference counseling for 2 million Californians. “While it’s challenging to work with health insurers, it is insurance coverage that makes accessing mental health services more affordable for people seeking treatment,” Goldenson said. “Health insurers like that they can use our provider network to fill gaps in their coverage, like rural areas and specialists. Thus, they are not only paying for technology but our provider network. We are investing in growing both.”

What makes behavioral health services well suited to the online world, Goldenson said, is the fact that “the Internet is good at matching supply with demand. Breakthrough has features like video introductions, search filters, and online diagnostics to improve the matching of patients and providers.

That therapeutic alliance is a key driver of positive outcomes.”

Online Social Networks

Patients with depression often feel stigma due to their condition; in addition, they may feel distrustful of providers and fearful of therapy (whether via talk or prescription drugs). For some, peer-to-peer social networks can offer easier access to support and counseling. Online support groups can foster feelings of well-being, self-confidence, control, and empowerment for many people who use them.³⁰ As health social networks have matured, several, such as CureTogether and PatientsLikeMe, have built sufficiently large patient communities to have begun to crowdsource clinical findings among patients themselves.

A 2011 study by the University of Michigan Department of Psychiatry compared online peer support to usual care for depression (one-on-one treatment with a therapist in an office setting, often including a patient taking prescribed medications) among 869 participants. The study found that peer support interventions were superior to usual care in reducing depressive symptoms. When peer support was compared to CBT, there was no statistically significant difference between group CBT and peer interventions.³¹

There can be downsides to using online support groups for mental/behavioral health conditions. Some groups may reinforce or encourage negative behavior, such as cyber-suicide sites that offer “best” methods for committing suicide and “pro-ana” groups that promote anorexia.^{32–34}

PatientsLikeMe

PATIENT SOCIAL NETWORKING

PatientsLikeMe (PLM) was founded in 2007 by the Heywood brothers, Benjamin and Jamie, who were inspired by their brother Stephen’s diagnosis of amyotrophic lateral sclerosis, or ALS (commonly known as Lou Gehrig’s disease). PLM was founded as a social network to support people with ALS and other neurological conditions, such as multiple sclerosis and Parkinson’s disease. By 2008, the Heywoods had found that depression and other mental health conditions often accompanied ALS and related disorders, and launched PLM’s “mood community,” which brings together people with depression, anxiety, bipolar, and other mental health diagnoses.

PLM developed a scale for measuring the nuances of mood, examining many available scales for depression and incorporating psychometric analysis. This ultimately morphed into a mood map on which patients on PLM can track how they feel over time. The publication of an article by Thomas Goetz in *The New York Times* in March 2008 called “Practicing Patients” turbocharged the viral growth of the social network.³⁵ On the date of publication, PLM had 7,000 patients. By April 2012, PLM had registered over 142,000 patients, including over 66,000 members in the mood community, which covers Major Depressive Disorder (10,367), General Anxiety Disorder (8,761), Panic Disorder (5,126), Social Anxiety Disorder (5,079), Dysthymia (4,834), PTSD (4,015), and other mental health conditions.

At PLM, patients enter data points that describe their mood and note down observations from their daily lives, commenting on their weight and appetite, sex drive, sleeping patterns, and whether pets are helpful as therapeutic companions. PLM captures far more than the data recorded in purely medical environments — granular aspects of daily

living that are critical to understanding the context of a person's mood. These data are coupled with pharmacology information: what prescription and OTC drugs are used by patients. The thousands of patients who share data can generate graphs that yield helpful information for their own situation by showing the success of fellow patients' coping mechanisms, therapies, and dosing. In a 2010 survey of 141 patients with mood disorders, 22% agreed they had decided to start therapy or counseling after interacting with other patients at PatientsLikeMe.

"Most of our patients have comorbidities," Ben Heywood noted. "What's front and center to them is what's most impactful from a quality-of-life standpoint right now."

PLM has been able to quantify reduced hospitalization for patients in its mood community — a tangible example of how technology can help bend the cost curve in mental health.

WEGO Health

A HEALTH ACTIVIST MOOD COMMUNITY

Since its inception in 2007, WEGO Health's social network has been built on health activists — the 4% of the social media audience who create 80% of the content, as described by WEGO founder Jack Barrette. From the beginning, the site's depression/anxiety community grew organically alongside two other WEGO communities with overlapping members: weight loss and diet, and migraine. "The overlaps between the three are massive," Barrette said. "Most with one issue are dealing with one or two of the others."

"What we continue to see is how much depression comes up in online conversations among people in other chronic disease communities outside of the specific depression community. In the diabetes community, you hear, 'I'm really down because I can't get my sugars under control. I feel like going

to bed.' Weight loss isn't seen as a chronic condition but for many people it's a lifetime struggle which can lead to depression. What makes this community unique is it's a uniquely support-driven and welcome environment. The depression community thrives on support."

The depression/anxiety community leaders describe the network as a "therapy extender." "They are the space between the appointments with therapists and service providers versus the treatments you might not be able to afford or what your insurance company won't cover. It's an adjunct that helps me through this and fills the gap where care isn't enough," Barrette said.

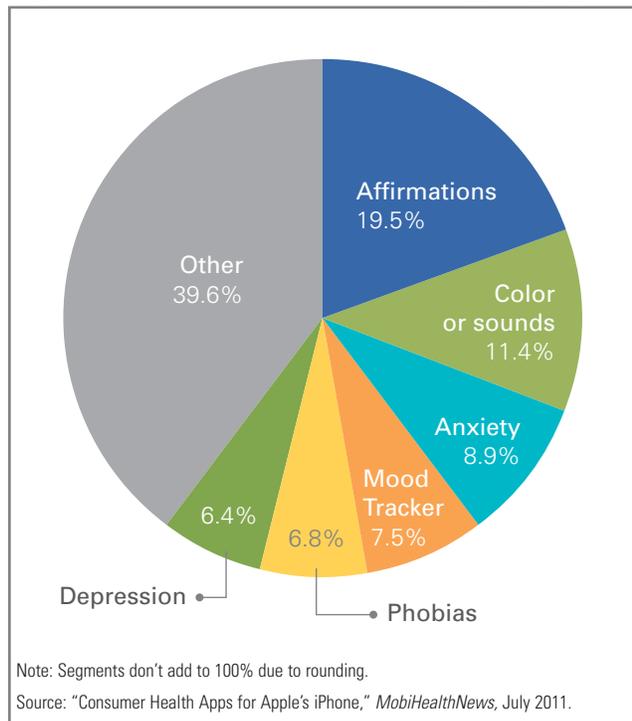
This is where people go to figure out their day-to-day issues, he said. "What happens if you miss two days of your meds and you can't get to the doctor? The community takes the role of mental health support desk very seriously."

Mobile Platforms for Self-Tracking and Support

The number of mobile health apps that address mental health grew from 246 in early 2010 to 518 in July 2011, and is projected to grow to over 700 by July 2012. There are apps that address anxiety, phobias, and depression, and many also help users track their moods. The largest segment of mental health apps provides affirmations to boost users' confidence or to support positive mental states (see Figure 2 on page 11).³⁶

The National Center for Telehealth and Technology (NCTT), a division of the US Department of Defense, has launched several mobile health apps that target behavioral health issues. It introduced its T2 Mood Tracker app in April 2011. The app enables people to monitor moods on six scales: for anxiety, brain injury, depression, general well-being, post-traumatic stress, and stress.

Figure 2. Breakdown of Mental Health Apps by Type



PTSD Coach is a joint project of NCTT and the VA's National Center for PTSD, and is intended to be used either as a stand-alone solution or in combination with psychological treatment to assist veterans, active-duty personnel, and civilians who are dealing with symptoms of PTSD. The app provides individualized feedback and tracking of symptoms over time, along with relaxation and other self-help techniques. The app also allows users to store contact information for personal sources of emotional support, as well as links to treatment programs and an emergency link to the National Suicide Prevention Hotline.

SMS-delivered interventions have had positive results on short-term behavioral outcomes.³⁷ At least 25 empirical studies have reported significant improvement in patients using SMS and other applications through cellphones.³⁸ Other studies have shown the effectiveness of "roaming therapy" for

people with bulimia nervosa, schizophrenia, chronic pain, and alcohol abuse.³⁹⁻⁴³

Due to the nascence of smartphone apps in health, there is little evidence available on the effectiveness of such apps in early 2012. Still, public attitudes seem to favor using therapeutic mobile apps for monitoring and management of depression, anxiety, and stress if privacy and security can be assured.⁴⁴

Researchers at Harvard are developing smartphone apps to deal with anxiety. A study found that playing a simple game of pressing buttons after viewing images of faces each day for a few minutes reduced anxiety for participants when sustained over the course of a month. "Computerized methods are going to have a big role in mental health, but there's no reason to think they will replace therapy or even a particular part of therapy," Phil Enock, a psychology researcher at Harvard, explained. "Studies have shown that mental illness — particularly anxiety and depression — is very prevalent, and that most people who need help aren't getting it. For those people, I would say, here is an easy option," Enock said. He envisions layering this kind of smartphone app with other treatments.⁴⁵

What's My M3

APP FOR DEPRESSION/ANXIETY TRACKING

Launched in May 2012, What's My M3 is a mobile phone app that uses a self-administered checklist to assess a person's M3 score — an index of mental wellness: the higher the M3 score, the more likely someone has clinically significant mood and anxiety disorders. Data generated through the app are stored in a secured personal health record through Microsoft HealthVault. Patients can share their personal data with clinicians, who can monitor the M3 data over time to track a patient's mood and adjust treatment. The app was developed by psychiatrists associated

with Georgetown University, Columbia University, and the Bipolar Collaborative Network.

MedHelp – MoodTracker

MedHelp was formed in 1994 and is one of the longest-lived online patient social networks, with 12 million unique patient visitors each month. MedHelp launched its MoodTracker app in 2009, allowing users to track symptoms of mood disorders, medications, and treatments (e.g., therapy).

MedHelp has found that some users are tracking mood along with other aspects of their daily lives, including medication use, sleep patterns, and food consumption. “People are interested in looking at multiple dimensions of health,” said John DeSouza, MedHelp’s CEO and president. “Each piece of data doesn’t matter in isolation. People care about how these interrelate and explain their daily lives.”

Games for Behavioral Health

In health, games can successfully engage patients who are difficult to engage by other means. Research on computer games in mental health settings has been limited, but existing research on therapeutic computer games suggests that some clients are more cooperative with therapists when using games, that session attendance rates can be improved because clients don’t feel the stigma they do when attending therapy, and that children and adolescents who require therapy for behavioral health benefit from games.⁴⁶

SPARX

COMPUTERIZED SELF-HELP FOR ADOLESCENTS

About one in four young people experiences a depressive disorder by the age of 19.⁴⁷ At any given time, up to 15% of children and adolescents have some symptoms of depression.⁴⁸ But there is an undersupply of counseling resources that address

pediatric and adolescent populations. More than 70% of children and adolescents with depressive disorders or other serious mood disorders do not receive appropriate diagnosis and treatment.⁴⁹

Computerized therapy can help compensate for the undersupply of counseling resources, and offers an alternative approach that can appeal to “digital natives,” young people who have grown up with digital technologies.

A CCBT program called SPARX was developed by researchers in New Zealand for adolescents seeking help for depression. It was tested in a randomized controlled trial to compare the tool with treatment as usual (face-to-face counseling). Young people were recruited through youth clinics, general practices, and school-based counseling services in New Zealand. SPARX is an interactive fantasy game in which the user picks an avatar and performs a series of challenges to restore balance in a fantasy world dominated by Gloomy Negative Automatic Thoughts (GNATs). The program is delivered on CD-ROM to run on PCs, and is supplemented by a notebook in which users can provide comments.

Use of the program resulted in a clinically significant reduction in depression and anxiety. The trial found that SPARX is as effective for adolescents seeking help for depression as face-to-face treatment as usual. Most participants found SPARX useful and would recommend it to their friends.⁵⁰

Moodscope

GAMIFYING MOOD TRACKING THROUGH PLAYING CARDS

Jon Cousins had secretly dealt with his own depression for 30 years when, in 2006, he received a diagnosis of bipolar depression and was told to track his moods. To do it, Cousins came up with his own innovation: Moodscope, an online mood-tracking system that records a user’s responses to 20 playing cards, each of which represents a different feeling.

Users turn over a card, then register their degree of that feeling on a scale of 0 (“very slightly or not at all”) to 3 (“extremely”). It takes about three minutes to “play” all the cards.

Cousins designed the game to render an objective, granular measurement of his moods. He built Moodscope based on the PANAS mood measure developed by Dr. David Watson and colleagues in 1988. PANAS, which stands for “Positive and Negative Affect Schedule,” is a tool that measures a person’s mood based on self-ratings. Watson’s work on PANAS scales was first published in a peer-reviewed article in the *Journal of Personality and Social Psychology* in June 1988.⁵¹ As users play Moodscope, their scores are archived and shown over time in a graph on a personal website. Users can share these results with buddies (up to five) chosen by users as their social support network.

Word-of-mouth has built demand for Moodscope. Cousins is now part of the Quantified Self movement (QS), and was featured by Gary Wolf, founder of QS, in his article on “The Data Driven Life” in the Sunday *New York Times* magazine in 2012.⁵²

Virtual Reality

Virtual reality (VR) uses computers, visual immersion devices, and artificially created environments to give a patient a simulated experience that can be used to diagnose and treat psychological conditions. VR can be used online by patients and therapists as an adjunct to face-to-face therapy.⁵³ Rothbaum, et al., reviewed effective VR therapy programs for veterans suffering PTSD following service in the Iraq war (Virtual Iraq) and victims of suicide bombs in Israel (BusWorld), and discussed advantages of using VR therapy online for treating the growing population of people dealing with PTSD.⁵⁴ (For more on the use of telemental health in the military, see box on page 14.)

VR environments can be empowering, sheltered settings for people dealing with mental health issues.⁵⁵ One, Second Life, is being deployed by the Center for BrainHealth at the University of Texas, Dallas, for people with Asperger’s syndrome. Dr. Sandra Bond Chapman describes the patient’s interactions in Second Life as “rewiring the brain.”⁵⁶

Numerous peer-reviewed studies discuss the use of VR in behavioral health for a broad range of conditions, including phobias, panic disorders, PTSD, sexual disorders, pain management, addictions, stress management, and eating disorders and obesity.⁵⁷ These applications are all in the investigative stage.

US Veterans Administration and Telemental Health

The US Veterans Administration has one of the largest telemental health (TMH) networks in the world, and the VA is rapidly expanding TMH services to meet increasing demand from soldiers returning from Iraq and Afghanistan. Nearly 20% of these soldiers show symptoms of PTSD.⁵⁸ “We need to put psychological injuries on par with physical injuries, a task that requires transforming the culture of the military,” Brigadier General Loree Sutton, MD, special assistant to the Assistant Secretary of Defense for Health Affairs, has said.⁵⁹ Of the more than 325,000 Iraq and Afghanistan veterans who have been seen at US Department of Veterans Affairs health facilities, 39% have mental health diagnoses, including nearly 68,000 with PTSD and an equal number with traumatic brain injury. In 2007, about 2,000 active duty service members attempted suicide and 121 took their own lives, the highest number since tracking began in 1980.

Treatment for the effects of trauma is improving, with clinical trials emerging that evaluate novel treatment methods — including assessments of telemental health programs. Ongoing randomized controlled trials are studying TMH services to deal with PTSD.

In 2004, the VA conducted a trial comparing remote treatment through telepsychiatry to in-person treatment for depression and found comparable outcomes and equivalent levels of patient adherence, patient satisfaction, and health care cost.

Another trial compared videoconferencing with traditional in-person cognitive-behavioral group treatment for PTSD-related anger problems in a group of rural combat veterans with PTSD.⁶⁰ Participants were randomly assigned to receive anger-management therapy in a group setting, with therapy delivered either in-person or via videoconferencing. Participants in both groups showed significant and clinically meaningful reductions in anger symptoms, both post-treatment and six months following treatment.

The VA will be able to expand the program with the passage of the National Defense Authorization Act for fiscal year 2012, which allows health care providers licensed in one state to provide behavioral telehealth consultations across state lines, thus breaking down the barrier requiring practitioners to have a license to practice in the state where a patient resides.

IV. Challenges and Perspectives

FOLLOWING IS A DISCUSSION OF MARKET challenges, provider perspectives, and payment issues, as well as prospects for the future adoption of technology-enabled mental health.

Market Challenges

Patient engagement is a challenge across all health conditions, and keeping patients engaged in CCBT is no exception. There is a sharp decline in consumers' use of technology in health if it causes frustration, said Intel's Margie Morris, a clinical psychologist who studies people using technology to manage health conditions. Technology is typically most beneficial if used in conjunction with supportive conversation, either with peers or professionals. "An app alone is no panacea," she said. "We still need people." Researchers stress the importance of better understanding and addressing patient adherence in technology-enabled behavioral health. Email or other messaging to patients can provide useful reminders ("nudges") that can help to keep patients on-task.^{61,62}

In addition, a great many Americans don't have access to the basic technology required for the delivery of online mental health care. One in five US adults still isn't online, according to a Pew Internet & American Life survey conducted in February 2012, and many of these nonusers are the people who most need mental health support — they are more likely to be lower-income, less educated, over the age of 65, and disabled.^{63,64} The technology divide is greater in rural areas, where telemental health services could provide valuable access to people who are underserved by mental health providers.

Provider Perspectives

Mental health providers who deal with depression and anxiety are a mix of psychiatrists, psychologists, clinical social workers, and other professionals who provide counseling to patients. While psychiatrists are slightly less likely than general physicians to have used or be interested in using physician-only social networks or communities, psychiatrists are level with general physicians in terms of how they use secure email and video to communicate with patients.⁶⁵

According to Yellowlees and PsychCentral founder Grohol, both of whom have practiced eTherapy for decades, providers are on board with eTherapy. Grohol organized an online therapy clinic back in 1999 and providers responded right away. "We had no trouble signing up 1,000 providers within a year," he said.

Many of the providers who lag in adopting online mental health platforms are concerned about ethical issues. But most of the important ethical considerations in online behavioral health are extensions of existing ethical problems in psychotherapy in general.⁶⁶ These are issues of confidentiality and privacy, the appropriateness of email communication in a particular clinical situation, professionalism and standards of care, and administrative issues, such as licensure.

To help professionals who want to provide services via online channels, the Online Therapy Institute has created several ethical frameworks, some of which have been endorsed or adapted by professional associations representing behavioral health occupations. Its first framework on the ethical use of technology for mental health professionals was endorsed by the American Psychological Association

and the American Counseling Association. “Online therapy isn’t yet regularly taught in counseling curricula,” said DeeAnna Merz Nagel, cofounder of the Online Therapy Institute. “There are chapters for clinicians on computer-based therapy in UK textbooks, but it’s not even on the radar screen academically in the US.”

Licensure has been a historic barrier to telehealth, due to the requirement that providers who practice across state lines have professional licenses in each of those states. Senator Tom Udall of Utah is drafting a bill, expected to be introduced in the Senate sometime in 2012, to streamline licensure for physicians who want to practice across state lines. In the military health system, physicians can do so now. The National Defense Authorization Act of 2012 eliminated the requirement for duplicate state licenses for physicians treating military families across state lines.

Compliance with the Health Insurance Portability and Accountability Act of 1996 (HIPAA) is another concern for mental health providers involved in eTherapy because HIPAA governs the security and privacy risks of providing therapy online via email and video. Several video suppliers in the telehealth field market their products as HIPAA compliant, including Damaka, Tandberg, Vidy, Visual Telehealth, and Vyzit. Some therapists engaging online use Skype and Google Talk, neither of which is considered HIPAA compliant. Professionals looking to engage clients via email can find encrypted email services (e.g., Hushmail) if they are concerned about email security.

Grohol, a longtime advocate for eTherapy, thinks the privacy risk is exaggerated. “We always hold these things up to a higher standard online than we do in the real (i.e., not computer-based or virtual) world,” he said. “There are practices in the real world that leave files on the desk when they go for coffee, and

they don’t lock file cabinets when leaving their office. It’s silly that we have to encrypt email. We don’t encrypt phone calls and these are much easier to tap into than people’s email accounts.”

Payment Issues

Payment for behavioral health in the US is financed through a complex patchwork of multiple sources. These include states and counties, Medicaid, Medicare, private insurance plans, patients’ out-of-pocket expenditures, and a myriad of other public programs. Medicaid is the largest payer of mental health services in the US, accounting for 26% of total mental health care spending.⁶⁷ Medicaid covers mental health services delivered in the home, school, and workplace through psychiatrists, psychologists, clinical social workers, and other services inside and outside hospitals.

The reimbursement landscape for technology-based behavioral health will be shaped by the larger issue of payment for telehealth in general, combined with three key drivers influencing payment for mental/behavioral health: the dramatic decline in state-level funding for services, the implementation of the Mental Health Parity Act, and the impact of the Affordable Care Act on mental health services.

Reimbursement for telehealth in the US has been a barrier to telehealth growth. Payment for telehealth applications, including those for mental/behavioral health, has been less a barrier in countries outside the US, particularly in those where health care is financed at the national level, as in Australia and the United Kingdom. Where telehealth has been more broadly deployed in the US, there has been limited emphasis on behavioral health programs.⁶⁸ As of 2010, only Medicare and 12 states require private insurance reimbursement for telehealth services, and this is often limited to payment for videoconferencing or webcam-based meetings.⁶⁹ These states include

California, Colorado, Georgia, Hawaii, Kentucky, Louisiana, Maine, New Hampshire, Oklahoma, Oregon, Texas, and Virginia.

The recent recession resulted in a drastic reduction in spending by state governments. Funding for mental health services has experienced significant cuts at a time when demand for services is increasing. The National Association of State Mental Health Program Directors estimates that funding for mental health across all 50 states was cut by nearly \$3.5 billion between 2009 and 2012.

Reducing financial barriers to mental health care has been a longtime challenge in the US because of lower and limited reimbursement by health insurers

here. The Mental Health Parity Act of 2008, which went into effect January 1, 2010, was a step forward, and is expected to provide over 113 million people with expanded insurance coverage for mental health services.

The Affordable Care Act (ACA) could impact payment for mental health services even more than the Parity Act has.⁷⁰ The ACA mandates that Medicaid plans and plans that operate in state health insurance exchanges cover behavioral health services as part of an essential-benefits package. Perhaps most significant could be the ACA's models for integrating care, specifically accountable care organizations and the patient-centered medical home. These models

How Mental Health Activists View Technology

WEGO Health is a network of health activists — patients who are deeply engaged in their peer communities through blogging, participating in online social networks and forums, and otherwise supporting fellow patients. WEGO Health held an online panel in March 2012 to provide input into this report, tapping the organization's Depression and Anxiety Community for opinion on the use of technology for managing mental health. The panel included four health activists, and the webinar was attended by over 160 members of the Depression and Anxiety Community — considered by WEGO Health to be a highly attended event. The activists came from backgrounds in addiction, postpartum depression, bipolar, and generalized depression.

One of the benefits technology affords patients is reduced stigma and fear. One of the health activists on the panel first organized a Twitter support group for postpartum depression in 2010 using the hashtag #PPDChat. Mothers in the group access support from the US, United Kingdom, Japan, Australia, and Canada, among other countries. "We talk about everything in the postpartum group. No one uses the Twitter hashtag negatively. A mom can sit in her car in front of her doctor's office before an appointment or get support in the middle of the night." For many women

in the group, this is the only support they have for managing postpartum depression.

Blogging is a useful medium for people managing mental health disorders, allowing people to express themselves and share perspectives as they've done in offline journals for generations. In addition to blogs, social network platforms such as Facebook and Twitter are very useful. YouTube has emerged as a valuable channel for patients managing mental health conditions due to the video medium and content, which allows a user to "see and visualize a person in front of you." The videos help patients lessen social isolation, helping them to feel they're not alone. The health activists concurred that patients are ahead of providers when it comes to using social networking technologies

There are several barriers to patients' full embrace of technology in mental health. They include privacy concerns (although the privacy factor can also cut the opposite way, providing anonymity for people who shy away from face-to-face therapy), discoverability (that is, how to find the most credible, trusted, and useful tools), and access to the Internet. In addition, the issue of insurance and payment for mental health services is a challenge.

would bring mental health more centrally into the primary care process, enabling earlier detection and treatment of people with mild-to-moderate mental health conditions. Accountable care financing would incentivize providers to channel patients to the most cost-effective form of care. For patients with mild-to-moderate depression, CCBT could be a cost-effective approach.

The Outlook for Technology-Enabled Mental Health

The Carter Center in Atlanta calls the lack of mental health services provided in the primary care setting a “hidden crisis in American health care.” Its Primary Care Initiative was launched in 2008 to increase early detection and treatment of depression, anxiety, and substance abuse in primary care settings. The center’s Dr. John Bartlett said that “there is no reason why today, with better parity in insurance coverage and excellent treatment options for primary care settings, anyone with depression or a substance-abuse problem should have to go untreated.”

The \$20 billion antidepressant market plays a strong role in primary care treatment of depression. Although there is little evidence that pharmacotherapy should be used as a first line of treatment for mild-to-moderate depression, antidepressants were the third most common prescription drug taken by Americans of all ages in 2005–2008 according to the National Center for Health Statistics. The fastest growth in prescribing antidepressants is among primary care providers and specialists who are not psychiatrists. In fact, fewer than one-third of individuals taking a single antidepressant have seen a mental health professional in the past year, and less than half of those taking multiple antidepressants have seen a mental health professional in the past year.

Meanwhile, demand for behavioral health care is increasing. The recession that began in 2007 brought with it a rise in behavioral health problems: anxiety, depression, sleep disorders, and other conditions that decrease people’s productivity, relationship stability, and quality of life.

The supply side of behavioral health services is compromised by a shortage of psychiatrists and a maldistribution of psychologists, social workers, and other licensed professionals, particularly in rural America and for children and adolescents. As cuts to state budgets for mental health services continue, limiting eligibility criteria to only those with the most severe mental illnesses, people with mild-to-moderate symptoms may fall through the cracks.

Dr. Carolyn Turvey, professor of psychiatry at the University of Iowa and vice chair of the American Telemedicine Association’s Telemental Health special interest group, cautioned that “by insisting that patients come to our offices, we’re excluding potentially millions of patients who need care. Being more open to telepsychology is really going to help many needy people who just can’t meet the requirements of current face-to-face practice.”

Fortunately, technology can help to bridge the gap between pent-up demand for and undersupply of face-to-face behavioral health services. “The lack of bandwidth is less of a problem now because of improved quality of Internet-based technology,” said Turvey. Telemedicine used to require a designated T1 line — an expensive proposition for underfunded rural communities dependent on government grants to fund telehealth programs. Today, Turvey is involved with providing care to patients in rural Illinois using Internet video technology that’s accessible to most communities in the US.

With technology costs falling and broadband and mobile platforms penetrating the nation, technology-enabled mental health services can improve access for

more people needing behavioral health interventions. Compared with high-touch face-to-face therapy, CCBT in particular can be cost-effectively deployed to large numbers of patients, as demonstrated by the NHS's broad-based adoption in the UK.

Health care financing models that emphasize the integration of primary care and mental health care will further align incentives for PCPs to treat patients with mild-to-moderate depression beyond prescribing antidepressants. "Many of the clinicians who have resisted technology-based innovations in CBT will adjust in the migration to a patient-centric model of care," said Yellowlees of UC Davis. "The tipping point is not so much about the technology, but attitudinal and cultural. If you make that move to a patient-centered care approach, then bringing along the technology to implement it is much more logical."

The drivers of demand, payment, and technology are converging for this market to grow. Yellowlees, who conducted his first videoconference with a patient in 1991 and has seen patients via video regularly since then, contends that technology-enabled behavioral health interventions are "nothing new." What is new, he said, is that the technology is simpler than it used to be, less expensive, and more acceptable to patients.

Endnotes

1. Barak, A. and J.M. Grohol. "Current and Future Trends in Internet-Supported Mental Health Interventions." *Journal of Technology in Human Services*, November 2011.
2. World Health Organization. Depression statistics. Accessed on March 31, 2012 at www.who.int.
3. National Institute of Mental Health. "Blueprint for Change: Research on Child and Adolescent Mental Health." Bethesda, MD: National Advisory Mental Health Council's Workgroup on Child and Adolescent Mental Health Intervention, Prevention, and Deployment, 2001.
4. Gilman, S.E., I. Kawachi, G.M. Fitzmaurice, and S. Buka. "Socioeconomic Status in Childhood and the Lifetime Risk of Major Depression." *International Journal of Epidemiology*, 31:359–367, 2002.
5. Integrated Benefits Institute. "The Full Costs of Depression in the Workforce." May 2009.
6. Steinberg, S. "Of Medical Specialties, Demand for Psychiatrists Growing Fastest." *USA Today*, July 1, 2010.
7. National Council for Community Behavioral Healthcare. Behavioral Health Workforce Legislation in the 111th Congress, April 8, 2010.
8. Bell, R.A.; P. Franks, MD; P.R. Duberstein, PhD; R.M. Epstein, MD; M.D. Feldman, MD; E. Fernandez & Garcia, MD, MPH; and R.L. Kravitz, MD, MSPH. "Suffering in Silence: Reasons for Now Disclosing Depression in Primary Care." *Annals of Family Medicine*, 9,5:439–446, September/October 2011.
9. Center for Rural Affairs. "Mental Health Overlooked and Disregarded in Rural America," No. 4, May 2009.
10. Barak, A., B. Klein, and J.G. Proudfoot. "Defining Internet-Supported Therapeutic Interventions." *Annals of Behavioral Medicine*, 38(1):4–17 August 2009.
11. Cavanaugh, K., D.A. Sharpiro, S. Van Den Berg, S. Swain, M. Barkham, and J. Proudfoot. "The Effectiveness of Computerized Cognitive Behavioural Therapy in Routine Care." *British Journal of Clinical Psychology*, 45:499–514, 2006.
12. Stuhlmiller, C.M. and B. Tolchard. "Computer-Assisted CBT for Depression & Anxiety: Increasing Accessibility to Evidence-Based Mental Health Treatment." *Journal Psychosocial Nursing Mental Health Services*, 47(7):32–9, July 2009.
13. National Institute for Health and Clinical Excellence. "Depression and Anxiety – Computerised Cognitive Behavioural Therapy for Depression and Anxiety." NICE, 2006.
14. Watkins, E. and R. Williams. "The Efficacy of Cognitive-Behavioural Therapy in the Management of Depression" (ed. S. Checkley), pp. 165–188. Oxford: Blackwell Science, 1998.
15. Proudfoot, J., C. Ryden, B. Everitt, D.A. Shapiro, D. Goldberg, A. Mann, A. Tylee, I. Marks, and J. Gray. "Clinical Efficacy of Computerised Cognitive-Behavioural Therapy for Anxiety and Depression in Primary Care: Randomized Controlled Trial." *British Journal of Psychiatry*, 185:46–54, 2004.
16. Andersson, G. and P. Cuijpers. "Pros and Cons of Online Cognitive-Behavioural Therapy." *The British Journal of Psychiatry*, 193:270–271, 2008.
17. Proudfoot, J., S. Swain, S. Widmer, E. Watkins, D. Goldberg, I. Marks, A. Mann, and J.A. Gray. "The Development and Beta-Test of a Computer-Therapy Program for Anxiety and Depression: Hurdles and Preliminary Outcomes." *Computers in Human Behavior*, 19, 277–289, 2003.

18. O'Reilly, R., J. Bishop, K. Maddox, L. Hutchinson, M. Fisman, and J. Takhar. "Is Telepsychiatry Equivalent to Face-to-Face Psychiatry? Results from a Randomized Controlled Equivalence Trial." *Psychiatric Services*, 58(6):836–43, June 2007.
19. Tate, D.F. and M.F. Zabinski. "Computer and Internet Applications for Psychological Treatment: Update for Clinicians." *Journal of Clinical Psychology*, 60(2):209–220, 2004.
20. Simpson, S. "Psychotherapy via Videoconferencing: A Review." *British Journal of Guidance & Counselling*, 37, 271–286, 2009.
21. Glueckauf, R., S.P. Fritz, E.P. Ecklund-Johnson, H.J. Liss, P. Dages, and P. Carney. "Videoconferencing-Based Family Counseling for Rural Teenagers with Epilepsy: Phase 1 Findings." *Rehabilitation Psychology*, 47(1), 49–72, February 2002.
22. Forbes, M. "Online in the Outback: The Use of Videoconferencing by Australian Aborigines." *Technology Review* 99(3): 17–19, 1996.
23. King, R., M. Bambling, W. Reid, and I. Thomas. "Telephone and Online Counseling for Young People: A Naturalistic Comparison of Session Outcome, Session Impact and Therapeutic Alliance." *Counselling and Psychotherapy Research*, 6(3):175–181(7), September 2006.
24. Liebert, T., A. Archer, J. Munson, and G. York. "An Exploratory Study of Client Perceptions of Internet Counseling and the Therapeutic Alliance." *Journal of Mental Health Counseling*, 28(1):69–83, 2006.
25. Mohr, D.C., J. Ho, J. Duffecy, et al. "Effect of Telephone-Administered vs. Face-to-Face Cognitive Behavioral Therapy on Adherence to Therapy and Depression Outcomes Among Primary Care Patients: A Randomized Trial, *JAMA*, 307(21):2278–2285, 2012.
26. Simpson, S., E. Morrow. "Using Videoconferencing for Conducting a Therapeutic Relationship." In K. Anthony, D.A. Merz Nagel, and S. Goss, *The Use of Technology in Mental Health*. Springfield IL: Charles C. Thomas, Publisher, Ltd., 2010.
27. Barak, A., L. Hen, M. Boniel-Nissim, and N. Shapira. "A Comprehensive Review and a Meta-Analysis of the Effectiveness of Internet-Based Psychotherapeutic Interventions." *Journal of Technology in Human Services*, Vol. 26(2/4), 2008.
28. Day, K. and T. Keys. "Starving in Cyberspace: A Discourse Analysis of Pro-Eating-Disorder Websites." *Journal of Gender Studies*, 17, 1–15, 2008.
29. Simpson, S. "Psychotherapy via Videoconferencing: A Review." *British Journal of Guidance & Counselling*, 37, 271–286, 2009.
30. Barak, A., M. Boniel-Nissim, and J. Suler. "Fostering Empowerment in Online Support Groups." *Computers in Human Behavior*, 24, 1867–1883, 2008.
31. Pfeiffer, P.N., M. Heisler, J.D. Piette, M.A.M. Rogers, and M. Valenstein. "Efficacy of Peer Support Interventions for Depression: A Meta-Analysis." *General Hospital Psychiatry*, 33.1:29–36, 2011.
32. Alao, A., M. Soderberg, E. Pohl, and A. Lolaalao. "Cybersuicide: Review of the Role of the Internet on Suicide." *CyberPsychology & Behavior*, 9, 489–493, 2006.
33. Biddle, L., J. Donovan, K. Hawton, N. Kapur, and D. Gunnell. "Suicide and the Internet." *British Medical Journal*, 336, 800–802, 2008.
34. See note 28.
35. Goetz, T. "Practicing Patients." *The New York Times*, March 23, 2008.
36. "Consumer Health Apps for Apple's iPhone." *MobiHealthNews*, 2011.

37. Fjeldsoe, B.S., A.L. Marshall, and Y.D. Miller. "Behavior Change Interventions Delivered by Mobile Telephone Short-Message Service." *American Journal of Preventive Medicine*, 36, 165–173, 2009.
38. Krishna, S., S. Austin Boren, and E.A. Balas. "Healthcare via Cell Phones: A Systematic Review." *Telemedicine and e-Health*, 15, 231–240, 2009.
39. Shapiro, J.R., S. Bauer, E. Andrews, E. Pisetsky, B. Bulik-Sullivan, R.M. Hamer, and C.M. Bulik. "Mobile Therapy: Use of Text-Messaging in the Treatment of Bulimia Nervosa." *International Journal of Eating Disorders*, 43, 513–519, 2010.
40. Pijnenborg, G.H.M., F.K. Withaar, W.H. Brouwer, M.E. Timmerman, R.J. van den Bosch, and J.J. Evans. "The Efficacy of SMS Text Messages to Compensate for the Effects of Cognitive Impairments in Schizophrenia." *British Journal of Clinical Psychology*, 49, 259–274, 2010.
41. Pijnenborg, G.H.M., F.K. Withaar, J.J. Evans, R.J. van den Bosch, and W.H. Brouwer. "SMS Text Messages as a Prosthetic Aid in the Cognitive Rehabilitation of Schizophrenia." *Rehabilitation Psychology*, 52, 236–240, 2007.
42. Kristjansdottir, O.B., E.A. Fors, E. Eide, A. Finset, S. van Dulmen, S.H. Wigers, and H. Eide. "Written Online Situational Feedback via Mobile Phone to Support Self-Management of Chronic Widespread Pain: A Usability Study of a Web-Based Intervention." *BMC Musculoskeletal Disorders*, 12, 51, 2011.
43. Campbell, S.W. and M.J. Kelley. "Mobile Phone Use among Alcoholics Anonymous Members: New Sites for Recovery." *New Media and Society*, 10, 915–933, 2008.
44. Proudfoot, J., G. Parker, Hadzi, D. Pavlovic, V. Manicavasagar, E. Adler, and A. Whitton. "Community Attitudes to the Appropriation of Mobile Phones for Monitoring and Managing Depression, Anxiety, and Stress." *Journal of Medical Internet Research*, 12(5), e64, 2010. Accessed on March 25 2010 at www.jmir.org.
45. Ruell, P. "A Therapist at Your Fingertips." *Harvard Gazette*, March 13, 2012.
46. Matthews, M. and D. Coyle. "The Role of Gaming in Mental Health." In K. Anthony, D.A. Merz Nagel, and S. Goss, *The Use of Technology in Mental Health*. Springfield IL: Charles C. Thomas, Publisher, Ltd., 2010.
47. Lewinsohn, P.M., P. Rohde, and J.R. Sealey. "Major Depressive Disorder in Older Adolescents, Prevalence, Risk Factors and Clinical Implications." *Clinical Psychological Review*, 18:765–94, 1998.
48. Shaffer, D., M.S. Gould, P. Fisher, P. Trautman, D. Moreau, M. Kleinman, et al. "Psychiatric Diagnosis in Child and Adolescent Suicide." *Archives of General Psychiatry*, 53:339–48, 1996.
49. National Institute of Mental Health. "The Numbers Count: Mental Disorders in America." Accessed on March 31, 2012, at www.wapps.nimh.nih.gov.
50. Merry, S.N., K. Stasiak, M. Shepherd, C. Frampton, and T. Fleming. Lucassen MFG. "The Effectiveness of SPARX, a Computerised Self Help Intervention for Adolescents Seeking Help for Depression: Randomized Controlled Non-Inferiority Trial." *British Medical Journal*, 344:e2588, April 19, 2012.
51. Watson, D., L.A. Clark, and A. Tellegen. "Development and Validation of Brief Measures of Positive and Negative Affect: The Panas SCALES." *Journal of Personality and Social Psychology*, 54, 1063–1070, 1988.
52. Wolf, G. "The Data-Driven Life." *The New York Times*, April 28, 2010.

53. Riva, G., A. Gaggioli, D. Villani, A. Preziosa, F. Morganti, R. Corsi, G. Faletti, and L. Vezzadini. "NeuroVR: An Open Source Virtual Reality Platform for Clinical Psychology and Behavioral Neurosciences." *Studies in Health Technology and Informatics*, 125, 394–399, 2007.
54. Rothbaum, B.O., E. Malcoun, A. Rizzo, N. Josman. "Virtual Reality Exposure Therapy for Posttraumatic Stress Disorder." In A. Brunet, A.R. Ashbaugh, C.F. Herbert (Eds.), *Internet Use in the Aftermath of Trauma* (pp. 269–284). Amsterdam, The Netherlands: IOS Press, 2010.
55. Riva, G., C. Botella, P. Légeron, and G. Optale. "Cybertherapy: Internet and Virtual Reality as Assessment and Rehabilitation Tools for Clinical Psychology and Neuroscience." Amsterdam: IOS Press, 2004.
56. Chapman, S.B. "Are Our Brains Being Rewired by Technology?" Center for BrainHealth Blog, University of Texas at Dallas, January 31, 2011.
57. Tanielian, T., L.H. Jaycox, T.L. Schell, G.N. Marshall, A. Burnam, C. Eibner, B.R. Karney, L.S. Meredith, J.S. Ringel, and M.E. Vaiana. "Invisible Wounds of War: Summary and Recommendations for Addressing Psychological and Cognitive Injuries." RAND Corporation, 2008.
58. SAMHSA. "Paving the Road Home: Returning Veterans and Behavioral Health." *SAMHSA News*, Vol. 16, No. 5, September/October 2008.
59. Ruskin, P.E., M. Silver-Aylaian, M.A. Kling, S.A. Reed, D.D. Bradham, J.R. Hebel, D. Barrett, F. Knowles, 3rd, and P. Hauser. "Treatment Outcomes in Depression: Comparison of Remote Treatment Through Telepsychiatry to In-Person Treatment." *American Journal of Psychiatry*, 161(8)1471–6, August 2004.
60. Morland, L.A., C.J. Greene, C.S. Rosen, D. Foy, P. Reilly, J. Shore, Q. He, and B.C. Frueh. "Telemedicine for Anger Management Therapy in a Rural Population of Combat Veterans with Posttraumatic Stress Disorder: A Randomized Noninferiority Trial." *Journal of Clinical Psychiatry*, 71(7):855–63, July 2010.
61. Christensen, H., K. Griffiths, C. Groves, A. Korten. "Free Range Users and One Hit Wonders: Community Users of an Internet-Based Cognitive Behaviour Therapy Program." *Australian and New Zealand Journal of Psychiatry*, 40(1):59–62, January 2006.
62. Wanner, M., E. Martin-Diener, G. Bauer, C. Braun-Fahrlander, and B.W. Martin. "Comparison of Trial Participants and Open Access Users of a Web-Based Physical Activity Intervention Regarding Adherence, Attrition, and Repeated Participation." *Journal of Medical Internet Research*, 12(1):e, 2010.
63. Fox, S. and S. Jones. "The Social Life of Health Information." Pew Internet & American Life Project, June 2009.
64. Jimison, H., P. Gorman, S. Woods, et al. "Barriers and Drivers of Health Information Technology Use for the Elderly, Chronically Ill, and Underserved." *Evidence Reports/Technology Assessments*, No. 175. Rockville MD: Agency for Healthcare Research and Quality, November 2008.
65. Manhattan Research. Taking the Pulse v11 physician survey, May 2011.
66. Recupero, P.R. and S. Harms. "Using Email to Conduct a Therapeutic Relationship." In K. Anthony, D.A. Merz Nagel, and S. Goss, *The Use of Technology in Mental Health*. Springfield IL: Charles C. Thomas, Publisher, Ltd., 2010.
67. Shirk, C. "Medicaid and Mental Health Services." National Health Policy Forum, Background Paper, No. 66, October 23, 2008.

68. Kim, T.J. “The Role of Behavioral Telehealth in Mental Health. In K. Anthony, D.A. Merz Nagel, and S. Goss, *The Use of Technology in Mental Health*. Springfield IL: Charles C. Thomas, Publisher, Ltd., 2010.
69. APA Practice Organization. “Reimbursement for Telehealth Services.” Accessed on March 25 2012.
70. Barry, C.L. and H.A. Huskamp. “Moving Beyond Parity — Mental Health and Addiction Care Under the ACA.” *New England Journal of Medicine*, 365: 973–975, 2011.

Appendix: Online Cognitive Behavioral Therapy

A Survey by the California Institute for Mental Health — March 2012

Survey Instrument and Results

Online CBT is typically comprised of six to ten self-guided, internet-based modules which expose clients/patients to the same cognitive behavioral therapy techniques used in face-to-face CBT. The online modules are intended to provide a dynamic, engaging experience for the patient, with a multi-dimensional interface (exercises, assessments, videos, action plans, email reminders, etc.). Additionally, certain online resources offer a range of ‘in the moment’ coping tools and tailored, clinically reviewed health and wellness content to drive consumer engagement.

Online CBT is generally used as a complement to traditional in-person counseling (i.e., clinicians refer patients to the site); a bridge between face-to-face counseling sessions; an extension of care after a completed course of treatment; and a source of support to patients with limited access to care. Online CBT tools and resources offer the potential of a net cost savings to the county, through expected reductions in relapse rates, more efficiently managed treatment episodes and treatment availability for patients with access issues. Additionally, online CBT could assist with demand management by providing evidence-based tools to patients seeking online resources.

The estimated cost of providing online CBT would be \$50,000-\$100,000 for an annual site license covering an unlimited number of patients in each county, in addition to a 10–15% one-time implementation expense. The annual license would include ongoing training and support for the clinicians/therapists to foster familiarity and adoption.

Please respond to the following questions.

1. Would online CBT be useful for the county population you serve or a subset of that population?

Yes	14	24%
Yes, for a subset	34	58%
No	12	20%

2. If so, please describe the target population subset(s) where you think this may be useful?

You may indicate more than one answer.

Mild to moderate depression	42	82%
Mild to moderate anxiety	46	90%
Bipolar disorder	17	33%
PTSD	29	57%
Schizophrenia	6	12%
Phobias/panic attacks/OCD	31	61%
Other, please specify	14	27%

QUESTION 2 COMMENTS:

1. I would like to review materials before designating others.
2. Perinatal population
3. None
4. Oppositional defiant
5. Perhaps for Medi-Cal who are not priority population
6. Moderate to Severe Schizophrenia, Schizoaffective
7. I believe it could be useful as an adjunct
8. Sexual abuse client
9. V codes not included in MHP
10. Clients who do not meet medical necessity
11. Especially helpful for “depression or anyone who feels hopeless.” Although individuals surveyed indicated that all of the target populations could benefit, individuals with relatively good insight and motivation would benefit the most due to the “self-guided” aspect of the program.
12. *Bipolar disorder*: Yes, primarily in mild to moderate expressions of the disorder. *Schizophrenia*: Probably yes, primarily first break young adults and those earlier in their course of treatment and/or in mild to moderate expressions of this disorder. *Phobias/panic attacks/OCD*: Yes, especially if mild to moderate conditions. *Other, please specify*: In mood presentations CBT can promote future skill building; in most cases CBT can be used when acute symptoms recede.

3. In what way(s) could online CBT be used most effectively in your county?

You may indicate more than one answer.

As an immediate resource for clients on clinician wait lists	28	53%
As a bridge between in-person counseling sessions	41	77%
As an extension of care after a completed course of treatment	41	77%
As support to patients with limited access to care	37	70%
As a supplement to primary care behavioral health treatment	27	51%
Other, please specify	10	19%

QUESTION 3 COMMENTS:

1. Tool for use with clinician
2. As part of group treatment
3. Training that is cost effective
4. None
5. Support to persons currently in DBT group
6. Remote areas such as Needles/Trona (if we had a clinic there)
7. Must be supplemental to a face-to-face existing therapeutic relationship.
8. Challenge is that when callers request services, one cannot always know level of need. Concern if the circumstance was a crisis that was misidentified. However, it can be homework between in-person sessions
9. Yes to all reasons listed assuming that OA individuals have access to the in-person counseling sessions and/or computers. OA currently are reticent to “buy-in” to therapy and/or ask for help. Mobile teams are the best approach for this population. In general, integrated care and/or connecting with OA social networks, e.g. Senior Centers, tend to have better outcomes. This may all change as the “baby boomers” age.
10. *As an immediate resource for clients on clinician wait lists:* Yes for selected clients who are already experienced with computer interactions. *As a bridge between in-person counseling sessions:* Not sure, may need to be more congruent with the immediate focus of treatment (cognition vs. behavioral, affect, or relationship focus). *As an extension of care after a completed course of treatment:* Yes, an especially good use of the product. *As support to patients with limited access to care:* Yes. *As a supplement to primary care behavioral health treatment:* Yes.

4. What level of receptivity to online CBT would you expect among clinicians in your county?

Low	17	30%
Medium	35	61%
High	5	9%

QUESTION 4 COMMENTS:

1. I think they would be very interested to learn more about the possibilities.
2. Hard to estimate
3. Possible fear of becoming non-essential in the mental health field
4. Unless materials were written to be understood by clients with less than a 7th grade education, there would not be receptivity.
5. Significant risks. Inability to follow-up in crisis situations, not necessarily knowing location of client. RISK OF FRAUD. Other resistance due to provider technophobia.
6. Focus of current system is more on face to face and other services to acute or seriously mentally ill client population and clinicians may be reluctant to utilize this in lieu of their own assessment and work. Concern regarding type of population served.
7. Clinicians would need to examine the program and determine which clients could benefit.
8. All surveyed indicated that clinicians would be very receptive to online CBT. On the other hand, it is unclear whether clinicians have easy/direct access to computers.
9. Medium interest/not sure due to unfamiliarity with this venue.

5. What level of receptivity to online CBT would you expect among target clients/patients in your county?

Low	27	49%
Medium	26	47%
High	2	4%

QUESTION 5 COMMENTS:

1. Access to internet is an issue that would prevent people using it; lack of human contact while doing the work seems likely to be tough for some people; literacy and comfort with doing paperwork (too much like school work) is always an issue with our clients and DBT.
2. Initially, but with careful introduction, more would accept and value it as time went on. Would there be an opportunity to speak to a remote counselor at any point for triage, clarification, module choosing, etc.?
3. I think this would be very valuable for our TAY and youth populations.
4. More education regarding its purpose would be needed.
5. The receptivity and effectiveness of CBT depend on client’s age, intellect, and willingness to work on the problems.

6. Most of our clients do not have access to a computer unless they go to a library, and/or most don't have computer skills.
7. Hard to estimate
8. Many of them have no computer experience or awareness.
9. Most clients do not have access to a computer. Perhaps you could make a computer available to clients in the lobbies of clinics.
10. As a county mental health system, the target population that this would be effective with are higher functioning clients that have insight into their illness and are motivated to pursue assistance. A percent of county recipients are not appropriate as they are severely mentally ill and would be unmotivated or unable to access online assistance.
11. They are used to having 1:1 sessions with a therapist.
12. They would most likely have to have access to personal computers and have a high enough reading/intellectual level to understand traditional teaching of CBT.
13. Unknown
14. I question how many have computer access. I'm not sure our clients would embrace this type of care.
15. This would not work with severely persistently mentally ill, which is the majority of clients seen at the County.
16. Don't have computers. The lowest of income and most highly impaired individuals are our target population.
17. It depends on clients because access, economic status, ability to use computers, and language and cultural issues are all factors. This is more usable by those who are computer literate which is a big factor.
18. This is area to evaluate. It would be for those higher-lever clients that have a computer at home. In this county there is a lot of poverty.
19. Very few of our clients have access to the technology required for on-line services.
20. Main barrier remains OA having access and computer capability. As indicated above, isolation is one of the issues that leads to changes in OA clinical dispositions. This method could exacerbate OA symptomatology. On the other hand, "it is a useful way to empower people to deal with stressors and symptoms".
21. Low to medium, would need "marketing." I believe that with additional peer support helping to walk someone through the modules and providing access to computers that more clients would be likely to engage in the product.

6. Could you identify a source of funding for online CBT (e.g., MHSA)?

Yes	8	14%
No	26	46%
Please comment on either response	22	39%

QUESTION 6 COMMENTS:

1. It would be difficult to justify the rate quoted from any funding source for our small county.
2. Seems hugely expensive for the small population we have
3. Innovations, PEI (early intervention)
4. It is hard to say without knowing what the cost range would be. If it was affordable, and a preference of the individual, then I think I would need to build the opportunity into my training budget, using whatever funds I could.
5. MHSA
6. Would want to see the product first and have it reviewed by clients and staff.
7. MHSA
8. Yes, although the on-going cost may be challenging — it would depend if it was used enough by our priority population. It could also be a resource for our non-priority Medi-Cal population.
9. MHSA; CONREP categorical funding
10. outside of my scope
11. MHSA
12. Innovations
13. MHSA Innovations
14. MHSA
15. Can't think of any aside from MHSA.
16. MHSA, SAMHSA
17. Their client will benefit more
18. MHSA funding is currently allocated and this training may not fit the local plan. Please note that any training requiring computers and/or access to them requires not just the module, but the dollars to cover computers, ongoing TA, client and clinician training and TA to appropriately make use of online CBT.
19. Possibly MHSA funding
20. Yes, MHSA
21. Per review, it would cost \$50,000 to \$100,000 for an annual site lic. Depending on the Level of Care need, e.g. Level 1 vs Level 3, it appears it would be cost effective for the Level 1 client transitioning to lower levels of care or as an adjunct. Level 3 care is already inexpensive: not sure how cost effective it would be unless it replaces Level 3 Provider... CBT might not be an appropriate match for all clients. Either way a cost analysis would be warranted.
22. MHSA Innovation grant



**CALIFORNIA
HEALTHCARE
FOUNDATION**

1438 Webster Street, Suite 400
Oakland, CA 94612
tel: 510.238.1040
fax: 510.238.1388
www.chcf.org