

U.S. Department of Defense Mobile Health Practice Guide

Defense Health Agency
Connected Health
Fourth Edition – September 2018



Qualifying Statements

All statements in this guide, including the analysis of scientific findings, are the opinions of the authors and do not represent the views of the Defense Health Agency (DHA) or the U.S. Department of Defense (DoD). While this guide is designed to inform decision-making, it does not define a standard of care or prescribe an exclusive course of management. Application of the methods described will inevitably vary depending on the needs of patients, available resources and limitations that are unique to an institution or type of practice. Health care professionals are responsible for evaluating the appropriateness of applying these guidelines in clinical situations.

Questions or comments about this guide may be submitted by mail to Christina Armstrong, Ph.D., Defense Health Agency Connected Health, 9933 W. Hayes St., Joint Base Lewis-McChord, WA 98433; by email at dha.jblm.j-3.mbx.connected-health-central@mail.mil; or online at health.mil/ConnectedHealth (Click on: Click Here to Email)

Contributors

The contributors to this guide are federal employees at the Defense Health Agency of the U.S. Department of Defense. They include:

- Christina M. Armstrong, Ph.D.
- Kelly A. Blasko, Ph.D.
- Nigel E. Bush, Ph.D.
- Robert P. Ciulla, Ph.D.
- David C. Cooper, Psy.D.
- Amanda Edwards-Stewart, Ph.D.
- Tim V. Hoyt, Ph.D.
- Julie T. Kinn, Ph.D.
- Larry D. Pruitt, Ph.D.
- Nancy A. Skopp, Ph.D.

Citation

Armstrong, C. M., Edwards-Stewart, A., Ciulla, R. P., Bush, N. E., Cooper, D. C., Kinn, J. T., Pruitt, L. D., Skopp, N. A., Blasko, K. A., & Hoyt, T. V. (2018). *Department of Defense Mobile Health Practice Guide* (4th ed.). Defense Health Agency Connected Health, U.S. Department of Defense.

Contact Information

Defense Health Agency Connected Health
9933 W. Hayes St.
Joint Base Lewis-McChord, WA 98433

Email: dha.jblm.j-3.mbx.connected-health-central@mail.mil

Website: health.mil/ConnectedHealth (Click on: Click Here to Email)

Phone: (253) 968-1914

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I. Introduction

DoD Mobile Health Practice Guide

Rapid advances in health technologies require clinicians to have a general working knowledge of consumer technologies, specifically mobile health apps, and to understand how these tools are used for patient monitoring, education and treatment.

The U.S. Department of Defense (DoD) Mobile Health Practice Guide offers an overview of mobile health and includes essential tutorials, including how to download mobile apps and incorporate them into clinical settings. The guide is primarily tailored for military health providers but can be used by clinicians across the health care spectrum who diagnose and treat behavioral health conditions, particularly those commonly reported in military treatment settings.

This guide is designed to inform decision-making in clinical settings and describes the five core competencies for integrating mobile technologies into health care (see section II). This guide also serves as a companion resource for clinicians in the DoD Mobile Health Training Program (MHTP), offered by DHA Connected Health. The program aims to improve patient care by educating providers about best practices in mobile health.

Mobile Health in the Department of Defense

Military members, veterans and their families face unique challenges in accessing behavioral health care, including limited treatment options, confidentiality concerns and the stigma associated with seeking professional help (Hoyt & Candy, 2011). Frequent moves and deployments can also make treatment difficult. Technology solutions, such as mobile health, can help to overcome these challenges (Armstrong et al., 2017).

Previous research has shown a technology gap between service members and providers, with service members having higher ownership and use of smartphones than military providers (Bush & Wheeler, 2015; Edwards-Stewart, Smolenski, Reger, Bush, & Workman, 2016). However, this technology ownership gap has decreased

over recent years, and military providers are increasingly just as likely to own and be comfortable using these technologies. While technology ownership rates are similar, military providers have been slower to integrate technology into clinical practice due to a lack of awareness and training regarding how to bring mobile health into clinical practice.

The MHTP program strives to bring about a change in patient health by training military health care providers to use best practices for integrating mobile health technologies into clinical care. Using evidence-based behavioral health research, MHTP provides high-quality education, training and resources to military physicians, psychologists, psychiatrists, social workers and nurses. The program includes live workshops, virtual trainings, monthly community-of-practice meetings, consultations and provider resources to increase the translation of current research into effective clinical practice.

The MHTP program was established in April 2014 and began conducting face-to-face workshops, webinars and community-of-practice trainings in October 2014. The program offers the only standardized, comprehensive evidence-based curriculum on the core competencies for incorporating mobile health into clinical care. Clinicians have increasingly adopted mobile apps in clinical care, and proper education and training is critical for effective integration.

As of May 2017, the MHTP program had trained 760 providers at 20 workshops in 15 locations. Putting knowledge into practice is a high priority for the Military Health System (MHS) to provide the highest quality care possible. The MHTP program has been involved with knowledge translation efforts, including several pilot studies, since 2016 that involve training on core competencies for mobile health to military providers.

Summary

- Members of the military community may have difficulty accessing treatment, voice concerns about confidentiality and worry that receiving mental health treatment could harm their careers.
- Service members and military providers are tech-savvy. However, military providers have been slower to integrate mobile health into clinical practice due to a lack of awareness and training.
- The MHTP program trains clinicians on the safe and effective integration of mobile health in clinical care.

Benefits and Barriers

The **benefits** of using mobile health in clinical care are:

- **Access** – Reduces barriers to accessing care (Donker et al., 2013; Prentice & Dobson, 2014).
- **Extension of care** – Expands health care beyond face-to-face visits (Bush, Skopp, Smolenski, Crumpton, & Fairall, 2013).
- **Efficiency** – Improves efficiency of care (Donker et al., 2013; Ventola, 2014).
- **Compliance** – Increases patient compliance and engagement with care (Dale & Hagen, 2007; Dennison, Morrison, Conway, & Yardley, 2013; Gaggioli & Riva, 2013; Reger et al., 2013).
- **Geographic** – Supplements medical care (Coulon, Monroe, & West, 2016), especially for geographically dispersed patients (Poropatich, Lai, McVeigh, & Bashshur, 2013).
- **Cost** – Provides potential for significant cost reduction through leveraging mobile technologies across a range of health care activities (Cortez, 2013).

- **Data quality** – Can improve the validity of patient reports through real-time symptom tracking (Bush, Oulette, & Kinn, 2014; Kuhn, Greene, et al., 2014).
- **Reach** – Has the potential to reach those who do not seek face-to-face care due to concerns about confidentiality and perceived stigma (Sloan, Marx, & Keane, 2011; Whealin, Kuhn, & Pietrzak, 2014).
- **Best practice** – Has been identified as a best practice by front-line clinicians (Fernandez & Short, 2014).

The **barriers** of using mobile health in clinical care are:

- **Utilization gap** – Although use of mobile devices is high among service members, use among military providers is lower (Bush & Wheeler, 2015).
- **Provider perception** – Adoption is slowed by a lack of awareness of mobile health apps built to support evidence-based treatments, concerns about privacy and safety, and a lack of understanding of the evidence base for these tools (Gagnon, Ngangue, Payne-Gagnon, & Desmartis, 2015).
- **Technology limitations** – The technology infrastructure at many military treatment facilities does not fully support the integration of mobile health apps in clinical care, because data security requirements are stricter in the military than in civilian environments (Armstrong et al., 2017).

Summary

While mobile health has considerable potential, standardized training is necessary before providers are assured of the evidence, safety and value in altering traditional approaches to clinical care.

II. Mobile Health in Clinical Care: Five Core Competencies

When providers are trained in mobile health, what are the core competencies that they need to learn? Based on years of development, research, training and demonstrated excellence in practice, we have established the five core competencies for effective mobile-health clinical integration. When providers are effectively trained, a framework for mobile health in clinical care can be established and these skills can be generalized to a variety of mobile tools.

Mobile Health in Clinical Care: Five Core Competencies



Evidence Base



Clinical Integration



Security & Privacy



Ethical Issues



Cultural Considerations

Competency 1: Evidence Base for Mobile Health in Clinical Care

Recently, there have been strides in establishing a basis of evidence for using mobile apps in health care. However, the literature on the benefits of mobile health in clinical care (see the previous Benefits and Barriers section) and research on specific diagnostic populations has been limited. Here's why: Mobile apps are a relatively new technology. The first app was publicly released in 2008. The time required to build a mobile app is short (approximately 18 weeks; Rice, 2013) compared to the time needed to conduct a randomized controlled trial (three to five years; Anguera, Jordan, Castaneda, Gazzaley, & Areán, 2016). This disparity creates a situation in which the research is constantly trying to catch up with the technology.

Empirical evidence on mobile app interventions for some populations has been increasing. There are several compelling systematic reviews on the effectiveness of mobile apps for:

- Smoking cessation (Ubhi et al., 2016)
- Eating disorders (Juarascio, Manasse, Goldstein, Forman, & Butryn, 2014)
- Alcohol use disorders (Fowler, Holt, & Joshi, 2016; Quanbeck, Chih, Isham, Johnson, & Gustafson, 2014)

Some of the information in this guide is taken from the article "Mobile Behavioral Health Applications for the Military Community: Evaluating the Emerging Evidence Base" (Armstrong et al., 2017). Readers interested in methods of evaluating the evidence for mobile health should refer to this article, as well as other articles in the References (section IV) and the Additional Resources (section V) included in this guide.

Additional reviews have addressed the use of mobile technology in psychotherapy more broadly (Boschen, 2009; Donker et al., 2013; Prentice & Dobson, 2014) as well as particular topics:

- Appointment reminders (Guy et al., 2012)
- Illness management (Vodopivec-Jamsek, de Jongh, Gurol-Urganci, Atun, & Car, 2012)
- Preventive health care (de Jongh, Gurol-Urganci, Vodopivec-Jamsek, Car, & Atun, 2012)

Beyond the literature described in the previous Benefits and Barriers section, the evidence for the use of mobile health to support patient outcomes varies widely. While more and more studies are addressing the effectiveness of mobile apps, there continues to be some variability in the quality of that evidence. However, broader methods of evaluating evidence can be applied to mobile health research. An example of a widely accepted hierarchy to evaluate the level of evidence base is LoBiondo-Wood and Haber's model (2010):

Levels of Evidence for Evidence-Based Practice:

- Level I: Systematic review, meta-analysis, evidence-based guideline
- Level II: Randomized controlled trial (RCT)
- Level III: Controlled trial without randomization, quasi experimental study
- Level IV: Nonexperimental study, case control, cohort or correlational
- Level V: Systematic review of descriptive/qualitative studies
- Level VI: Descriptive/qualitative study
- Level VII: Opinion of authorities, expert committee report

To evaluate the level of evidence to support a particular mobile health app, the following questions should be asked:

- Is the content of the mobile app based on evidence-based practices? If so, what is the level of the evidence base?
- What is the level of the research on the efficacy of treatment with and without the mobile app to augment clinical practice?

Mobile Health: Evaluation Steps

There are three ways to consider the available evidence in support of using apps in health care. The first consideration involves the content contained in an app. For example, the content in the apps developed by the DoD and VA is based on interventions that have known value in clinical literature. The deep breathing exercises in T2's Breathe2Relax app have been systematically studied and found to be helpful in managing stress-related conditions. Therefore, the mobile device serves as a novel delivery system for a well-tested intervention. Even if the app itself hasn't been studied, the provider knows that the content has. In contrast, few mobile health apps in the civilian environment use evidence-based practices as their foundation (Coulon et al., 2016).

The second consideration is to determine whether the app has been studied. Assuming the content is derived from well-tested interventions (as is the case with the apps referenced in this guide), studies that evaluate the app target the delivery system — can an intervention delivered via a mobile device be as effective as more traditional methods? These studies are critical to understanding not only the clinical utility of mobile approaches, but also the impact of technology on the therapeutic relationship.

The final consideration involves the aggregation of evidence that supports the use of the mobile app as a supplement to the usual treatment. As investigational studies report positive findings on the effectiveness of individual apps via controlled studies and systematic reviews, the argument for mobile health as an effective clinical paradigm is strengthened.

Levels of Evidence for DoD/VA Mobile Apps

The following list of apps developed by the DoD and VA illustrate varying levels of evidence:

PTSD Coach

- Level I – This app is built on a foundation of empirically supported techniques for education and treatment engagement. (See Possemato et al., 2016, for a description of the development and initial pilot of PTSD Coach.)
- Level II – The RCT showed significantly greater improvements in posttraumatic stress disorder (PTSD) symptoms, compared with waitlist patients (Kuhn et al., 2017).
- Level III – A pilot RCT with community trauma survivors showed initial acceptability and potential efficacy (Miner, Kuhn, Hoffman, Owen, Ruzek, & Taylor, 2016).

- Level III – A study showed significant reductions in PTSD symptoms during use (Owen et al., 2015).
- Level III – This app is appropriate for self-management of PTSD symptoms (Kuhn, Greene, et al., 2014).
- Level III – This app can be used as an effective intervention for reducing PTSD symptoms in primary care settings, even if the patient receives only a 10-minute introduction to the mobile app (Possemato, Kuhn, Johnson, Hoffman, & Brooks, 2017).
- Level IV – The PTSD checklist administered via PTSD Coach is comparable to the paper form. (Price, Kuhn, Hoffman, Ruzek, & Acierno, 2015).

PE Coach

- Level I – Prolonged exposure (PE) therapy is a well-established, empirically supported treatment for PTSD in combat veterans (e.g., Eftekhari et al., 2013).
- Level IV – Clinicians indicate that PE Coach meets their goals for improving PE implementation (Kuhn et al., 2015; Kuhn, Eftekhari, et al., 2014).
- Level IV – Patient perceptions toward this app are positive, showing preference over paper-based exercises (Reger, Skopp, Edwards-Stewart, & Lemus, 2015).

CPT Coach

- Level I – This app is based on the military/veteran version of cognitive processing therapy (CPT) (Monson et al., 2006) and was developed by VA (Hoffman et al., 2014).
- Level VII – This app has not been empirically evaluated (Wangelin, Szafranski, & Gros, 2016).

T2 Mood Tracker

- Level I – There is a vast amount of literature supporting mood tracking to support PTSD symptoms (Fernandez & Short, 2014); chronic health conditions (Vance, 2014); bipolar symptoms (Andersen & Babic, 2014); and mood symptoms (Bush, Ouellette, & Kinn, 2014).
- Level VI – One case study of T2 Mood Tracker conducted with eight service members showed that the app was useful, beneficial and easy to use (Bush, Ouellette, & Kinn, 2014).

Virtual Hope Box

- Level I – Based on the physical hope box or crisis kit that can provide patients with reminders of coping skills and reasons for living (Berk, Henriques, Warman, Brown, & Beck, 2004), Virtual Hope Box (VHB) has demonstrated utility in identifying and managing suicidal thoughts and related behaviors and emotion regulation (Brenner, Homaifar, Adler, Wolfman, & Kemp, 2009; Wenzel, Brown, & Beck, 2009).
- Level II – One RCT comparing VHB to enhanced treatment as usual (ETAU) showed modest improvements in both conditions in coping, suicidal ideation and perceived stress. VHB improved coping significantly at three and 12 weeks, compared to ETAU, and VHB appears to work as intended to help cope with stress (Bush et al., 2017).
- Level III – One published pilot study using the app as an accessory to therapy showed favorable results as a proof of concept in a clinical sample of veterans (Bush et al., 2015).

Positive Activity Jackpot

- Level I – This app is based on Lewinsohn's (1974) reinforcement theory of depression that posits that the quantity and quality of an individual's reinforcement-related interactions are linked to feelings of depression and that treatment increases pleasant events (Lewinsohn, Sullivan, & Grosscup, 1980) and thoughts to help regulate emotions (Linehan, 1993).
- Level VII – No additional research has been conducted to evaluate the Positive Activity Jackpot to traditional scheduling of pleasant events as a part of behavioral activation.

Using an established hierarchical system for the evaluation of research, clinicians can determine the level of evidence and make informed recommendations to their patients. As the evidence for using mobile health apps in the treatment of service members and veterans grows, it is important to use a standardized methodology to evaluate them.

See Activity Sheet 4 (Appendix J. Activity Sheets) of this guide to practice evaluating the evidence base of some DoD/VA mobile health apps.

Summary

When deciding whether to use an app, determine whether:

- The content is consistent with known interventions.
- Available studies have evaluated the app in controlled settings.
- Aggregated evidence supports the use of mobile health as a best-practice method.

Increasingly, studies are showing that mobile health is providing positive clinical outcomes.

Competency 2: Clinical Integration of Mobile Health in Clinical Care

Mobile platforms support various types of content to assist with clinical practice, including surveys, videos, resource locators and access to hotlines. Providers can access evidence-based content across an array of devices (smartphones, tablets, handheld media players, netbooks, e-books, etc.). App content can be systematically updated to reflect current research and the latest technologies. Data gathered in real time improves accuracy and a clinician's capacity to evaluate the impact of a treatment plan and adjust it accordingly.

Mobile health clinical integration is divided into five key steps:

Five Key Steps for Mobile Health Clinical Integration



1. Workflow

The first step is to think about how a mobile app fits into the workflow of your clinic. All clinics are unique, and it is important to think ahead before integrating mobile health. Consider the following questions and at what point in the process they come up:

- Who greets the patients?
- Who collects the initial assessments?
- Where does the handoff to the provider take place?
- Who provides the discharge plan and follows up between appointments?
- When are prescriptions and other resources provided to patients?
- What are some potential issues patients may raise?
- Who needs to know about app features and functionality?
- Who would be available to provide technical support or follow-up information?

For some smaller clinics, the provider may be the tech support and follow-up person. For larger clinics, there may be more support staff. An ideal situation is when the workflow supports patient access to and use of clinical support tools.

To practice this process in your clinic, we have created an activity sheet for you to work through on your own or with colleagues. See Activity Sheet 1 (Appendix J. Activity Sheets) of this guide.

2. Introduction

Introducing an app into clinical care may seem like a simple task. However, the experiences of providers in our mobile health training program show that in the beginning, it can be awkward.

Clinicians know the core components of effective treatment planning: selecting assessment batteries, determining treatment modalities (individual versus group or family approaches, or some combination), deciding on session frequency and selecting evidence-based approaches to managing symptoms and producing behavior change.

Similarly, clinicians should carefully select the apps that will be most effective in addressing each patient's unique

needs. A provider might use one or several apps in tandem. For apps that involve basic tracking features (such as T2 Mood Tracker), introducing mobile health could begin as early as the first session.

When delivering a manualized treatment such as PE therapy, discussing the app in the first couple of sessions is recommended. The app then can be used early on to begin gathering recordings and homework that will inform decisions throughout the course of treatment.

Introducing an app into clinical care includes the following five steps:

- Assess the patient's use** and understanding of smartphone technologies.
 - See Appendix G for a script example.
- Describe the purpose** of the app.
 - Use the patient handouts available on health.mil/mHealthTraining or myvaapps.com.
 - See Appendix H for DoD and VA apps.
- Describe key features** of the app that will be used.
 - Use the patient handouts available on health.mil/mHealthTraining or myvaapps.com.
 - See Appendix H for DoD and VA apps.
- State expectations** for the use of the app as determined by the treatment plan.
 - Mobile tools can be used for education, assessments, self-tracking and between-session homework, clinical interventions, appointment reminders, etc.
- Complete the informed consent process** (verbal and written, if possible):
 - Explain basic data security (see the next section, Competency 3: Security and Privacy With Mobile Health in Clinical Care).
 - Convey clearly that use of the app is voluntary and that alternatives are available.
 - Ensure comprehension and the capacity of the patient to adequately understand the information to make an informed decision regarding use of the app.

Research conducted with mobile apps in clinical care has highlighted some useful ways to introduce a mobile app into a treatment session (Kuhn, Eftekhari, et al., 2014; Reger, Skopp, Edwards-Stewart, & Lemus, 2015). Provider considerations include:

- **Clinical process** – At what point in the clinical process should the introduction of the app occur? If you don't have Wi-Fi in your clinic, ask the patient to download the app outside the clinic. Once the app is downloaded, most of its features will work without access to Wi-Fi.
- **Physical proximity** – Given the size of most smartphone screens, providers and patients may need to sit closer than they are typically used to; ask permission.
- **Whose device?** – Providers should ask patients to use their own devices, which allows them to have access to their information between sessions. It is also helpful to have a clinic device available so patients can try out the app before they download it.
- **Technology problems** – Technical problems are inevitable. Be thoughtful about the possible barriers and how you might overcome them (some examples are Wi-Fi or network limitations when trying to download, software bugs or system crashes).
- **Hands-on learning** – Many people learn best by doing something themselves. When demonstrating an app, allow the patient to “drive” so he or she can become comfortable and effective when navigating the app's features.

See Activity Sheet 2 (Appendix J. Activity Sheets) of this guide to practice introducing a mobile health app in clinical care.

3. Prescription

Before prescribing a medication or combination of medications, medical providers will go through an internalized checklist regarding the purpose of the medicine, contraindications, interactions between medicines, correct dosage, when and under what circumstances the medicine should be taken and possible side effects. Similarly, mobile health providers will want to ensure that they are considering various key aspects of using apps in their practice, which are discussed in the following sections.

What technology to use and when

The mobile health provider should consider all available resources and the tools that will best support the patient's treatment goals. There are situations in which a smartphone app is especially advantageous — for example, collecting real-time data on symptoms. In other situations, access to a mobile app is less effective and a web version may be better — for example, the patient might lack access to a mobile device or an app is unavailable on a particular mobile platform.

What app (or combination of apps) will be used

A provider might use one app or several apps in tandem. For example, the T2 Mood Tracker app is an easy-to-learn, self-reporting tool that can be used in conjunction with the stress-management app Breathe2Relax. The Clinicians Guide: DoD and VA Mobile Health Apps for Patients Chart in Appendix D maps presenting conditions to their corresponding apps to assist in selecting the appropriate app.

How the app fits into treatment

There are several clinical questions to keep in mind when considering how a mobile health resource might support a treatment plan:

- *What is this app's intended clinical purpose?*
Appendix H of the Mobile Health Provider Toolkit later in this document includes information for providers to use when describing the apps' intended clinical purpose to a patient.
- *For which presenting complaint(s) can the app be used, and when should it be introduced into the treatment plan?*
The Clinicians Guide: DoD and VA Mobile Health Apps for Patients Chart in Appendix D maps presenting conditions to their corresponding apps to assist in selecting the appropriate app.
- *Does the app give patients the means to monitor and assess their condition between sessions?*
The majority of DoD and VA apps provide patients with a method of monitoring and/or assessing their condition between sessions.
- *Does the app provide educational information or coping tools?*
The majority of DoD and VA apps include educational information and/or coping tools.

- *Can the app be used in combination with other apps?*

Most of the DoD and VA apps can be used in combination with other apps. For providers and patients who are beginning to integrate mobile health into clinical care, it is recommended that they start with one app at a time.

- *Is this app intended for self-care, or is it intended for use with a provider's guidance?*

All of the DoD and VA mobile apps described in this guide are free and available to anyone with access to a smartphone or tablet device, but they were developed to be used within the context of treatment with a provider, not to replace clinical treatment. Some of the mobile apps are designed to support specific manualized treatments and were not designed to be used outside of that context. For example, PE Coach was designed to support the delivery of PE therapy with a patient actively engaged in treatment with a provider. For a list of the DoD and VA mobile apps that are intended for use with a manualized treatment, see the Clinicians Guide: DoD and VA Mobile Health Apps for Patients Chart in Appendix D.

- *Are there contraindications that would prohibit the use of the app?*

There are contraindications that would prohibit the use of an app, some of which include: The patient does not want to use a mobile app, or the patient has a specific delusion involving mobile apps or similar technology. It is up to the clinical judgment of the provider to determine whether the use of a mobile app is contraindicated for the patient.

- *Does the app provide access to hotlines or other support systems during a crisis?*

The majority of DoD and VA apps include access to hotlines or other support systems; however, it is important for the provider to develop a crisis and/or safety plan with the patient.

Frequency of use

How frequently a provider wants a patient to use a particular feature of an app can be determined by the treatment plan. For example, if as part of the treatment plan, the provider wants the patient to track symptoms of depression and anxiety three times a day, then recommending the use of the T2 Mood Tracker to track these symptoms on the app's pre-programmed depression and anxiety scales is appropriate.

Features to use

Features (or sections) of the app that a patient should use should be determined based on the treatment plan. It is recommended that providers be specific, when possible, regarding which features (or sections) of the app the patient should focus on. Communicate with the patient both verbally and in writing which features they will be using as a part of treatment to increase likelihood of compliance. To support written communication with patients regarding what app and what features the patient will be using, a prescription pad (see Appendix E) is provided to support this process.

4. Data Review

Currently, the MHS does not have a simple and secure process for easy integration of patient information into the Armed Forces Health Longitudinal Technology Application (AHLTA), which is the DoD's electronic health record. Until systems are developed that allow for the interoperability between personal devices and the medical record, providers should document the use of mobile health during the clinical encounter as they would any other intervention.

5. Documentation

Providers should be sure to document which app was recommended, how often it should be used and any data that the patient shares (assessment scores, etc.).

See Activity Sheet 3 (Appendix J. Activity Sheets) of this guide to practice prescribing an app with a colleague.

Summary

- DoD and VA apps can be used to support evidence-based treatment, including cognitive processing therapy (CPT) and prolonged exposure (PE) therapy.
- Mobile apps can be used to support individual and group therapy during and between sessions.
- There are five key steps to integrating mobile apps into care: Workflow; Introduction; Prescription; Data Review; and Documentation.

Competency 3: Security and Privacy With Mobile Health in Clinical Care

Regarding the use of mobile devices, security and privacy are understandably among the top concerns for patients and providers in the military health care system. While this guide provides basic information on protecting mobile devices and health information, the most up-to-date guidance — including videos and downloadable materials — can be found online at the following HealthIT.gov link:

www.healthit.gov/providers-professionals/your-mobile-device-and-health-information-privacy-and-security

Federal policies on the security and privacy of health information include:

- Privacy Act of 1974
- HIPAA Privacy Rule (1996)
- HIPAA Security Rule (2003)
- HITECH Act (2009)

Federal oversight entities include:

- U.S. Department of Health and Human Services (HHS)
- Health IT Standards Committee (HITSC)
- Health Information Technology (HIT) Policy Committee
- DHA Privacy and Civil Liberties Office
- Office of the National Coordinator for Health Information Technology (ONC)

Providers should be familiar with these organizations and well-versed on these policies, as well as the DHA Health Information Privacy and Security Training Manual, which was most recently published in June 2017 and is available as a .pdf file online. Although mobile devices and apps are new technologies, foundational policies and guidelines for protecting health information remain applicable.

There are four key questions regarding security and privacy that providers need to ask when selecting mobile health apps:

- **Source:** Is the app coming from a trusted source?
- **Permissions:** What permissions is the app asking for?
- **Data protection:** How can I help patients protect their health data on their device?
- **Data transmission:** How will data be shared with providers?

Source

Before apps are downloaded and installed on a mobile device, the source (the person or organization that developed the app) should be identified. Apps should only be downloaded from known websites or other trusted sources that give reputable reviews of the app.

The DoD and VA can be considered trusted sources because they are required to maintain strict controls to ensure the safety of their apps. Their mobile apps are free to download, and the DoD and VA do not make money on the products — nor do they sell or collect any personal information. DHA Connected Health provides detailed information about its products on its website and in user manuals.

Permissions

When an app is installed, some app stores show what permissions are needed. Reading permissions can be unnerving if you don't know what stipulations are typical or why an app wants access to these areas. Virtual Hope Box is a good example of an app that requests access to multiple areas of a user's mobile device.

When deciding whether to accept permissions on an app, ask:

1. Is this app from a trustworthy developer?
2. Do I understand why this app needs these permissions?
3. Does the developer explain why the app is requesting these permissions?

Some permissions that are commonly asked on DoD and VA apps include:

- **Identity:** Allows multiple devices to know whether you are yourself or someone else who shares the device. Then, if the device is being used under your user profile, apps downloaded by you will be visible.

- **Calendar:** Allows the user to add or delete events on their device's calendar. Depending upon the use of this function in the app, it can allow you to reach out to someone in your contacts list.
- **Contacts:** Allows the app to reach out to your contacts to perform certain functions.
- **Location:** Allows access to the user's proximity or network base, and is not GPS-based. If the app is GPS-based, it will say "Specific Location."
- **Photos/Media/Files:** Allows you to add media from your device into the app.
- **Camera:** Allows you to take pictures or videos within the app.
- **Other:** Needs access to the internet to work properly.

Data protection

Although data security is the responsibility of the patient, providers should know and be prepared to guide patients on how to protect the personal health information stored on their devices.

Data on a patient's device are the property of the patient and not subject to HIPAA protections. If the data are transferred to a provider or another covered entity, then HIPAA rules apply. For DoD and VA mobile apps, data is only held within the app and is under the patient's control.

Patients can protect health data on their devices by taking the following precautions:

Passcode protection/user authentication

One of the easiest and most important actions patients should take is to protect their device with a passcode. This is important not only if they are using health apps, but as a security measure for all data on their devices. Passwords, serving as an authentication factor, can be alphabetical, numerical, spatial, biometric or a combination of these features. When setting a passcode, users should avoid making it too simple. The most common passcodes are "12345," "password" or the user's birthdate. The chances of data breaches will never be zero, but they decrease when strong passcodes are put in place and changed frequently.

Another level of passcode protection is available on some mobile apps. DoD mobile health apps that include app-level passcode protection include:

- T2 Mood Tracker: Settings > Security
- PE Coach: Settings > Customize Your Security Settings
- Dream EZ: PIN setup screen launches automatically after accepting the End-User License Agreement

File-sharing applications

File sharing is software or a system that allows internet users to connect with one another and trade computer files. While file-sharing apps (such as Google Drive, iCloud, Dropbox, etc.) offer a convenient method for backing up data from a device, file sharing can also allow unauthorized users to access your smartphone, tablet or laptop without your knowledge. By disabling or not using file-sharing apps, users can reduce the risk to their data.

If patients do use file-sharing services, they should know what data on their devices can be backed up, as well as who else may have access. For example, if a patient is using a file-sharing app with their spouse, the spouse may have access to the data stored in that app.

Maintaining physical control over devices

One of most important ways to protect data on a smartphone, tablet or laptop is to maintain physical control of the device. If a device is lost or stolen, there are ways to remotely wipe or disable it. Both Google (for Android) and Apple (for iPhone) offer this as a built-in feature, but users may have to activate it first.

- **Android:** Make sure the Find My Device feature is activated by going to Settings > Google > Security > Device Manager. To manage remote data wipe, select Android Device Manager and tap the slider to activate "Allow remote lock and erase." Then download the Find My Device app. This will allow you to find, lock or erase your device remotely.
- **Apple:** Log in to www.icloud.com using the same user name and password you use to download an app. Make sure the Find My iPhone app has been downloaded on your device. This will allow you to find, lock or erase your device remotely.

Protecting data over wireless networks

Even though most wireless routers have a firewall to protect from internet intruders, it doesn't mean that the protection extends to others connected to the same network. It is remarkably easy to steal someone's user name and password, or see what they are doing, just by

being on the same network. Do not take that chance.

Other ways to protect your data include:

- Whenever possible, especially when buying something online, use websites that begin with “https” to help ensure that your data are secure. Look for a lock icon next to the website address that indicates when the connection is secure.
- When your phone or tablet is in use, turn off the Wi-Fi or put the device in airplane mode.

This section outlines which security settings are the most important, as well as how to automatically change your settings to the appropriate level of security every time you connect to a public network.

Recommendations for protecting your information on Wi-Fi networks include:

Turn off sharing features. At home, you may share files or printers, or even allow remote logins from other computers on your network. On a public network, turn these options off, because anyone can access them.

To turn off sharing on Windows:

- Go to Control Panel > Network and Internet > Network and Sharing Center > Select “Change advanced sharing settings.”
- Turn off both “File and printer sharing” and “Network discovery and public folder sharing.” (Some of this is done automatically by Windows if you specify the network as public.)

To turn off sharing on version 10 of the Apple operating system (OS X):

- Go to System Preferences > Sharing > Make sure all the boxes are unchecked.

Turn off “network discovery”. This feature is in Control Panel (Windows) or System Preferences (Apple). Turning it off will prevent others from seeing your device on the network and reduce the chance that it will be targeted by hackers.

Enable your firewall. Most operating systems come with at least a basic firewall, which is a simple way to prevent unwanted local users from accessing your computer. Although your firewall is not infallible, it is a good idea to make sure it’s always turned on.

To make sure your firewall is turned on, go to your security settings:

- Windows: Control Panel > System and Security > Windows Firewall
- Apple: System Preferences > Security & Privacy > Firewall

You can also edit which apps are allowed access by selecting “Allow a program or feature” (Windows) or “Advanced” (Apple).

Install and enable encryption, firewall and security software.

- Encryption protects information stored and sent on a mobile device.
- Mobile devices may have built-in encryption options, or you can purchase them.
- Personal firewalls can be installed and enabled on mobile devices to protect against data breaches.
- Security software can also be installed to prevent viruses, spyware and malware attacks.

Data transmission

When a patient uses a DoD or VA mobile health app, their personal data is stored in the app on a patient’s phone, and neither providers nor the DoD or VA have access to that data. While the technological capability exists to transmit data from a DoD or VA mobile app, patients are not advised to send their data to providers in this manner.

Conversely, providers should not ask their patients to submit data by email or text, unless encryption options are in place to secure the data both in transit and after they are received by the provider. Until better technical systems are in place, patients should bring their device to their appointment to share data with their provider on-screen. The provider can then record any appropriate data (homework completion, assessment scores, etc.) into the patient’s electronic health record.

The “*How Can You Protect and Secure Health Information When Using a Mobile Device?*” web page created by HealthIT.gov is a security and privacy reference for patients and providers about protecting health data on mobile devices. A handout of this page is located in Appendix F and it is available online at:

www.healthit.gov/providers-professionals/how-can-you-protect-and-secure-health-information-when-using-mobile-device

Other security and privacy resources include:

- U.S. Department of Health and Human Services:
www.hhs.gov (Search “mobile devices.”)
- HealthIT.gov Mobile Device Privacy and Security:
healthit.gov/mobiledevices
- VA Mobile Health Provider Program:
mobile.va.gov/providers/training
- Overview of Federal Role in Mobile Health:
www.healthit.gov/policy-researchers-implementers/overview-federal-role-mobile-health
- Mobile Devices Roundtable – Safeguarding Health Information:
www.healthit.gov/policy-researchers-implementers/mobile-devices-roundtable-safeguarding-health-information

Summary

- Download apps only from a trusted source.
- Encourage patients to protect their phones, apps and stored data with a password.
- App data are stored on the phone, and patients have control over those data.
- Neither providers nor the DoD or VA have access to the data stored on a patient’s phone.

Competency 4: Ethical Issues With Mobile Health in Clinical Care

The intersection of ethical guidelines and the use of mobile technologies in treatment is a fairly new issue. The following discussion is specific to psychologists, but it also applies broadly to ethical concerns that clinicians from other disciplines may encounter.

The American Psychological Association (APA) has published two resources:

- Ethical Principles of Psychologists and Code of Conduct (2010)
- Guidelines for the Practice of Telepsychology (2013)

Key points include:

- “*Guidelines for the Practice of Telepsychology*” defines “telepsychology” as the provision of psychological services using telecommunication technologies.
- Telecommunication technologies include phones, mobile devices, interactive videoconferencing, email, chat programs, texting and the internet (p.794).
- The APA Task Force on Telepsychology identifies the unique characteristics technology brings to clinical care. These technologies can:
 - Be synchronous or asynchronous.
 - Augment care or be used as stand-alone tools.
 - Be used in combination with one another.
 - Expand access to psychological resources.
- The guidelines advise psychologists to be well-versed in telecommunication technologies and to ensure that patients understand the risks to security and confidentiality when using these tools.

The following APA Ethical Principles of Psychologists and Code of Conduct are particularly applicable when integrating mobile health in clinical care. (Note that the numbering in the remainder of this section refers to specific sections in the APA document.)

Standard 2: Competence

2.01 Boundaries of Competence

2.03 Maintaining Competence

Recommendations:

1. Always put evidence-based practices first. Know the evidence-based practice and the research to support it. Do not disregard evidence-based practices when a cool new technology becomes available. When relying on the available evidence to make decisions is the top priority, then choosing the right tool will be easier. Be clear about what type of therapy you are providing, and find an app that will aid in your treatment plan.
2. Review available evidence to determine whether specific technologies are appropriate for specific patients, including:
 - Published reports
 - Outcomes research
 - Best practice guidance
 - Patient preference
3. Once you have chosen an app that you want to use in therapy, get to know it. Use it, practice it and learn how to individualize its features, wherever possible. You want to be able to introduce the technology seamlessly into the therapy continuum. It will decrease your anxiety and increase your confidence about the value of the app as a tool for therapy.
4. Pursue additional educational and training experiences. This includes continuing education focused on the delivery of care using technology.
5. Consult with colleagues or other resources when needed.

Standard 3: Human Relations

3.05 Multiple Relationships

Recommendations:

1. Be aware of potential boundary issues that may arise when using telecommunication technologies. For example, to maintain privacy, providers should tell patients that they will not connect with them on social media.

2. Weigh the risks and benefits of dual relationships that may arise with your patients during the use of telecommunication technologies before entering such a relationship.

3.10 Informed Consent

Recommendations:

1. Full disclosure with patients – Let clients know what technologies do or don't have empirical support. Patients should be made aware of those technologies considered for use in their care that have little or no empirical support. This does not necessarily indicate that the patient should be denied those services. Lack of empirical evidence does not necessarily indicate that a technology is ineffective. All DoD and VA mobile apps were built upon a foundation of evidence-based practices, and in some cases an RCT was conducted.
2. Capacity and comprehension (two separate but related issues) – First, does your patient have the cognitive capacity to agree to the use of this technology? And, does this patient fully comprehend the expectations, limitations and risks involved?
3. Voluntariness – Make sure your patients know that although you may be enthusiastic about a new clinical tool or treatment approach, they are not required to use it.
4. Informed consent – The APA Task Force on Telehealth Guideline (2013) recommends that psychologists strive to obtain and document informed consent that specifically addresses the unique concerns related to telepsychology services. When doing so, psychologists are knowledgeable of the appropriate laws and regulations, as well as organizational requirements that govern informed consent in this area.

What to consider when creating or augmenting an informed consent form:

- Manner in which providers and patients will use the specific technologies
- Boundaries that will be established and observed
- Procedures for responding to electronic communications from clients
- Adequate information for patients on any inherent risks a technology may pose

An accurate and appropriate informed consent form for using technology in clinical care should include (APA, 2013):

- Potential risks to confidentiality when using mobile devices to store health information
- What data is involved (specify if recording is involved) and where data will be stored
- How the patient can safeguard his or her own data
- How the provider will safeguard the patient's data
- What method will be used to contact the patient between sessions

Requirements for mandated reporting apply regardless of the form in which they are communicated.

Standard 4: Confidentiality

4.01 Maintaining Confidentiality

Scenario in which this might apply: A therapist receives app data sent via a text message. When the text is received, the phone lights up with the name of the patient.

Recommendation: During the informed consent process, be sure to clarify when and how you will receive data and how they will be maintained. For example: Patients will be in control of their data on the app. Then patients will bring their phone into sessions and share the data they choose with you, and then you will document the clinical encounter in the secure electronic health record. When using a DoD or VA mobile health app, data are encrypted "at rest" (when data are on the app and are not being transmitted), which provides an additional layer of security.

4.02 Discussing the Limits of Confidentiality

Scenario in which this might apply: In crisis, a patient indicates through mobile or web data that he might harm himself or others. Who can see mobile app data? Where does the information go if sent from a mobile device? Where does the information go if sent to the provider? Where and how will the data be stored and maintained?

Recommendation: Unless it is not feasible or is contraindicated, the discussion of confidentiality occurs at the outset of the relationship and thereafter as new circumstances may warrant.

4.03 Recording

Scenario in which this might apply: The provider records a patient's voice during PE therapy sessions using the PE Coach mobile app.

Recommendation: When using PE Coach as a part of traditional PE therapy, tell the patient you will record his or her voice during imaginal exposure, allowing the patient to listen during homework sessions between therapy appointments. Give the patient options for how to record imaginal exposures, including through the PE Coach app, or on tape, CD or voice recorder. The advantage to recording through the PE Coach app is that the data can be password-protected, and audio files contained within the app are formatted in a manner that prevents them from being automatically uploaded into cloud storage. This is also the case if audio recordings are made through the voice recording feature of a smartphone, unless this security option is turned off in settings.

4.04 Minimizing Intrusions on Privacy

Scenarios in which this might apply:

- A provider has a patient use a clinic-owned device during sessions, but does not delete the patient's health information prior to having another patient use the device.
- A provider looks up a patient online to gather more information regarding the patient or receives a "friend" request on social media.

Recommendations:

1. Only include information that is relevant to a patient's treatment plan in the treatment notes. For example, recording the score on an assessment from an app that a patient completed is a good idea, as long as the patient shares that information with you in a therapy session or appointment. However, including information that is seemingly irrelevant (the screensaver picture choice, for example, unless it has some clinical relevance) is not a good idea.
2. Patients should use their own devices when using mobile health applications. This allows patients to have control over and engagement with their health data and facilitates homework between appointments. Tablets or smartphones provided for patients to use at clinics should be regularly checked and cleared of any patient data.
3. Do not look up your patients online or become "friends" with them on social media. Boundaries blur easily online, and it is important for providers to be clear where the lines are, communicate that to their patients and actively maintain those boundaries to minimize intrusions on the privacy of their patients.

See Activity Sheet 5 (Appendix J. Activity Sheets) of this guide to practice identifying ethical dilemmas that may arise when using technology in practice and working through the process to resolve the dilemma. See Activity Sheet 6 (Appendix J. Activity Sheets) of this guide to practice adding text to your informed consent related to the use of technology in clinical care.

Summary

- Develop a thorough informed consent document that includes information on the use of mobile health in clinical care.
- Electronic communication can blur professional lines, making provider-patient relationships less formal. Boundaries must be defined beforehand and proactively maintained.
- Become well-versed on the use of mobile health in clinical care by training on core competencies, seeking consultation and staying current on new technologies and their use to support treatment.

Competency 5: Cultural Considerations With Mobile Health in Clinical Care

Cultural awareness can have a direct impact on the efficacy of health care. Providers who work to increase their understanding of cultural differences and awareness of potential biases can significantly improve patient outcomes — regardless of race, ethnic background, native language, sexual orientation, religious affiliation or cultural beliefs.

There are five steps to addressing cultural issues when integrating mobile apps and other technologies into clinical care:

Step 1: Understand the cultural variables.

- Ethnic, racial, linguistic and culturally diverse populations
- Availability of technology
- Access to technology (socio-economic status) and geographic location
- Literacy and level of education
- Familiarity with technology (digital native vs. digital immigrant)
- Variables unique to a specific population (e.g., military culture)

Step 2: Identify your own potential biases.

- What is your relationship with technology? Do you see it as positive or frustrating? Does it serve to help your life, or is it a nuisance?
- Do you have any biases regarding the use of technology in clinical care?
- Did you grow up with digital technology (digital native) or not (digital immigrant)?
- Do you tend to embrace or reject new technologies (technology adoption style)?

Step 3: Use a framework to better understand how you experience these differences. One example is the Developmental Model of Intercultural Sensitivity (DMIS), also called the Bennett scale after its creator, Dr. Milton Bennett. The model is based on the continuum of cultural awareness from ethnocentricity to ethnorelativity (Bennett,

1993). The following chart illustrates each stage across the continuum and potential biases for using technology in clinical care.

Perception of Technology in Clinical Care by DMIS Stage

Ethnocentricity Seeing the world through the lens of your own culture	Denial of Difference <i>Only my view exists.</i> I don't use smartphones, so I know none of my patients do either.
	Defense Against Difference <i>We are different, but I'm better.</i> My patients may use smartphones, but I'm better because I don't. "Young kids and their stupid smartphones!"
	Minimization of Difference <i>We might be different, but it's no big deal.</i> I don't use smartphones and my patients do, but it doesn't impact how I deliver care.
Ethnorelativity Recognizing multiple ways of viewing the world	Acceptance of Difference <i>We're different, and I'm OK with that.</i> I don't use smartphones, but my patients do and I'm OK with that.
	Adaptation to Difference <i>We're different, but I work to think and act in a way that is understanding and respectful of those differences.</i> I'm not familiar with smartphones, and my patients are. But I'm working to learn how to safely and ethically integrate them into care and to understand the benefits to me and my patients.
	Integration of Difference <i>I respect and value our cultural differences and can operate in both cultures.</i> Although I didn't grow up in a digital age, I understand how to leverage smartphone technology, how to choose and prescribe apps to support evidence-based treatment and how to communicate security and privacy issues to patients.

Step 4: Increase cultural competency.

Use strategies to reach beyond your current perspective. In his theory, Bennett described the changes that occur at each step of the scale — what he calls evolutionary strategies. The following chart illustrates evolutionary strategies from ethnocentricity to ethnorelativity and how they relate to using technology in clinical care.

Evolutionary Strategy (Bennett, 2004)

From Denial to Defense

Subject acquires an awareness of difference between cultures.

I'm starting to realize that although I don't use smartphones, almost everyone else does.

From Defense to Minimization

Negative judgments are depolarized, and the person is introduced to similarities between cultures.

Although those young kids are using smartphones, I remember how excited I was when new technologies came out when I was their age.

From Minimization to Acceptance

Subject grasps the importance of intercultural difference.

Smartphones are here to stay and people seem to like them, so I guess I'll be open to it.

From Acceptance to Adaptation

Exploration and research into the other culture begins.

Mobile apps can provide benefits to me and my patient in clinical care. Maybe I should learn how to safely and ethically integrate them into evidence-based practices.

From Adaptation to Integration

Subject develops empathy for the other culture.

I didn't grow up in the digital age, but I can understand the benefits of smartphone technologies, as well as the challenges they may create for both digital natives and immigrants.

Step 5: Determine your patient's relationship with technology.

Culturally competent providers need to consider how their relationship with technology may differ from that of their patients, because the difference may impact the quality of care. This process begins by using a framework for cultural differences and by understanding one's own level of acculturation (Martinez & Eddy, 2005; Tata & Leong, 1994).

See Appendix G for a script for assessing patient use and familiarity with apps. It should not be assumed that every patient is technologically literate or comfortable entering personal data in a mobile app. Clinical judgment should be used to determine when an app may not be appropriate for a particular patient.

What is your patient's technology adoption style?

The five established technology adopter categories (Rogers, 1962, p. 282-283) are:

1. Innovators (2.5 percent of the population) – the first individuals to adopt an innovation
2. Early Adopters (13.5 percent of the population) – the second-fastest category of individuals to adopt an innovation
3. Early Majority (34 percent of the population) – those who adopt an innovation after a varying degree of time
4. Late Majority (34 percent of the population) – those who adopt an innovation after the average member of society
5. Laggards (16 percent of the population) – the last group to adopt an innovation

Other considerations include what developmental cohort a patient and provider belong to. Prensky (2001) called this developmental phenomenon “digital nativism.” Younger people, known as “digital natives,” have grown up in an era of computing and do not have memories of a time prior to the internet and smartphones, and they are at ease using a range of technologies. Alternatively, “digital immigrants” have had to learn these technologies in adulthood and may have limited comfort and capabilities using technology.

When we apply this age divide to behavioral health services, we frequently see a clash of cultures between providers and patients. One might be a digital immigrant while the other might be a digital native. The difference

in familiarity and comfort with mobile technology is an aspect of cultural competence often seen in military clinical health care.

However, one's relationship with technology is not set in stone by developmental cohort or by adoption styles. Other influences include (Rogers, 2010):

- Relative advantage – the degree to which an innovation is viewed as better than what was used before
- Compatibility – how consistent the innovation is with the values, experiences and needs of potential adopters
- Complexity – how difficult the technology is to use
- Trialability – the extent to which the innovation can be tested/tried before it's adopted
- Observability – the extent to which the innovation provides results the potential adopter can observe

Many factors influence one's choice to adopt a technology or not. The role of providers is to know a patient's level of understanding and acceptance of apps to provide the best care possible. You can use a simple and informal screening process to assess their familiarity and comfort level with a proposed technology as well as their suitability for engaging with the mobile app being recommended. After you determine your patient's relationship with technology, it may affect your use of technology in the treatment plan.

Summary

- Cultural issues, such as ethnic, racial and socio-economic variables, can impact clinical care.
- One person's willingness to consider health technology can be based on many factors (adoption style, developmental cohort and access to devices).
- Familiarity with technology can create a divide between a provider and a patient. Providers should assess those differences and use traditional cultural models to mitigate differences.

III. Conclusion

Mobile health holds promise for improving clinical outcomes and improved efficiency and efficacy of the delivery of patient care in the Military Health System. The DoD Mobile Health Practice Guide outlines the core competencies for the use of mobile health in clinical care, including:

- Understanding the current level of the evidence base
- Knowing how to safely and effectively integrate mobile apps into clinical care
- Knowing security and privacy issues and how to communicate them to your patient
- Knowing how to identify and solve any ethical dilemmas that may arise
- Being sensitive and knowledgeable about cultural considerations regarding the use of mobile health in clinical care

The information and clinical support tools provided in this guide offer essential resources for providers to support the safe and effective integration of mobile health into clinical care.

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VI. Acronyms

ACT – Acceptance and commitment therapy

APA – American Psychological Association

CBT-i – Cognitive behavioral therapy for insomnia

CPT – Cognitive processing therapy

DHA – Defense Health Agency (www.health.mil/dha)

DoD – U.S. Department of Defense (www.defense.gov)

DoD MHTP – Department of Defense Mobile Health Training Program, developed and delivered by DHA Connected Health (health.mil/mHealthTraining)

EHR – Electronic health record

EULA – End-user license agreement

FY – Fiscal year (Oct. 1 – Sept. 30)

HIPAA – Health Insurance Portability and Accountability Act

HITECH Act – Health Information Technology for Economic and Clinical Health Act

iOS – Apple software platform

IT – Information technology

mHealth – Mobile health

MHS – Military Health System (www.health.mil)

mTBI – Mild traumatic brain injury

MTF – Military treatment facility

OS – Operating system

PAJ – Positive Activity Jackpot (mobile app) (health.mil/mHealth)

PE – Prolonged exposure (therapy)

PE Coach – Prolonged Exposure Coach (mobile app) (myvapps.com)

PTS – Post-traumatic stress

PTSD – Posttraumatic stress disorder

RCT – Randomized controlled trial

TBI – Traumatic brain injury

VA – U.S. Department of Veterans Affairs (va.gov)

VHB – Virtual Hope Box (mobile app) (health.mil/mHealth)

VII. Glossary

App store – An online shop where customers can purchase and download various software applications. In general, a user must establish an account to obtain free content. Common app stores include the Apple App Store and Google Play, which are accessible through a smartphone or tablet device.

Cloud computing – A combination of connections, software and services accessed over a network, with the data stored on servers. Using access points like an iPhone, BlackBerry or laptop, users can go to the “cloud” for resources as they need them. For this reason, cloud computing has also been described as “on-demand computing.” The cloud is not the internet. The internet is a vehicle used to access information from a variety of sources, but it is not the cloud.

CSV file – A comma-separated values (CSV) file stores numbers and text in plain-text form for easy exchange among programs. Some programs can export data as a CSV file; the exported CSV file can then be imported to the spreadsheet.

Encryption – A system of encoding data, in which the information can only be retrieved and decoded by the person or system authorized to access it.

Firewall – Software that can intercept incoming and outgoing network connection attempts and block or permit them based on a set of rules. A personal firewall can be used on a mobile device to protect against unauthorized connections.

Mobile application – Software designed to run on mobile devices such as smartphones and tablets. The principal mobile operating systems are iOS (used by devices made by Apple); Android (used by devices made by Google and other manufacturers like Samsung and Amazon); Windows Mobile (used by devices using the smartphone version of Windows); and BlackBerry.

Mobile apps are available via the internet in marketplaces corresponding to the operating system: apps made on iOS are found on Apple’s App Store; Android apps are found on Google Play; apps made on Windows Mobile are found at the Microsoft Store; and BlackBerry apps are found on BlackBerry World.

Because Android and iOS currently command the majority of the app market, the mobile apps developed by T2 have been designed to operate on one or both of these systems.

Remote disabling – The process of remotely disabling a mobile device that has been lost or stolen to keep unauthorized users from gaining access to personal information.

Remote monitoring – The use of wireless communications devices in conjunction with monitoring hardware to track the condition of patients while they are in their homes. Providers can use the data collected through remote monitoring to identify a patient’s worsening condition without requiring the patient to stay in a hospital.

Remote wiping – The process of remotely removing the data from a mobile device that has been lost or stolen to keep unauthorized users from gaining access to personal information.

User authentication – The process of verifying the identity of a user, process or device.

Wi-Fi – The underlying technology of wireless local area networks. Wi-Fi was developed for mobile computing devices, such as laptops, but is increasingly used for more services, including internet and phone access, gaming and basic connectivity of consumer electronics, such as televisions, DVD players and digital cameras.

VIII. Mobile Health Provider Toolkit

Appendix A. Top 20 Frequently Asked Questions

1. **Q:** *How much do DoD and VA mobile apps cost?*

A: They are free.

2. **Q:** *How do we get the apps?*

A: Download the apps from app marketplaces — the App Store and Google Play.

To download an IOS app:

1. Using an Apple device (iPhone, iPad, etc.), select the App Store icon on the main screen to search for the app.
2. Once you find the app, tap **Get App** and then tap **Install**.
3. Once the app is installed, tap the app icon and follow the on-screen instructions.
4. Read and accept the end-user license agreement.
5. You are ready to use the app.

To download an Android app:

1. Using an Android device, open the Google Play Store.
2. Tap the search icon and enter the name of the app.
3. Select the app and tap **Install**, then tap **Accept & Download**.
4. Once the app is installed, tap the app icon and follow the on-screen instructions.
5. Read and accept the end-user license agreement.
6. You are ready to use the app.

3. **Q:** *What's an app marketplace?*

A: An app marketplace is an online shop where customers can purchase and download apps. In general, a user must establish an account to obtain free apps.

4. **Q:** *What devices and platforms do the apps work on?*

A: Most apps work on Apple devices (iPhones, iPads, etc.) and Android devices. Some apps are only available on either Android or Apple.

5. **Q:** *Why are these apps not available on BlackBerry or Windows phones?*

A: Most people have devices that support either the iOS or Android operating systems. There is simply not enough of a market to justify the cost of developing apps on the less-common platforms.

6. **Q:** *What are the benefits of mobile apps in health care?*

A: Some of the benefits include:

- 24/7 access to health assessments and educational content
- Confidentiality when security settings are in place
- Ability to download apps privately, offsetting the stigma of in-person care
- Integration of the patient into real-time symptom monitoring/management
- Remote monitoring/reporting to inform various medical and behavioral metrics
- Digital information that can be tracked across multidisciplinary teams
- Wearable sensors that allow for tracking/recording of physiological coordinates
- Education and assessment features that support preventive health care
- Tracking that facilitates review of clinical trends and chronic disease management
- Mitigation of barriers to care (e.g., appointment scheduling, time off from work)
- Accurate, analyzable data that can be uploaded to an electronic health record
- Data that enables systematic assessment of treatments and outcomes

7. **Q:** *Is there evidence to support that mobile apps improve patient outcomes?*

A: All mobile applications developed by the DoD and VA are built on an evidence-based foundation such as cognitive behavioral therapy, prolonged exposure therapy, etc. In addition, several apps have had additional research comparing the use of the app in treatment with traditional delivery of treatment. At this time, published randomized controlled trials with PTSD Coach and Virtual Hope Box have been completed. See Kuhn et al., (2017) for the PTSD Coach study and Bush et al., (2017) for the Virtual Hope Box study.

8. **Q:** *How many people have used these apps?*

A: As of January 2017, DoD and VA apps have been downloaded over 4 million times. The number of downloads for five popular DoD or VA apps include:

- Breathe2Relax – 1.2 million
- T2 Mood Tracker – over 310,000
- PTSD Coach – over 280,000
- Virtual Hope Box – over 240,000
- LifeArmor – over 25,000

9. **Q:** *Are these apps secure? Can anyone see my data?*

A: DoD and VA apps that save data also encrypt the data. You must be using the app on your device to see the data.

10. **Q:** *Is the personal data I saved seen by anyone else?*

A: No, the data are saved only inside the app on your device.

11. **Q:** *What do we do if we find a bug or technical issue in an app?*

A: There are several ways to send us feedback or report issues:

- Website: health.mil/ConnectedHealth
(Click on: Click Here to Email)
- Email: dha.jblm.j-3.mbx.connected-health-central@mail.mil
- Within the app: In the Settings function, there is an option for reporting issues.

12. **Q:** *Why were these apps built?*

A: To increase access to behavioral health care and to help service members overcome stigma and barriers to asking for help. While apps can supplement treatment and reinforce the benefit of face-to-face care, they are not a substitute for therapy.

13. **Q:** *Who develops these apps?*

A: Both the DoD and VA develop mobile apps (and they often collaborate). While the apps are developed primarily for service members, veterans and their families, anyone with a smartphone or tablet can access the information and tools available in the apps at no cost.

14. **Q:** *Can you recommend apps that are not built by the DoD or VA?*

A: We do not recommend any commercial products or devices because of DoD regulations. If you select a commercial app, we recommend that you verify it is made by a trusted source. Also, understand which permissions the app requires before downloading.

15. **Q:** *What other DoD or VA apps should I consider for my patients?*

A: We list our app portfolio online at health.mil/mHealth. Clinical support tools for providers for integrating apps into care are available online at health.mil/mHealthTraining. Included on this site is a guide “T2 Apps for Psychological Health,” published in January 2017, that includes one-page descriptions of many DoD and VA mobile health apps and websites that can be printed for patients.

16. **Q:** *Are there companion websites available for these apps?*

A: Some of the apps have counterparts on the web, including the LifeArmor app (health.mil/mHealth) and Moving Forward (veterantraining.va.gov/movingforward). AfterDeployment.dcoe.mil offers additional materials as well.

17. **Q:** *What security and privacy policies were followed to build these apps?*

A: Applicable policies and guidelines include:

- Privacy Act of 1974
- HIPAA Privacy Rule (1996)
- HIPAA Security Rule (2003)
- HITECH Act (2009)

Applicable federal organizations include:

- U.S. Department of Health and Human Services (HHS)
- Health IT Standards Committee (HITSC)
- Health IT Privacy Committee
- DHA Privacy and Civil Liberties Office (DHA Health Information Privacy and Security Training Manual)
- Office of the National Coordinator for Health Information Technology (ONC)

18. **Q:** *Are the apps available in languages other than English?*

A: DoD and VA mobile apps are available only in English, with one exception — PTSD Coach is also available in French.

19. **Q:** *What is encryption?*

A: Encryption is a system of encoding data, in which information can only be retrieved and decoded by the person or system authorized to access it.

20. **Q:** *What if someone has a question on this material?*

A: You can send an email to:
dha.jblm.j-3.mbx.connected-health-central@mail.mil.

Appendix B. DoD and VA Mobile Health Resources

Information/Resources:

- DHA Connected Health
health.mil/ConnectedHealth
- DHA Connected Health Mobile Apps
health.mil/mHealth
- DHA Connected Health Education and Training
health.mil/mHealthTraining
- VA Mobile Health Apps
mobile.va.gov/appstore/
- VA Mobile Health Provider Program
mobile.va.gov/providers

Videos:

- DHA Connected Health YouTube Channel
www.youtube.com/user/TelehealthTechVids

Podcasts:

- *Next Generation Behavioral Health*
This series offers 10-minute tips for using health technology to treat military and civilian behavioral issues. Dr. Christina Armstrong and Dr. Julie Kinn describe how to safely use a variety of evidence-based mobile apps, websites and other health technology. health.mil/Podcasts
- *The Military Meditation Coach*
This series offers a variety of meditation, mindfulness and relaxation exercises led by the Naval Center for Combat Operational Stress Control (NCCOSC). Listeners can enjoy on their own, in a group or with a health care provider. health.mil/Podcasts
- *A Better Night's Sleep*
This series features board-certified military sleep expert Dr. Jon Olin, the medical director of the Evans Army Community Hospital Sleep Lab at Fort Carson. Join Dr. Olin and other military sleep experts to learn about ways to improve sleep quality, sleep disorders, nightmares and evidence-based treatments. health.mil/Podcasts

Blogs:

- Connected Health
health.mil/ConnectedHealth
(look under 'Featured News')

Social Media:

The following social media groups were developed to create a network of mental health professionals who provide services to service members, veterans and military families, and who are interested in best practices for employing technology-based resources in their clinical practices. These groups provide a forum to discuss experiences and lessons learned using psychological health technology tools and resources for patient care. These groups are private and not searchable. If you are interested in joining, go to the group page and submit a membership request.

- Connected Health Technology – Community of Practice
www.linkedin.com/groups/5169126
- Psychological Health Providers for the Military Community
www.linkedin.com/groups/4135318

Community of Practice:

Connected Health Technology – Community of Practice

This group is open to DoD providers only and meets monthly through a virtual platform. For an invitation to participate, contact DHA Connected Health by email:

dha.jblm.j-3.mbx.connected-health-central@mail.mil

Appendix C. DoD and VA Quick Reference Mobile App List

The DoD and VA have developed a variety of high-quality mobile apps to support behavioral health care. The following list represents the current apps available (and the platform they're available on) and is subject to change. (For a provider reference chart of many DoD and VA mobile health apps, see Appendix D.)

- ACT Coach (for use with Acceptance and Commitment Therapy) (Android and iOS)*
- AIMS (for use with Anger and Irritability Management Skills) (Android and iOS)*
- The Big Moving Adventure (Android and iOS)
- Breathe2Relax (Android and iOS)
- CBT-i Coach (for use with cognitive behavioral therapy for insomnia) (Android and iOS)*
- Concussion Coach (Android and iOS)*
- CPT Coach (for use with Cognitive Processing Therapy) (iOS, Android pending VA release)*
- Dream EZ (for use with Imagery Rehearsal Therapy) (Android and iOS)
- LifeArmor (Android and iOS)
- Mindfulness Coach (Android and iOS)*
- Mood Coach (iOS)*
- mTBI Pocket Guide (Android and iOS)
- Navy Leader's Guide to Managing Sailors in Distress (Android and iOS)
- Parenting2Go (iOS)*
- PE Coach 2 (for use with prolonged exposure therapy) (Android and iOS)*
- Positive Activity Jackpot (Android and iOS)
- Provider Resilience (Android and iOS)
- Psychological First Aid Mobile (Android and iOS)*
- PTSD Coach (Android and iOS)*

- PTSD Family Coach (Android and iOS)*
- Sesame Street for Military Families (Android and iOS)
- STAIR Coach (for use with Skills Training in Affective and Interpersonal Regulation) (iOS)*
- Stay Quit Coach (Android and iOS)*
- Tactical Breather (Android and iOS)
- T2 Mood Tracker (Android and iOS)
- VetChange (iOS)*
- Virtual Hope Box (Android and iOS)

*Apps developed and owned by VA

Appendix D. Clinicians Guide: DoD and VA Mobile Health Apps for Patients and Providers Charts

CLINICIAN'S GUIDE

DoD and VA Mobile Health Apps for PATIENTS



App Features				Presenting Conditions														
To Be Used with Manualized Treatment	Password Protected	Corresponding Guide or Handout	Available on the App Store	Available for Android	TBI	Spirituality	Sleep	Resilience	PTS	Personal development/ Goal setting	Nutrition/Exercise	Mindfulness	Headaches/Pain	Family/Social	Anxiety/Stress/ Depression	Anger/Irritability	Alcohol/Drugs/ Tobacco	
●		●	●	●		●		●	●	●		●		●		●		ACT Coach
●	●		●	●						●					●	●		AIMS
			●	●				●		●	●			●				Army OneSource Money Matters
			●	●							●							Army PRT
			●	●				●						●	●			The Big Moving Adventure
●		●	●	●			●	●				●			●			Breathe2Relax
		●	●	●			●	●				●			●			CBT-i Coach
		●	●	●	●		●	●							●			Concussion Coach
		●	●	●					●					●				CPT Coach
			●	●				●		●				●				CSF2 Goal Setting
●	●		●	●			●		●						●			Dream EZ
			●	●				●			●							High Intensity Tactical Training
			●	●	●	●	●	●	●	●			●	●	●	●	●	LifeArmor
		●	●	●				●	●			●	●		●	●		Mindfulness Coach
			●	●		●		●	●	●				●	●	●		Mood Coach
●			●	●				●	●	●	●							MOVE! Coach
		●	●	●	●				●	●				●	●			Moving Forward
			●	●					●	●	●							MyPlate
		●	●	●					●	●				●	●	●		Parenting2Go
●	●		●	●					●									PE Coach 2
			●	●			●		●	●	●							Performance TRIAD
			●	●						●	●							Physical Readiness Training
		●	●	●					●						●			Positive Activity Jackpot
		●	●	●			●		●	●	●				●	●	●	PTSD Coach
			●	●										●	●			Sesame Street for Military Families
●			●	●				●	●	●		●		●	●	●		STAIR Coach
●		●	●	●											●		●	Stay Quit Coach
	●		●	●											●			T2 Mood Tracker
			●	●					●	●					●		●	Tactical Breather
			●	●					●	●		●					●	VetChange
		●	●	●				●	●						●			Virtual Hope Box

DoD and VA Mobile Health Apps for *PROVIDERS*



mTBI Pocket Guide

The Mild Traumatic Brain Injury Pocket Guide mobile app for health care providers offers instant access to a comprehensive quick-reference guide on improving care for mTBI patients. Military and civilian providers can use the app to find information on assessing, treating and managing common symptoms of mTBI.



Navy Leader's Guide

The Navy Leader's Guide for Managing Sailors in Distress is your go-to resource for issues that affect your sailors and guidance on what leaders like you can, or must, do. You can find information on responding to a sailor's substance use, ordering a command-directed evaluation, supporting your personnel after the death of a shipmate and much more.



NOFFS Operational

The Navy Operational Fitness and Fueling Series (NOFFS) is designed to provide the Navy with a world-class performance training resource for sailors as well as Navy health and fitness professionals. Using the latest sports science methodologies, NOFFS combines human performance and injury prevention strategies for safer training with greater results.



Provider Resilience

Provider Resilience gives health care providers tools to guard against burnout and compassion fatigue as they help service members, veterans and their families. Track your risk for compassion fatigue, burnout and secondary traumatic stress, and access tools to help you remember the value of what you do.



PFA Mobile

Following disasters or emergencies, responders who provide psychological first aid (PFA) to adults, families and children can access the PFA Mobile app for assistance. Materials in PFA Mobile are adapted from the Psychological First Aid Field Operations Guide and include tools to prepare you for every step of administering PFA.

Developed by National Center for Health & Technology, a Defense Center of Excellence for Psychological Health and Traumatic Brain Injury Center.
Released: July 2017 | This product is current until superseded.
PDUJ 4344



Appendix E. DoD and VA Prescription for Behavioral Health (front and back)

Rx

PRESCRIPTION FOR BEHAVIORAL HEALTH

Mobile Resources

Date _____

ACT Coach*

LifeArmor

PTSD Coach*

Breathe2Relax

Mindfulness Coach*

Stay Quit Coach*

CBT-i Coach*

Moving Forward*

T2 Mood Tracker

Concussion Coach*

Parenting2Go*

Tactical Breather

CPT Coach*

PE Coach*

The Big Moving Adventure

Dream EZ

Positive Activity Jackpot

Virtual Hope Box

COMMENTS

Download free apps available from the National Center for Telehealth & Technology.
t2health.dcoe.mil/products/mobile-apps
**These apps were developed in partnership with the U.S. Department of Veterans Affairs.*

Released January 2017 | This product developed by the National Center for Telehealth & Technology is reviewed annually and is current until superseded. Visit t2health.dcoe.mil for more information. Product ID # 4095

Rx

PRESCRIPTION FOR BEHAVIORAL HEALTH

Web Resources

Date _____

AfterDeployment
afterdeployment.dcoe.mil
Wellness resources for the military community addressing 20 behavioral health topics with anonymous self-assessments, tips and facts, videos, and more.

- Post-Traumatic Stress
- Depression
- Relationships
- Anxiety
- Anger
- Alcohol & Drugs
- Sleep
- Other _____

Military Kids Connect®
militarykidsconnect.dcoe.mil
An online community where military youth can de-stress and connect with their peers.

 Sesame Street for Military Families
sesamestreetformilitaryfamilies.org
Support for military families from Sesame Workshop on deployments, moving, and more.

COMMENTS

Developed by the National Center for Telehealth & Technology, a component center of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury.

Released January 2017 | This product developed by the National Center for Telehealth & Technology is reviewed annually and is current until superseded. Visit t2health.dcoe.mil for more information. Product ID # 4095

Appendix F. Mobile Health Security and Privacy Handout for Patients and Providers

How Can You Protect and Secure Health Information When Using a Mobile Device?

1. Use a password or other user authentication



Authentication is the process of verifying the identity of a user, process, or device. Mobile devices can be configured to require passwords, personal identification numbers (PINs), or passcodes to gain access to it. The password, PIN, or passcode itself can be masked to prevent people from seeing it. Mobile devices can also activate their screen locking after a set period of device inactivity to prevent an unauthorized user from accessing it.

2. Install and enable encryption



Encryption protects health information stored on and sent by mobile devices. Mobile devices can have built-in encryption capabilities, or you can buy and install an encryption tool on your device.

3. Install and activate remote wiping and/or remote disabling



Remote wiping enables you to erase data on a mobile device remotely. If you enable the remote wipe feature, you can permanently delete data stored on a lost or stolen mobile device. Remote disabling enables you to lock or completely erase data stored on a mobile device if it is lost or stolen. If the mobile device is recovered, you can unlock it.

4. Disable and do not install or use file sharing applications



File sharing is software or a system that allows Internet users to connect to each other and trade computer files. But file-sharing can also enable unauthorized users to access your laptop without your knowledge. By disabling or not using file sharing applications, you reduce a known risk to data on your mobile device.

5. Install and enable a firewall



A personal firewall on a mobile device can protect against unauthorized connections. Firewalls intercept incoming and outgoing connection attempts and block or permit them based on a set of rules.

6. Install and enable security software



Security software can be installed to protect against malicious applications, viruses, spyware, and malware-based attacks.

7. Keep your security software up to date



When you regularly update your security software, you have the latest tools to prevent unauthorized access to health information on or through your mobile device.

8. Research mobile applications (apps) before downloading



A mobile app is a software program that performs one or more specific functions. Before you download and install an app on your mobile device, verify that the app will perform only functions you approve of. Use known websites or other trusted sources that you know will give reputable reviews of the app.

9. Maintain physical control



The benefits of mobile devices—portability, small size, and convenience—are also their challenges for protecting and securing health information. Mobile devices are easy to lose or stolen. There is also a risk of unauthorized use and disclosure of patient health information. You can limit an unauthorized user's access, tampering or theft of your mobile device when you physically secure the device.

10. Use adequate security to send or receive health information over public Wi-Fi networks



Public Wi-Fi networks can be an easy way for unauthorized users to intercept information. You can protect and secure health information by not sending or receiving it when connected to a public Wi-Fi network, unless you use secure, encrypted connections.

11. Delete all stored health information before discarding or reusing the mobile device



When you use software tools that thoroughly delete (or wipe) data stored on a mobile device before discarding or reusing the device, you can protect and secure health information from unauthorized access. HHS OCR has issued guidance that discusses the proper steps to take to remove health information and other sensitive data stored on your mobile device before you dispose or reuse the device.

Source: <http://www.healthit.gov/providers-professionals/how-can-you-protect-and-secure-health-information-when-using-mobile-device>

NOTE: The content on the Mobile Device Privacy and Security subsection of HealthIT.gov is informational purposes only and does not constitute a recommendation or endorsement of any product or service. The content on the Mobile Device Privacy and Security subsection of HealthIT.gov is not intended to be an authoritative or definitive source on safeguarding health information from unauthorized access. HHS OCR has issued guidance that discusses the proper steps to take to remove health information and other sensitive data stored on your mobile device before you dispose or reuse the device. For more information about the HealthIT.gov and Security Rules, please visit the HHS Office for Civil Rights' Health Information Privacy website.

Appendix G. Script for Assessing Patient Use and Familiarity With Apps

Do you own a smartphone?

The Mobile Health Practice Guide assumes that patients own the requisite tools to engage in their care through mobile health technologies. Patients should own a smartphone or a tablet and have internet connectivity. This requirement may limit the relevance of these technologies to some populations. However, some organizations provide assistive mobile devices for some patients.

[If the patient owns a smartphone] *Are you familiar with smartphone apps and how to download an app?*

Providers should not assume that patients who own smartphones know how to download an app. Many individuals use their smartphones primarily for phone calls, texting, emailing and web searches. Basic instruction may be necessary for logging on to an app store, finding the relevant app, downloading the app, etc.

Have you ever used a health-related app for nutrition, sleep problems, exercise tracking, depression, etc.?

Some patients may be familiar with mobile health apps, but many will not. At this point in the initial discussion with the patient about using mobile health tools in their care, providers should have core knowledge about the rationale for using this approach, and if appropriate with the patient, be able to identify benefits, cite studies, etc. Assisting patients with the “how-to” is crucial to ensuring success with adding mobile technologies to a treatment regimen.

Case Scenario

This section provides a hypothetical walk-through of an interaction between a behavioral health care provider and an active-duty service member who is seeking psychological care. The doctor introduces the T2 Mood Tracker mobile app to be used in conjunction with the service member's care.

Since returning from a combat deployment, Sgt. Jack Smith has been experiencing a variety of symptoms, including weight loss, difficulty sleeping and chronic tension. At his primary care clinic, the provider conducting the evaluation suspects that Sgt. Smith's complaints are the manifestation of a behavioral health condition, possibly depression or, given the service member's recent combat experiences, post-traumatic stress.

The primary care provider recommends a referral to a psychologist. Sgt. Smith is reluctant initially, voicing concern about his security clearance, but finally agrees to see the specialist.

During the face-to-face intake, the specialist, Dr. Davis, determines that Sgt. Smith is presenting with depression. She also recognizes that he is hesitant about engaging further in psychological treatment.

DR

Dr. Davis

Sgt. Smith, do you own a smartphone?

SGT

Sgt. Smith

Yes, ma'am, an iPhone.

DR

Dr. Davis

You use the phone for calls and for texting?

SGT

Sgt. Smith

Yes.

DR

Dr. Davis

Anything else?

SGT

Sgt. Smith

Well I use it for games too.

DR

Dr. Davis

Are you familiar with how to download apps from the iTunes App Store?

SGT

Sgt. Smith

Sure, I have dozens of apps on my phone.

DR

Dr. Davis

Are any of the apps that you've downloaded health-related?

SGT

Sgt. Smith

Health-related?

DR

Dr. Davis

Yes. For example, an app that counts calories or teaches stress management.

SGT

Sgt. Smith

I've heard about those kinds of apps but have never used anything like that.

DR

Dr. Davis

I want you to log on to the App Store with your phone, search for an app called T2 Mood Tracker and download it.

1

SGT

Sgt. Smith

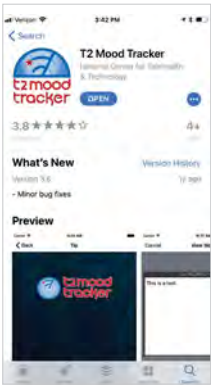
Download it ma'am? How much is it?

- DR** **Dr. Davis**
It's free. It was developed by a team at the National Center for Telehealth & Technology, which is a part of the Defense Health Agency with the Department of Defense.
- SGT** **Sgt. Smith**
Ok, found it, it's starting to download.
- DR** **Dr. Davis**
Good. While it's downloading, I will tell you about the app. T2 Mood Tracker is an "electronic diary."
- SGT** **Sgt. Smith**
An electronic diary?
- DR** **Dr. Davis**
Yes, it's just like tracking your moods and symptoms on paper, but allows you to track within the app.
- SGT** **Sgt. Smith**
And tracking my moods will help me better understand when I'm down?
- DR** **Dr. Davis**
Correct. That's important information. It helps to know when you're down and what's going on in your life and in your thoughts that might be contributing to your feelings.
- SGT** **Sgt. Smith**
Ok, the app has downloaded.
- DR** **Dr. Davis**
Good. Now, I'm going to walk you through the app.

Dr. Davis turns to a tablet computer and accesses T2 Mood Tracker. She selects the Depression measure and demonstrates the visual analog scale. **2**

She shows Sgt. Smith how to enter notes to accompany his mood ratings so that the situational characteristics surrounding his mood can be referenced. **3**

She shows how the software produces graphs that enable a quick snapshot view of mood fluctuations and potential patterns. **4** She also explains how Sgt. Smith can set the software to prompt his self-ratings at different points throughout the day.



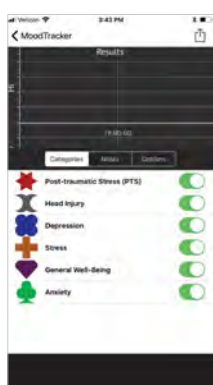
1



2



3



4

Finally, Dr. Davis tells Sgt. Smith that his self-ratings can be sent directly to her from the app. **5**

Sgt. Smith is intrigued by the ability to use an app to track his mood.

SGT

Sgt. Smith

This app has a lot of great features. Is there a guide?

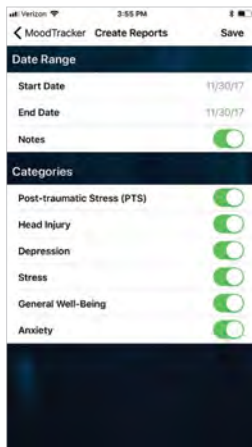
DR

Dr. Davis

Yes, the app has a Help section, and I'll also give you a paper how-to guide.

Dr. Davis goes over the information-exchange protocols and the importance of securing Sgt. Smith's personal health information. She makes sure Sgt. Smith has a screen-lock password enabled for his smartphone.

At the next appointment, Dr. Davis reviews Sgt. Smith's self-ratings. Sgt. Smith notes that the app was easy and enjoyable to use. Because Sgt. Smith reported experiencing a lot of tension during the past week, Dr. Davis instructs him to use T2 Mood Tracker's Anxiety scale **6** in the same way that he used the Depression scale. She also introduces another mobile app called Breathe2Relax. Dr. Davis explains that Breathe2Relax guides users through a diaphragmatic-breathing exercise **7** to help with stress.



5



6



7

Appendix H. Information for Describing the Purpose and Objectives of DoD and VA Mobile Health Apps

These key points should be highlighted when describing the following mobile health apps to patients.

ACT Coach: ACT Coach supports an evidence-based treatment called acceptance and commitment therapy (ACT). ACT incorporates mindfulness and acceptance strategies to help you cope with trauma-related difficulties like posttraumatic stress disorder (PTSD), depression, anxiety and chronic pain. This therapy can help you focus on the present and learn to live with unpleasant thoughts, feelings and impulses without either avoiding them or being controlled by them.

Objectives:

- Increase your participation in your ACT treatment to improve results.
- Use the app's exercises and tools to incorporate what you learn in therapy into your daily life.
- Learn to identify your personal values and take action and live by them.
- Practice mindfulness exercises using voice-guided sessions.
- Keep track of coping strategies that work for you.

Breathe2Relax: Breathe2Relax can help you manage stress by showing you how to practice deep-breathing exercises in between appointments with a clinician. This app teaches an important skill called diaphragmatic breathing (also called belly breathing), which interrupts the body's fight-or-flight stress response and activates the body's relaxation response. Like any skill, this type of breathing requires practice and regular use. With this portable stress-management tool, it's easy to practice whenever and wherever you want.

Objectives:

- Learn about the effects of stress on your body.
- Assess your stress level before and after a breathing exercise.
- Review your stress level results over time.
- Immerse yourself in the learning experience using interactive exercises.

- Change the pace of the breathing exercises to set a comfortable pace.
- Customize the app's backgrounds and music.
- Develop the habit of belly breathing throughout your day.

CBT-i Coach: CBT-i Coach supports an evidence-based treatment called cognitive behavioral therapy for insomnia (CBT-i). It was developed for use in face-to-face treatment with a health professional to improve your sleep habits.

Objectives:

- Take an insomnia severity assessment and chart your ongoing progress.
- Learn the connection between sleep, thoughts and behavior.
- Set reminders to get ready for bed, go to sleep and get out of bed.
- Practice relaxation exercises and learn to improve your sleep environment.
- Explore the physiology and benefits of sleep and barriers to sleep.
- Monitor your daytime sleepiness to adjust your sleep prescription.

Concussion Coach: Concussion Coach can be used to access information on concussions, track concussion symptoms and cope with related problems.

Objectives:

- Learn about concussion symptoms and treatment options.
- Use the self-assessment tool to screen for and track your symptoms.
- Explore relaxation exercises and tools to help manage related problems, deal with frustration and build resilience.
- Personalize the app by adding your own photos, music and personal contacts.
- Link directly to local support resources.

CPT Coach: CPT Coach supports an evidence-based treatment called cognitive processing therapy (CPT). This type of therapy can reduce symptoms of PTSD

related to a traumatic event, such as combat, child abuse, sexual assault or a natural disaster.

Objectives:

- Learn about CPT and access worksheets and assignments.
- Process painful thoughts and feelings about what you experienced to deal with difficult memories.
- Learn to challenge how you think about yourself, the world and other people to help you develop healthier, more realistic thoughts.
- Use the assessment tool to track your symptoms and progress.
- Increase your participation in your CPT treatment to improve results.
- Get reminders about your therapy appointments.

Feel Electric!: Feel Electric! can be used to help your grade-school children identify and express their feelings.

Objectives:

- Improve the well-being of grade-school military children (ages 6 to 10).
- Engage kids through multimedia educational content from The Electric Company.
- Encourage young children that it's OK to have emotions and to express them.
- Use games and activities to help kids find better words to talk about their emotions.

LifeArmor: LifeArmor gives you access to information and self-management tools for 16 common psychological health issues, including PTSD, anger and depression. It allows you to take self-assessments and track symptoms.

Objectives:

- Choose from 16 topic areas.
- Explore the causes, characteristics and potential solutions to emotional, relationship and other issues.
- Measure and track your symptoms with self-assessments.

- Listen to members of the military community share about their struggles and how they've learned to overcome challenges.
- Find info and guidance on techniques to help you manage issues.

Mindfulness Coach: Mindfulness Coach provides information on mindfulness meditation, which focuses your attention on the present and steers your mind away from distressing thoughts about the past or the future. Mindfulness meditation is effective for reducing stress, coping with anxiety and depression, increasing self-awareness and resilience and managing chronic pain.

Objectives:

- Learn the importance of mindfulness and how to practice it.
- Understand why mindfulness helps with conditions like PTSD.
- Try out nine forms of mindfulness meditation using voice-guided sessions.
- Log your mindfulness sessions and track your progress.
- Learn strategies for overcoming challenges to practicing mindfulness.
- Access educational materials about mindfulness.

Moving Forward: Moving Forward offers techniques that can help you assess your stress level, figure out your problem-solving style, determine how stress overloads your brain, try relaxation techniques and create a problem-solving worksheet. This app has an accompanying website (www.veterantraining.va.gov/movingforward/).

Objectives:

- Assess your current stress level.
- Figure out your problem-solving style.
- See how stress overloads your brain.
- Try relaxation techniques.
- Create a problem-solving worksheet.

Parenting2Go: Parenting2Go is based on practical materials developed by parenting experts in the DoD, VA and academia. This app allows you to select the tools that fit your parenting needs or family situation.

Objectives:

- Learn how to switch gears between work and home so you can be more present mentally for your children.
- Find quick tips for reconnecting with your family after a deployment.
- Use supportive tools when you're feeling stressed or overwhelmed with parenting demands.
- Keep track of when you make positive or negative comments to your children.
- Access your contacts and other resources to support your parenting efforts.

PE Coach: PE Coach supports an evidence-based treatment called prolonged exposure (PE) therapy. This type of therapy can reduce symptoms of PTSD related to a traumatic event, such as combat, child abuse, sexual assault or a natural disaster.

Objectives:

- Learn about prolonged exposure therapy and common reactions to traumatic experiences.
- Review recordings of your treatment sessions.
- Learn to process your memories and feelings and reduce your symptoms.
- Record completed homework tasks.
- Practice interactive breathing exercises.
- Track your symptoms over time.
- Use the calendar to remember your next appointment.

Positive Activity Jackpot: Positive Activity Jackpot helps increase motivation to get up and get out and do something to take your mind off negative thoughts. Combining a therapy called pleasant event scheduling along with augmented reality technology, this app makes it easy to find interesting things to do near your home.

Objectives:

- Search among selected activities chosen to interest service members.
- Invite friends to join you.
- Can't decide what to do? Play the app's jackpot function to get some ideas.
- Use the viewer to find where things are on the map.
- Use in conjunction with pleasant event scheduling therapy.

PTSD Coach: PTSD Coach helps you identify and understand symptoms related to PTSD after exposure to trauma. Information and tools in the app help with managing these symptoms and monitoring stress. Family and friends can also use the app to learn more about PTSD and better understand how best to support you.

Objectives:

- Understand the effects of exposure to trauma.
- Get information on PTSD and on treatments that work.
- Take a self-assessment of your symptoms and get options for seeking professional evaluation and treatment.
- Identify and track your symptoms over time and in different situations.
- Manage your symptoms using tools that teach healthy coping skills.
- Identify your resources and create a customized support network.

Stay Quit Coach: Stay Quit Coach can be used as a handy source of support and information either while you're quitting smoking (while in smoking cessation treatment) or afterwards to help prevent relapse. The app is based on the Integrated Care for Smoking Cessation treatment, which has been shown to double the quit rates of military veterans with PTSD.

Objectives:

- Create a personalized plan to stop smoking that includes your personal reasons for quitting.
- Access interactive tools to learn how to control breathing and cope with triggers.

- Read how medication and nicotine replacement can help prevent relapse.
- Track how long you've stayed away from smoking and the money you've saved.
- Receive motivational messages to remind you why you quit.
- Find ready access to support.
- Learn to manage relapses, including the do's and don'ts after a slip-up.

T2 Mood Tracker: T2 Mood Tracker lets you monitor your emotional health by tracking your moods to help you become more aware of how your life is affected by your thoughts, behaviors and moods.

Objectives:

- Monitor and record your moods and behaviors when they happen.
- Rate yourself using customized ratings categories.
- Save results in easy-to-understand graphs.
- Track emotions and behaviors regularly over time to identify trends or triggers.
- Send results to your home computer or share with your provider.

Tactical Breather: Tactical Breather provides information and instruction on how to control your response to stress. Diaphragmatic breathing (also called belly breathing) can help you manage your heart rate, emotions and concentration through training and repetitive practice.

Objectives:

- Learn about the benefits of this type of breathing.
- Follow the tutorial to learn the breathing techniques.
- Use these techniques to gain control over nearly any stressful situation.
- Customize the graphics and voice gender for your own preferences.
- Play a game-like interactive exercise.
- Access several chapters of the book, *On Combat: The Psychology and Physiology of Deadly Conflict in War and in Peace*, by Lt. Col. Dave Grossman, U.S. Army (Ret.), former West Point psychology professor and Army Ranger.

The Big Moving Adventure: The Big Moving Adventure helps prepare military children emotionally for the stress of moving. This app was developed for children ages 2–5 and creates an enjoyably interactive means to emotionally prepare them for an upcoming move.

Objectives:

Help your children...

- Express their feelings about moving and create a Muppet® friend.
- Decide which toys and books to pack and which ones to carry along for comfort.
- Learn how to say goodbye to people, places and things at their old home.
- Send postcards from their toys as they ride the moving truck.
- Explore the new home and unpack their things.

Virtual Hope Box: Virtual Hope Box can be used in treatment and between sessions to help cope with stress, regulate your emotions and provide a place to store reminders of important and meaningful aspects of your life.

Objectives:

- Work with your health provider to initially collect and add personalized content to the app on your mobile device.
- Store items on your phone that you find supportive, such as photos, music, videos, messages from loved ones or inspirational quotes.
- Distract yourself from negative thoughts with games, mindfulness exercises, positive messages and other tools.
- Create your own coping cards that you can access in times of stress.
- Plan positive activities and use relaxation exercises including guided imagery, controlled breathing and muscle relaxation.

Appendix I. Scripts for Group Therapy

Residential Group 1: Group therapy for those diagnosed with substance use disorders

Resources: LifeArmor and T2 Mood Tracker mobile apps

Opening Script

I know you're all here because of concerns relating to substance use. You might believe that you have a problem with substances, or you might not be sure whether it really is a problem. In this group, we're going to use a few mobile apps to see how your substance use compares to what is typical for most Americans. I'm not here to convince you that you do or do not have a problem; I'd rather let you decide this for yourself.

We're going to first open a mobile app called LifeArmor. Let me orient you to the app before we start using it. You'll see a list of 16 different topics. Each topic has three modules — Learn, Tools and Assess — and some topics also have videos. The Learn module gives you more information about a particular topic. The Tools module describes different things you might do to manage an issue.

In the Assess module, you can give yourself an assessment. It's often helpful to use something like a self-assessment to see whether you actually have a problem in a specific area. You might not always trust the opinions of others, and self-assessments give you confidential, objective answers without the personal bias you may fear. The only thing to make sure of is that you are honest with yourself when you take them. Assessments are self-reported, and that means your results will only be as correct as your answers.

Let's all start with the Alcohol & Drugs topic. Tap this button from the main screen, and then take the assessment. We'll talk about your results afterward.

What did the assessment say?

Allow for group discussion. Elicit all of the patients' thoughts about the results, how they feel about being in treatment and their level of motivation for working on substance-related diagnoses.

You might also have another area in your life that you have concerns or questions about, such as relationship problems, past trauma, depression, anger and physical injury. Again, it's always helpful to see how you compare with the average person in each area. Go back to the LifeArmor home page, pick one or two other topic areas and take their assessments.

What topic area(s) did you pick? What did the assessment say? How do you feel about the results?

Again, allow for group discussion. Let the group members talk about possible problem areas in their lives. The facilitator should be open to each individual's level of motivation and interest in changing.

Do you think that this (these) other problem area(s) might have a connection with your substance use?

Help facilitate discussion on how people often use substances to avoid other problem areas or to try to cope. It is helpful to agree that substances can help make people feel better in the short term. Ask whether that has ever changed for anyone.

Now we're going to switch gears. LifeArmor's assessments are helpful in finding out how your behavior compares with others; however, as I mentioned, the results are only as accurate as your current opinion of your behavior. A way to help improve your accuracy is by tracking yourself over time. So let's turn to another app: T2 Mood Tracker.

When you open this app, you'll see several topics listed. Each of these topics has prepopulated mood scales that you can use to track your attitude. You can use any of these preloaded scales or, if none of them apply to your situation, use the Settings page to add your own topic and mood scale.

There are four main areas of T2 Mood Tracker: Rate, Results, Support and Settings. On the Rate page, you choose a topic and rate your moods related to that topic. Results show your mood ratings over time. Tap Support to find additional resources and provide feedback. Use the Settings tab to edit or hide any of these scales if you feel they don't apply to you, and to set reminders to rate your mood.

You can let group members hide any scales that don't apply to them at this point, or you can do this later.

Go back to the Rate tab. Do any of these topics apply to you? Which might you use?

Allow the group members to talk about which moods they might want to rate. Also, if none of these apply, ask what they would rate.

Pick one or more of the topics and rate your current mood.

Give the group members time to do this, then discuss which topics they picked. Talk about the results and explain that they aren't assessments; these results cannot be compared with anyone else's scores but are useful for people to see how they've felt during a period of time. Ask the group how this might be helpful.

Are any of you interested in creating another mood scale that might be more beneficial for you to track?

If you have time, ask all of the group members about a scale they might create, and engage them in helping to create the other scales. Walk them through how to create the new scale. You could use anger as an example. First, identify that anger isn't a positive emotion. Then, help them identify a negative behavior related to anger, like yelling (undesirable), and then identify the opposite trait (desirable), such as being silent. Or, they can use an existing scale that is at the bottom of the screen. Create several more scales with the input of the group. After they create the scales, ask people to use them.

After rating a scale or two, how might this app be helpful? Could you see yourself using this? Why would you want to rate your mood? I encourage you to try it out and see if you benefit from it. Rate the same mood(s) once a day for the next week, and see how much they change over time. You may want to set a reminder to do this. If you're in my group next week, we'll start out by talking about your week of mood tracking and discussing whether it was helpful.

Residential Group 2: Group therapy to teach stress-management techniques

Resources: Breathe2Relax, Mindfulness Coach and Virtual Hope Box mobile apps

For this group, the facilitator will need speakers that hook up to a phone and small fruits (e.g., raisins or strawberries).

Opening Script:

How many of you regularly use some kind of relaxation technique to cope?

Elicit comments from the group.

If some do, ask: What do you use, and does it work for you?

If none do, ask: What do you think about relaxation techniques in general?

There are many different kinds of helpful relaxation techniques available for you to use. Today, we're going to use four techniques. All of the tools I'll use are offered through mobile apps that you can download and use at any time.

I'll demonstrate each app, and then we'll talk about your reaction to each. My hope is that you'll find one that works for you.

The first one I'll show you is a breathing tool. First, I'm going to show you the difference between shoulder breathing and diaphragmatic breathing (or belly breathing). Take a deep breath. Now, where do you feel it? In your upper chest? I want you to put your hands on your stomach. Now try to move your hands with your next breath.

Help all group members with this. Don't move on until everyone can do this.

We're going to use the Breathe2Relax app, which has a guided exercise for helping you learn to breathe this way. Before we start, though, I want us all to do a few practice breaths to get us in a "slow breathing" mindset.

Stretch out their breathing from natural, shorter breaths to longer exhales and inhales. Then play the app for 16 cycles (six-second inhale and six-second exhale for about four minutes).

What was that like for everyone?

Get impressions from the group. If anyone mentions how hard it was to inhale or exhale in that way for that long, or something along those lines, talk about how people can customize the breath duration in the settings.

Could you see yourself using this? Do you think it would help you relax?

Get feedback. Reinforce the theme that these methods only work if practiced regularly. They don't work if you try to use them for the first time when you are in distress.

Let's try another technique. Not every exercise focuses on breathing. If you like to imagine or picture something in your mind to calm down, you might find imagery a good tool to try. We'll do a mindfulness exercise that is offered in an app called Mindfulness Coach.

Use either “Leaves on a Stream” or “Clouds in the Sky” (both seven minutes in length).

What was that like for everyone?

Get impressions from the group. Some may say it was hard to imagine the scene, or that it was difficult to concentrate without being distracted by other thoughts, etc. Talk about how imaginal relaxation isn't for everyone and that you'll go over a different mindfulness tool next. Tell them about the goal of mindfulness: to develop better focus and learn to let things go instead of immediately getting involved in them.

Could you see yourself using this? Do you think it would help you relax?

Get feedback.

Now I want to shift gears. We'll still practice mindfulness, but this time, instead of imagining and focusing on your thoughts, we're going to do something I call “active mindfulness.” You can do this for nearly anything and at any time. The point is to try to live fully in the moment and only focus on what you see, hear and taste at that point in time. It's about letting thoughts and memories come in and out of awareness but not focusing or holding on to any of them. I'm going to pass around some fruit. Take what you like; then we're going to use Mindfulness Coach to eat the fruit mindfully.

Pass around some kind of small fruit (e.g., raisins or strawberries).

You don't have to do this only while eating. You can practice active mindfulness while focusing on other things, such as pictures on your phone, walking or breathing. Even if you aren't using the app, you can do this while driving, listening to someone talk or at any other time. The point is to try and always bring your mind back, every time it wanders, to what you are experiencing in the moment at hand.

Start the Mindfulness Coach app and play “Mindful Eating” (six minutes long).

What was that like for everyone?

Get impressions from the group. If anyone mentions how hard it was to stay focused on eating the fruit, etc., talk about the importance of bringing your mind back each time. Ask how this might be beneficial.

Could you see yourself using this? Do you think it would help you relax?

Get feedback.

For our last relaxation activity, we're going to use an app called Virtual Hope Box. We'll spend a lot of time with this app during the next group meeting, so I won't walk you through it today. I'm only going to use the muscle relaxation activity found under the Relax Me tab. This activity uses progressive muscle relaxation. Has anyone ever used or done this before?

If yes: What did you think about it? Did it help you relax? This activity doesn't involve paying attention to your thoughts or breathing, but it walks you through tensing up various muscle groups and then relaxing them. Does anyone have an injury that would prevent you from tightening any particular muscle group?

If yes, tell them not to participate in the tightening activity for that particular muscle group when the app prompts them to, but encourage them to do all the others. Play the Virtual Hope Box Muscle Relaxation activity (about eight minutes).

What was that like for everyone?

Get impressions from the group. Allow for discussion about the differences between breathing, mindfulness and progressive muscle relaxation.

Could you see yourself using this? Do you think it would help you relax?

Get feedback.

I showed you four different kinds of relaxation activities today. Was there any particular one you like or think would work best for you?

Let the group members talk about what they liked and didn't like about the relaxation techniques. Mention that they don't have to like or use all of these methods. The point is to find a particular method that works well and to practice it daily so it's useful in moments of crisis or craving. Without daily or frequent practice, these activities don't help as much in moments of distress.

Thanks for attending today. I hope this was useful. I'd like you to participate in one of these activities each day this week so that you can start to build up new, useful coping skills that will help you in moments of distress.

But before we're done, who used T2 Mood Tracker this past week?

Get feedback from the group.

If yes: Did you notice any changes in what you were tracking?

Get feedback from the group.

Make sure to keep or start tracking this week.

Residential Group 3: Group therapy to teach coping techniques for stress and negative emotions

Resource: Virtual Hope Box mobile app

Opening Script

The purpose of this group is to introduce you to a mobile app that helps you deal with moments of distress. You'll configure everything for this app when you're calm. Then, when you're feeling very strong negative emotions, you can use this app to help remind you of more positive moments in your life. We're going to spend time setting up certain parts of this app during the session today.

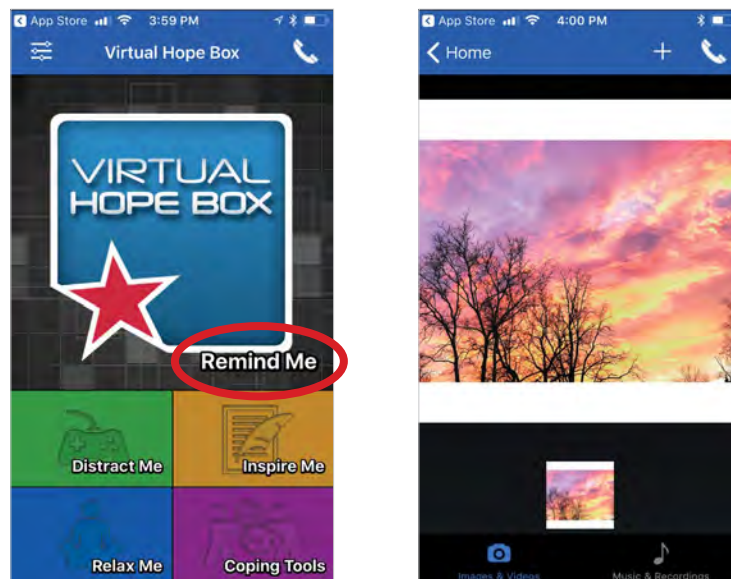
The main section of this app is Remind Me. What are the things or people in your life that remind you of good times?

Talk through what/who brings up happy memories. Focus on people first, then sights and smells to get a discussion going.

If you have the app, add music, pictures and videos that remind you of all the good things and people in your life, or add anything that makes you laugh.

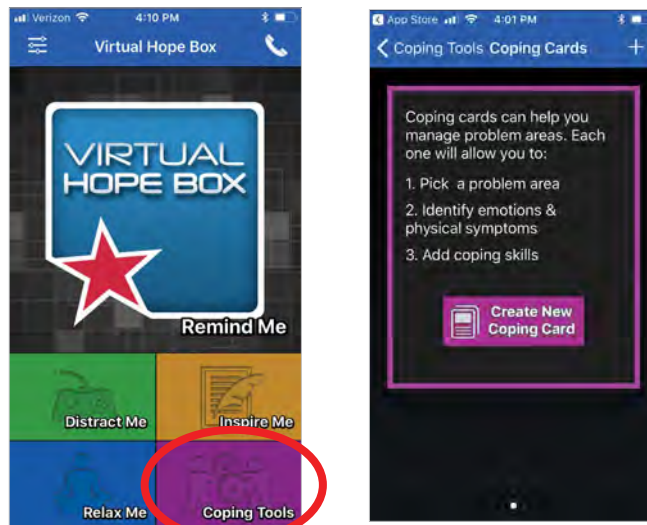
Give everyone about five minutes to add items to the app.

Okay, has everyone had a chance to add something to the app? You can always add more later. For now though, let's move on. Go to the main screen again and click on Remind Me.



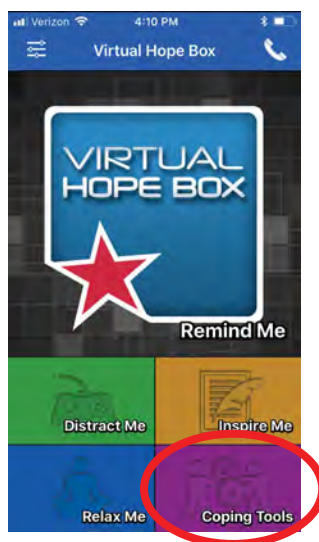
Another part of this app is for creating coping cards. These are cards you can use to help you remember what you want to do when faced with a difficult situation or feeling. What are some emotions or triggers that you have a hard time dealing with?

Use the coping card examples to talk about possible issues, and then allow group members to fill out the coping card section of the app.



Optional activity if there is still time: With the remaining time, let's come up with some fun activities you might try this week. In the app under the Coping Tools tab, select the Activity Planner. Look at the list and plan a few things for this week.

Talk about what events people like or what they plan to do this week.



Residential Group 4: Group therapy to teach pleasant event scheduling for depression

Resource: Positive Activity Jackpot (Android) or Virtual Hope Box (iOS) mobile apps

Opening Script

How many of you have ever dealt with feeling depressed or having very low energy and experiencing hopelessness?

Let the group respond to this. If someone doesn't relate to this, then at the end of this paragraph, talk about how pleasant event scheduling has also been found to be helpful for people who aren't dealing with depression by making them more resilient.

What happened to your activity level when you felt like this? What did your average day look like at that time?

Find out if they slept more, did less, didn't go out, didn't return friends' phone calls, stayed isolated, etc.

If you started doing fewer activities, did your mood get better or worse?

Allow the group to respond.

There is a theory that says having fewer “reinforcing” things in your life every day actually prolongs depression, low energy and feelings of hopelessness. The idea is that the less you do, the less rewarding your day feels, and the more you start to wonder why you should even bother trying. So, a way to work against this is to make sure people plan small, rewarding activities every day.

Since you're all in inpatient care right now, this is a little more difficult to do. But as you all know, the clinic plans an outing or activity every Saturday.

Now we're going to use an app to help you plan activities for each day.

If you have an Android device, you can use Positive Activity Jackpot. If you have an iOS device, you'll need to use Virtual Hope Box for this, but I'd like you to sit by someone with an Android device so you can see the additional options in Positive Activity Jackpot. Virtual Hope Box lets you add more items, so you can add some of the options you see on Positive Activity Jackpot to Virtual Hope Box if you want.

Positive Activity Jackpot is an Android-only app and needs a data plan and the GPS turned on to fully function. There are two main buttons on the home screen. One allows you to create your own positive activity. The other lets you see all the locations in your immediate area that may have positive activities for you to participate in. Today, we'll just be using the first button and creating or identifying our own possible activities. If you're using Virtual Hope Box, go to the Activity Planner, which is located under the Coping Tools button.

After giving the group time to look over the app, ask questions, and start to look over the activities. Have people start to identify activities they can do while in inpatient care. (Focus on positive “thoughts” or things they can do in the evening that involve other patients or materials available in the unit.)

Shift your focus now to scheduling one small thing you can do every day while you are in inpatient care.

Again, make sure everyone schedules at least one thing per day for the next week.

Have them suggest activities they might want to do with the group on Saturday.

Now, what are some of the things you thought of for the group activity? Can everyone identify at least one thing they think would be enjoyable?

Create a list from everyone’s suggestions. Get the group to rank the activities with the input of the occupational/recreational therapist.

Using the app, let’s schedule things you can do during the first week you are out of inpatient care.

Make sure everyone has at least one activity scheduled per day for the first week they are out of inpatient care.

It’s important to plan small, enjoyable events when you’re back to your life outside of the hospital, no matter how busy you are or the stress you’re under. This helps you stay resilient. If you don’t continuously participate in pleasant event scheduling and you no longer think about making sure you have enough small, rewarding events planned, it’s very easy to fall back into old, unhealthy coping methods.

Residential Group 5: Group therapy to teach symptom tracking and psychoeducation

Resource: T2 Mood Tracker, CBT-i Coach, LifeArmor and Concussion Coach mobile apps

Note to group facilitator: All patients need to be able to use each of these apps. They should either be downloaded on the patients' phones before the group meets, or you need to bring devices with you.

Opening Script

We're going to spend 50 minutes exploring several apps that can help you track different things and apps that can give you more information about most psychological issues. We'll only briefly go through each app. I don't expect all of these to be applicable to everyone, but I want to show them to you so you can use what works best for you.

The first apps we will look at will help you track various things, such as your symptoms and sleep over time. First, open T2 Mood Tracker.

When you open the app, you'll see several topics listed. Each of these topics has prepopulated mood scales that you can use to track your attitude. You can use any of these preloaded scales or, if none of them apply to your situation, use the Settings page to add your own topic and mood scale.

There are four main areas of T2 Mood Tracker: Rate, Results, Support and Settings. On the Rate page, you choose a topic and rate your moods related to that topic. Results show your mood ratings over time. Tap Support to find additional resources and provide feedback. Use the Settings tab to edit or hide any of these scales if you feel they don't apply to you, and to set reminders to rate your mood.

You can let the group members hide any scales that don't apply to them at this point, or you can do this later.

Go back to the Rate tab. Do any of these topics apply to you? Which might you use?

Allow the group members to talk about which moods they might want to rate. Also, if none of these apply, ask people what they would rate.

Pick one or more of the topics and rate your current mood.

Give the group time to do this, then discuss which topics they picked. Talk about the results and how they aren't assessments; these results cannot be compared with anyone else's scores but are useful to see how they've felt across time. Ask the group how this might be helpful.

Are any of you interested in creating another mood scale that might be more beneficial for you to track?

If you have time, ask all of the group members about a scale they might create, and engage them in helping to create the other scales. Walk them through how to create the new scale. You could use anger as an example. First, identify that anger isn't a positive emotion. Then, help them identify a negative trait related to anger, like yelling (undesirable), and then identify the opposite trait (desirable), like being silent. Or, they can use an existing scale at the bottom of the screen. Create several more scales with the input of the group. After the scales are created, ask the group to use them.

After rating a scale or two, how might this app be helpful? Could you see yourself using this? Why would you want to rate your mood? I encourage you to try it out and see whether you benefit from it. Rate the same mood(s) once a day for the next week and see how much they change over time. You may want to set a reminder to do this.

Now we're going to switch to another app that helps with tracking your sleep. How many of you have problems with sleep?

Talk with the patients about how problems with sleeping might impact their mood or everyday life. Talk about the CBT-i treatment they might be getting at the clinic.

If you're experiencing problems with sleep, there is a treatment called cognitive behavioral treatment for insomnia. I believe you will get it during your stay here. I'm going to show you an app that can help you track your sleep while you're here and after you leave inpatient care. Open the CBT-i Coach app.

There are four main areas of the app. Let's go into My Sleep first. This page will give you a summary of your sleep when you track it. Let's take the sleep assessment first.

Ask patients what their assessments said.

Now, let's fill out the sleep diary. Click on Add New Entry.

After they are done, ask them what their sleep efficiency was. Let them talk about this.

The rest of the app offers useful tools for coping with insomnia and information about the condition. If you're interested, feel free to read these things later.

Now we're going to move on to apps that help you learn more about various psychological issues. Open the LifeArmor app. You'll see a list of 16 different topics. Each topic has three modules — Learn, Assess and Tools — and some topics also have a Video module. The Learn module gives you more information about a particular topic. The Tools module describes different things you might do to manage an issue.

Pick any topic that interests you and take the assessment. We'll talk about your results afterward.

What did the assessment say?

Allow for group discussion. Elicit all of the patients' thoughts about the results, how they feel about being in treatment and their level of motivation for working on substance-related diagnoses.

You might also have another area in your life that you have concerns or questions about, such as relationship problems, past trauma, depression, anger and physical injury. Assessments can be helpful because they let you compare your symptoms to the average person in each area. Go back to the LifeArmor app home page, pick one or two other topic areas and take their assessments.

What topic area(s) did you pick? What did the assessment say? Do you agree with the results?

Again, allow for group discussion. Let the group members talk about possible problem areas in their lives. The facilitator should be open to each individual's level of motivation and interest in changing.

The last app we're going to explore is called Concussion Coach. This app can help you track your symptoms associated with a brain injury, but it also gives you tools to help you cope and learn more about brain injuries. Open the app. You'll see it has five main areas: Learn, Self-Assessment, Manage This Moment, Build Resilience, and Resources & Support. Feel free to click through the tabs that interest you.

After a few minutes, ask the group members what they found useful in the app. Ask them what was interesting to them.

OK, now I want everyone click the Build Resilience tab. Once you're there, click Use Technology. This page lists everything your phone can help you do to improve your memory after a brain injury. How many of you are using some of your phone tools to help you?

Let group members identify what they are already using their phone for to help them.

What other things can you use your phone for that might help?

Allow time for the group to discuss this.

We've explored four different apps today that all do different things. Which of these, if any, did you find useful? Which do you think you might actually use?

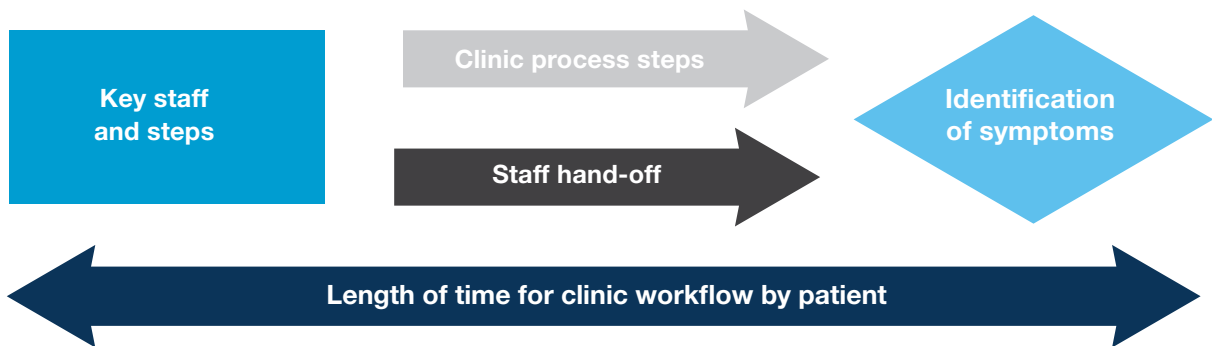
End the group by thanking the patients for their time and letting them know you'll see them one more time to go over four different apps in a few weeks.

Appendix J. Activity Sheets

Activity Sheet 1: Integrating Mobile Health Apps into Clinic Workflow

Instructions: To understand how the use of mobile apps might impact your clinic's workflow, create a diagram showing the current workflow and how you might offer apps to patients.

- 1 Think about the following elements that make up your clinic workflow. Identify all the steps and the staff involved in each step.



- 2 Using the previous elements, draw or write out My Clinic Workflow.

- 3 Using the diagram/list you created, add:

- Who would prescribe the patient the app/website
- Where during the clinical visit the app/website would be prescribed and about how long it would take
- Who would show the patient the app and help them set it up

Activity Sheet 2: Introducing a Mobile Health App in Clinical Care

Instructions: Create an outline of how you could introduce a mobile app into one of your patient's care plan.

- 1 How could you introduce a mobile health app into a session with a patient?
- 2 What sections of the app could you show your patient, and how could you explain why using the app would benefit them?
- 3 What questions might your patient have regarding the use of the app in clinical care?

Activity Sheet 3: Prescribing a Mobile App in Clinical Care

Instructions: Choose a colleague, and role-play prescribing an app to a patient.

- 1 Identify one person as the provider and one as their patient. Have the patient choose from one of the case examples on the next page, then briefly describe their issue to the provider.
- 2 Have the provider use the Clinicians Guide: DoD and VA Mobile Health Apps for Patients chart (Appendix D of this guide) and the DoD and VA Prescription for Behavioral Health (Appendix E of this guide) to identify at least one app that may be useful to the patient.
- 3 Have the provider complete a prescription and hand it to the patient, explaining which app(s) they are prescribing, which app features the patient should use and how often, and when they will follow up with the patient.
- 4 Switch roles and repeat the activity.

Case Example #1

A 23-year-old active-duty male soldier with a history of mTBI has experienced insomnia for six months.

- Takes diphenhydramine at night for sleep.
- Consumes energy drinks during the day.
- Denies depression; denies snoring.
- Physical exam by primary care physician was unremarkable.

Case Example #2

A 27-year-old active-duty female Marine with a history of PTSD presents with nightmares and chronic pain due to a leg amputation.

- Takes prazosin for nightmares.
- Avoids talking to family and friends about what happened.
- Will be starting prolonged exposure therapy with provider.
- Denies suicidal ideation or homicidal ideation.

Case Example #3

A 45-year-old active-duty female airman presents with a history of alcohol misuse and depression.

- Is interested in cutting down on drinking due to spouse expressing concerns, but doesn't feel ready to quit.
- Feels anger and sadness regarding her deteriorating relationship with her spouse.
- Avoids others and instead stays home in bed.
- Denies current suicidal ideation or homicidal ideation.

Activity Sheet 4: Evaluating the Evidence Base of Mobile Health Apps in Clinical Care

Instructions: Consider the following questions when evaluating the use of mobile apps for your patients.

- 1 Evaluate the evidence base for the Virtual Hope Box mobile app.
 - A Is there an evidence base supporting the content in the mobile app as part of cognitive behavioral therapy (e.g., traditional hope box, pleasant event scheduling, coping cards, breathing techniques such as diaphragmatic breathing and progressive muscle relaxation)?
 YES NO
 - B If so, what is the level of the evidence base (use the chart)?
Level: ____
 - C Is there an evidence base comparing the use of Virtual Hope Box in clinical care to the use of the traditional techniques on which this app is based?
 YES NO
 - D If so, what is the level of the evidence base (use the chart)?
Level: ____

Levels of Evidence for Evidence-Based Practice

(LoBiondo-Wood & Haber, 2010)

Level I: Systematic Review, Meta-Analysis, Evidence-Based Guideline

Level II: Randomized Controlled Trial (RCT)

Level III: Controlled Trial Without Randomization (Quasiexperimental Study)

Level IV: Non-Experimental Study, Case Control, Cohort or Correlational

Level V: Systematic Review of Descriptive/Qualitative Studies

Level VI: Descriptive/Qualitative Study

Level VII: Opinion of Authorities, Expert Committee Report

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Evaluate the evidence base for the PTSD Coach mobile app.

- A Is there an evidence base supporting the content of the mobile app (e.g., PTSD Checklist, psychoeducation on PTSD, cognitive behavioral techniques such as pleasant event scheduling, grounding, positive imagery, progressive muscle relaxation)?

YES NO

- B If so, what is the level of the evidence base (use the chart)?

Level: ____

- C Is there an evidence base comparing the use of PTSD Coach in clinical care to the use of the traditional techniques on which this app is based?

YES NO

- D If so, what is the level of the evidence base (use the chart)?

Level: ____

Activity Sheet 5: Ethical Dilemmas With Mobile Health Apps in Clinical Care

Instructions: Brainstorm ethical situations that you could see arising when using mobile apps in practice.

- 1 Define the situation.
- 2 What standards are in question and how do they inform the situation?
- 3 What are some steps you could take to resolve the dilemma?
- 4 What are the possible outcomes/consequences?

Activity Sheet 6: Adapting Your Informed Consent Document When Using Mobile Health Apps in Clinical Care

Instructions: Create a few lines of text that you might add to your current informed consent form that relate to the use of technology in sessions. How does this compare to the guidance provided in the ethics section of this guide?

Activity Sheet 7: Practicing Integrating Mobile Health Apps in Clinical Care

Instructions: Design a process of how you would use mobile apps with your patients.

- 1 Choose one of the DoD or VA mobile apps that you have never used before. Download it and explore it on your own. What app did you choose and why?
- 2 How might you use this app in practice with one of your current patients?
- 3 How will you introduce and prescribe the app to your patient?



Developed by the Connected Health Branch, Clinical Support Division, Defense Health Agency.
Released: September 2018. This product is current until superseded. CH-0027