(Marleen M. Maheu): Our webinar, called the Evidence Base and Clinical Use of Mobile Applications in Behavioral Health. This event is sponsored by the Coalition for Technology in Behavioral Science, CTiBS, as well as the APA. Joining me are our two guest speakers, Dr. David Cooper, who’s a psychologist at the mobile application lead. He’s the mobile application’s lead at the National Center for Telehealth and Technology. Dr. Myron Pulier is a psychiatrist and clinical associate professor at Rutgers New Jersey Medical School. We’ll be talking about Apps today, and I want to tell you a little bit more about me as we get started here.

I am the Executive Director of the TeleMental Health Institute and I’m also the president of CTiBS. Some of you may have been familiar with my work in the past at the APA, I started in 1995 and have been working through various groups at the APA to help advance the responsible use of technology. CTiBS is an outgrowth of a lot of that work. We are an independent non-profit at this point, and we are inter-professional group that is focus, once again on the responsible use of technology. So this webinar is aligned with our goals and we are delighted to be invited by the APA to co-sponsor this event. I’ll be starting a conversation. I’m going to need some help to move that slide forward.

I’ll be starting the conversation with just a brief review of our learning objectives. We plan, we’ll help you plan a path towards including mobile behavioral health apps in your clinical practice. We’ll help you recognize ethical issues raised in dealing with apps. Based on explicit criteria, we’ll help you judge the pros and cons of apps, and we’ll help you recognize the importance of becoming familiar with each app before using it with patients. Now all of you in the audience that are muted, and if you have questions I want to encourage you to type them through the chat box which you’ll see on the interface here. And I want to encourage you to do that as we get started because that may not occur to you at the end of the session when we try to leave some room for questions. Also, all of us are able to see the questions as they come through and if we see a question there that we can address as we’re going through our content then we’ll do that. So it’s useful for you to go ahead and type your questions in as they occur to you.

The first topic I wanted to bring to your attention is just the size of the market and what the predictions are. It’s quite evidence to lots of people, lots of publication that it’s growing very rapidly but what […] predictions are, and this is realist study by a research guidance (pause) researched to guidance published in 2016 that the market will grow by 31 billion dollar in the next, well, what’s best of, uh, the time period till 2020. That phenomenal growth and we can expect then that our clients and our patients will be asking us more and more about which app to use and whether they’re safe and a number of related issues. What we’re also seeing is that a number of the larger insurers are considering the use of technology including different apps that can be made available through a variety of new technology.

Here’s a research articles in April 22 of this year that talks about how smart watch may still be struggling to find its place in the mHealth ecosystem, but providers and payers are finding ways to make it useful. This is a new app that’d been released to help remind patients about medication and when they need to be taking them and their reporting of taking them as well over time to the practitioners. So there’re numbers of useful application that we’re seeing are insurance companies embraced. The big questions though is what make a good app and how can clinicians responsibly start prescribing these apps and using them with people on their case load?

So we’re seeing here a recent article by Fast Company that brings up the very question that I and a number of my colleagues have been bringing up at the American Psychological Association Convention every year for the last 5 years actually by managed to organize a panel presentation and bring some experts in from around the country to talk about this at our annual meeting for the APA, and that’s going to be the focus for us our conversation here today. My interest in this work started several years ago when I tried to identify principles of risk management for choosing apps.

This followed my trying to summarize the apps I could find to my websites blog, which is at telehealth.org/blog, and what eventually happened as a result of that was I was invited by past president, the APA president Gerald Koocher to write a book chapter on it. I knew Myron for years before that so Myron and I teamed up to write this particular chapter on mHealth Application for Psychologists in the 2013 version of Gerald’s book, “The Psychologists’ Desk Reference”. In that chapter we outlined the 7 criteria that included the ones I’ve got listed here today. Let me go back to that first slide. Ok, so the issues that we considered were, started with usefulness, the applicability, does the app adequately cover the range of tasks required to satisfy an actual need? Some apps claim to do things but they really don’t, and if they do them, they don’t do it safely. So, so that idea of usefulness was a big one.

The second one that we looked at was is it usable, is it practical, does it meet workflow requirements, does it save time for the user. The usability also has to do with the technical architecture of an app, for example if you put 5 buttons on the bottom of a screen and somebody touch an app, you know, on a smartphone screen, and somebody tries to click those buttons, if they have relatively big fingers they may hit 2 buttons at one time. That is an issue of how that app is constructed; also, does it use up a lot of energy. So a lot of issue’s related to usability. Interoperability was another issue that we identified. Can people use an app to enter information and then have their other devices reflect that data entry processed or do they have to go repeat all of that again in the other devices using the same app? So interoperability is becoming a more and more oppressing issue to be thinking about. Security. If the app communicates with us as clinicians and connects us to the patients or the clients, does it have to be secure, well yes it does.

As a matter of fact, the state of Georgia just in October of this last year required that all of the clinicians get trained in using technology of any type. They’re calling their TeleMental Heath rule, and I wrote to them and I said “well that includes apps, because some app do connects with clinicians”, and they responded to me in writing and said “yes, indeed, apps do have to… anybody using an app in the state of Georgia that is an licensure worker, counselor, or MST needs to take 6 hours of training to learn how to use technology appropriately. And a lot of that has to do as well because … these apps have to meet standard, and one of the standards we teach in that type of course is HIPAA compliance and also state compliance on top of HIPAA for security. So there’s a lot involved there, to the point there that state had made it a requirement to get 6 hours of training.

The fifth issue we identified in that book chapter was validity. Does the app measures what it is supposed to measure? And a lot of us have had a lot of training in reliability so you can probably recognize that validity as well as reliability issues, does it perform consistently over time. And then of course, the other issue we threw in from risks management was informed consent. Do you properly inform your patients or your clients about the risks and benefits of using it, and that includes installing the app on a mobile device in your office, or helping your patients or clients install it so you can teach them the defaults and how to navigate through that? So what’d happened in the last few years is that a small group of us at the TeleMental Institution had gotten together to review apps and to perfect these 7 criteria. So we have a much more elaborate system at played now and Dr. Pulier will give us more details of that during his presentation.

So next, I’d like to introduce Dr. David Cooper, who is a psychologist, once again, and the Mobile Applications Lead of the National Center for Telehealth and Technology. He leads teams of designers and developers to create mobile apps for the US military around behavioral health and traumatic brain injury. Dr. Cooper.

(David Cooper): Thank you Marleen. Hi everyone, as it said I am Dr. David Cooper. Before I begin, my government employer will be remised if I did not say that I have nothing to disclose, and these opinions are of my own, rather than the DoD, who I work for on my day job, on behalf of CTiBS to help educate you all today.

So, let’s start of by talking about some statistic on mobile app use just to give you a breath of what we’re dealing with here. So as we know, according to the PEW internet study, 72% of users are looking online for health information, and over half of smart phone users have been able to download at least one health related app and are using that throughout the day. So do you know where your patients are looking, do you know where to help them find the information, and how do you as a clinician help them distinguish the good from the bad information so that they can make sure they are getting quality products? There are over 165,000 health apps on the market today. That’s a lot to review and to be aware of when clinicians try to be figure out how to get their hands on some of these stuff. 65% of them connect to some form of social media, so helping patients understanding impact on their privacy, who can see their data.

How to be able to manage that is going to be important for both you and your patients in help facilitating that relationship. 10% of these apps connect to a wearable devices or sensor, this number is only increasing. How many of you would say that you’re familiar with the kind of data that wearables can add to apps, or things that available, like heartrate, breathing, (ah) they now have EEG devices that connect via Bluetooth to apps. So these kinds of data that previously weren’t really available in a kind of clinical use, well, we didn’t have a good way to connect, get them, are now be going to become increasingly more available and relevant to your practice because you have access to the data. But on the other hand, about 36 apps accounts for most over half of all downloads. So really, the cream is rising to the top in these app, maybe it’s proliferation among the market, like users are learning to popularity, clinicians like yourselves are learning about these application and being able to share that with their clients and patients top really let the ones that are beneficial rise on top.

And so for you that means you can learn just a handful of apps and still be able to manage this, you don’t have to learn 165 and be familiar with that many (ah) that many apps. You just really have to know a handful. And of course in the past two years it’s increased by 106% so you know we know this mobile health trend app intrigue is going nowhere, this is going to be an increasingly relevant issue for you. And yet, how many of you were trained in using technology? How many of you working in academia have clinical programs that train new psychologist in using technology with patients? This is really something that we’re trying to address at CTiBS and at the DoD to try and engage clinicians and give them some kind of training on how to use these apps, how to introduce them in treatment, and really to understand how to evaluate them for quality in using them with your clients. Just to talk about some of the benefits of apps and again, why you should be paying attention to these and using them.

Apps can provide more ecologically valid data for working with clients. You have a greater ability to collect, to generate automatic data. One of the hardest thing for me, and I think for probably many of you, is the patients and actually getting them to fill out those nice little handouts that we send home with them. If it’s on a mobile phone, well, they are going to have access to that wherever they go. They’re going to be able to enter that. They’re not going to leave that behind as they might with a piece of paper. And it’s going to get you better data as you’re able to get it throughout the week rather than waiting for them to fill it out just before they see you. An increase we’re going to get is automatic data, we won’t have to rely on user generated data at all. It will be automatically captured, taking the burden off of the patient and yet giving you richer quality data to be able to have access to. It’s going to give you… mobile apps can give you increased touchpoints given your shrinking clinical time.

We all know that, you know, we are having less and less time to see with patient as we have to write notes, you know, meet clinical requirements, legal requirements. So, if someone has their phone with them on an average, I think of 24 hours a day, think of all the hours when people are not in your office. Mobile apps really are going to give us an unprecedented opportunity to be able to intervene and gather data. An example of this is an app we made called Breath2relax. It teaches diaphragmatic breathing and it allows the patient to learn this outside of the office on their own time. So you as the clinician can assign this kind of app for review and learning, and use your clinical time to address other salient things rather than necessarily enforce skill building. You can promote your alignment with patient in treatment.

Again, these things are only increasing patients want mobile app, they want to be able to use mobile apps in their treatment, and it’s becoming an increasingly expected tool in healthcare. Yet, if you can imagine if someone comes in and say “Hey docs, I have this great app I have this great data of fit bits and wants to show it to you as part of the healthcare”, or you know, even bringing in genetic data, some of the data that we’re able to collect now, only to be dismissed. I mean, how would you feel if, you know, you kind of say “Nah that’s ok, that’s not important, I don’t want to get that”? You’re really going to dishearten the patient and reduce that alignment with them because you won’t be able to, you want to or be able to work with them in the way that they would like to. You can introduce these kind of apps early in stepped care model, so again, with something like breath2relax, you can prescribe that priority intake as soon as somebody said they’re coming in for an anxiety issue, you can use an application, that you know is based on evidence based treatment like diaphragmatic breathing, to provide them some immediate relieve for anxiety, even before they ever come in your office.

Finally, dealing with meaningful use criteria, you know, stage 2 criteria in the Clinical Quality measures that we’re all going to have to pay attention to as part of the new meaningful use clause. Really, I think mobile apps are probably going to be the only way that we’re going to be able to effectively and accurately gather data for things like patient family engagement, care coordination, efficient use of resources. That’s really going to be one of the big triers as far as benefits that you and your patient receives from using these mobile apps.

So let’s dig right into the evidence base for using these apps in treatments, and, you know, looking at some kind of key issues studies that represent key issues, and talking about your use of clinical judgement vs. the actual evidence base as this area grows and become more develop as a research area. So first off, I want to talk about these two studies here. Basically the thing to take away from these studies is something very simple. A small but important issue that the psychometric properties of assessments when delivered via smartphone are really going to be the same if used as originally intended. So, if you use a previously validated assessment in the way it was intended as part of your mobile app, you can still consider it psychometrically valid. There are no issue around that better clinic cause, the results could be distorted cause you to have to question it. So this is a small but very important issue to realize. Going back to what Marleen said, of course issues like usability and how the assessment is delivered are going to be very salient.

However, if you can see that it’s presented in a way that is satisfactory to you as a clinician, you can be assured that the psychometric properties of the assessments will be as originally intended. This is another good study. It’s an overall review of various studies out there talking about various kinds of digital interventions. It’s nice because it’s very wide-range in terms of the technologies that it examines. It ranges from websites and mobile apps to serious games and virtual reality. Talking about giving a good overview of studies that are out there and available. Most of the review has been on web interventions, mostly because there are more studies and RCTs for web intervention. But as web and mobile are merging, what we’re finding is that lesson from the web and web-based interventions are easily translated to mobile-intervention. And so we’re seeing that these kind of digital intervention do provide short-term benefits for a lot of disorders that are commonly seen in treatment. It also gives you … this article is also very good because it gives you a good overview of the landscape of the types of interventions available, and as well as issues coming up like fake data and passive data collection and how those will impact your treatment and the use in the treatment of behavioral health issues.

This next two studies are done by Colin Espie of the UK. One of the reasons I included these is because one … one of the few RCTs that had been done on an application that had been available both on a mobile device and the web. Another reason is that Sleepio, which is an online intervention for insomnia based on CBT is a popular product that many of you are going to hear about. So understanding that the research behind this and that it is efficacious in treating insomnia based on CBT will be important. So this can be one of those you wants to keep in your work pocket as far as things you can recommended to clients that you know have been validated and that are effective. Another reason to mention this is because in the UK Colin Espie is not based bound by the rules of the FDA. So I think this kind of issue represent a good challenge that maybe many of you haven’t thought about is that in the world of globalization and internet connectivity not everything will be bound by the same sorts of regulations that it only becomes more incumbent upon you as providers to understand what is validated and what is not, and not necessary assumes something is going to be have to adhere to FDA. It also makes a challenge for researchers in that in some ways other folks are less hampered than we are and can get interventions and test them in ways that we cannot. So that’s going to be a challenge for researchers as far as how to keep pacing with this kind of global availability with this kinds of apps.

This last one is a good more recent overview indicating small and good effect size for digital intervention around mindfulness. This one looked at about 15 different RCTs and show that online mindfulness interventions have, you know, a good small, but significantly beneficial impact on depression, anxiety, well-being, and mindfulness, all with, kinds of, Hedges’ g around .22 all the way up to .32. So that kind of effect size shows that, again, they are not going to be overwhelmingly effective for those interventions, but on par with many of the interventions that we’re already using. The biggest thing that this found that mindfulness interventions was beneficial for was for stress. The effect size there was .51. So recommending apps like Headspace, like Mindfulness Coach from the VA that are based on evidence-based mindfulness interventions. You as the clinicians can be sure that these kinds of evident-based develop tools will be efficacious just like mindfulness is teaching it inside the clinic. So looking… these are just kind of some quick overviews out there and we’re seeing a kind of few trends here. There’s lots of pilot studies and some RCTs. Looking at specifically for mobile, we’re still early in terms of research process. Yet, even though we’re well under the adoption curve for the public, they’re generally positive and they generally show that web-based interventions that are translated to mobile are going to be as equally positive. There is of course more research needed. Having mobile has yet to meet the same level of evidence as other interventions available. There’s also a lot of “shoulds” and few “dids” papers.

So what I mean by that is that a lot of papers describing what people should do with mobile application, what studies should be done, rather than actually RCTs evaluating actual applications. This’s because of course apps are expensive and most researchers are not good as designers. So it’s a lot easier to write opinion papers than do RCTs. You know, it may also be indicative of an over lack of funding. Grant committees are probably not likely very technology needed because to develop these kinds of applications and interventions you really need to take a more cross-disciplinary approach and bring in people from outside of our field like incentive-design or some of the computer science department to really get the benefits and explore what these application can do. So, to that end I think part of where we are right now is as the evidence base rose, we’re still going to have to rely a lot on clinical judgement. And this is really for a couple of reasons. One is the pace of the technology compare to the pace of research. Technology is moving a lot faster than research. So we, at least in my program, what we try practice is something called evidence-based development, working with interventions that we know already have a solid evidence-based like diaphragmatic breathing, or mindfulness, and figure out ways to implement those in mobile apps.

And finally, we’ll asking ourselves will it harm the patients. Certainly there are … is a lot of snake oil when it comes to mobile apps and mobile healthcare apps. Some can be outright dangerous, some can be just more benign, and you may want to weight the actually clinical benefits of the applications versus how much it will hurt your alignment with the patient if you were to kind of outright refuse them. Speak to the pace of technology versus research, I just want to show you these statistic, in that I think these really highlights what we’re dealing with here. I can build an app in an average of 18 weeks, but to complete a typical RCT is going to take 3-5 years. I think that this is important because unless we can drastically reform the way we are conduction science, which, is a whole other webinar, you as clinicians are going to be behind the curve for a long time. There are going to be a lot more apps out on the market than are actually validated. And so you’re going to have to rely on your own judgement and be familiar with the application more than you will be able to point to specific RCTs for specific applications that have been validated.

Another thing to think about is that … so thinking about evidence-based development. You know, consider who made the apps. Is it reputable, was it made by a university or another organization. And understanding the evidence-based behind the application is important as well. I mean how many of you can cite the research showing that the information on handouts, presentative handouts and videos are effective. And yet, how many of you regularly provide those to the clients? So as long as the … thinking about mobile app is just another (eh) platform for delivering the same kind of psychoeducation interventions. And many of the apps on the market are simply gear around that, providing psychoeducational materials to clients with a few tools. You can start to think about how just … how apps can be one more tool in your tool chest to present same kind… present the same kind of evidence-based information that you’re already presenting to clients. You’ll need to be familiar with applications, use your clinical judgement, whether or not it will do harm. There are applications on the market, I think it’s a new story a few weeks ago that I saw, where some bipolar application on the market claiming to be for bipolar information had some pretty negative pieces of advice in them, such as, “if you can’t fall asleep why not go have a drink”, I don’t think any of us would want to recommend that to our patients. And yet anybody with a google account or an iTunes account can develop and put up an application. So understanding exactly what is in the application and whether or not it will do harm.

Lastly I just want to touch on one other issue and that’s FDA approval, which is another reason this is going to be a difficult time for you as clinicians, as we try to catch up the evidence … the research-based to where it needs to be. Nothing we ever do in our field, unless you’re a psychiatrist, is going to be addressed by the FDA until we put it in an app, so by putting it in an app, the FDA is considering it a mobile medical device. And really, there aren’t really good guild lines how this processes’ going to work. There’s not even really a category to apply under in medical devices, they are only applied under general control. It really shows you that you’re going to rely on your clinical judgement and the evidence-based as the FDA catches. So something is going to be important for you to be attentive going forward.

And now I will actually hand it to Myron

(Myron): Okay, that’s me. I’m I have nothing to disclose unfortunately I am a little bit too academic for that. I’ll be talking about uh engagements and ethics, and evaluation and repeating some of the stuff that Dr. Cooper has just said. He showed how mobile behavioral health apps can be effective tools worth including in clinical practice. Alcohol is a great deal of fun and it’s worth including in your life according to a lot people. It’s dangerous to drive with alcohol, but most people get away with it quite nicely, and it’s the same to be said about apps. Despite all the dangers generally people get away with using even apps that are not so great, apps that are not effective can still be effective because they have a tremendous placebo effect. They make you feel like you’re doing something active. You are taking charge and putting yourself in the hands of somebody who has developed the app and knows this stuff supposedly. So that does put the clinician into a great deal of difficulty because apps are attractive. And yet there are also some ethical problems, dangers to the patients, learning challenge to the clinician, and difficulty finding good enough apps to integrate into an actual treatment plan.

But it is still time to get into apps we are pretty much past the early adoptive phase and the clinicians really need to get familiar with an assortment of apps for various purposes. For example, here's an app that guides motivation, for people who can’t see it this is an image of a donkey being guided by carrot on an iPhone. So let’s look at three ways that behavioral health, clinical practices are engaging with apps. Then we'll get in to some of the ethical issues again. After that I’ll describe the scientific approach that our task group is developing for evaluating selecting apps. Okay, come next, there, good. Picture this a patient mentions or asks about an app maybe directly or maybe timidly in passing just a hint. “I have a friend who's been using this app and thinks that I should get it.” In fact, the patient may already be using it. There it is, an app has entered the treatment situation there is no avoiding a response as far as the patient is concerned the clinician will come across either as approving or as putting the app or the patient down. Same with your kid coming home smelling like tobacco or alcohol or pot for the first time. Your response or non-response communicates something.

Suppose a patient asks about an app and the clinician says "I don't know, what does that mean? I don't know much about apps?” or “I don't know about that particular app” or “I don't approve.” in the sense of I don't care about apps in general. Or just don't approve of that one. Is that clinician out of touch? Worried about losing control of the therapy? It may be helpful to ask how the patient is using it, what are his hopes for the app and what has he heard about it? What if a patient asks for a suggestion for an app that would help recommendation? Again, "I don't know" , is not the greatest answer and it is not meaningless. What would be a more helpful reply? How about this, “So far I haven't seen an app that seems safe enough and good enough to be worth trying right now. But more and more apps are being developed and tested if you or I come across something that may be promising, let's look into it.”

The third way to include an app is to embrace it. Embracing apps could involve cooperating with a patients use, collaborating, by discussing results formulated by the app such as by reviewing printed reports, or accepting data streamed electronically to one’s office. Or by taking the initiative of prescribing an app with or without subsequent close interaction. Asking patients to use an app prior to intake amounts to prescribing it. So we just told the patient we are looking for an app that is safe enough and good enough to try. So this is all about ethical issues like safety, patient empower, empowerment and how to evaluate an app. So, safety first. App developers should ensure that users can and do control the confidentiality of information about the apps use. Using an app to track some shape, shameful behavior has to be done discreetly so it won't be overheard, read, unencrypted on a mislaid and stolen cell phone or pickup by an electronic eve’s dropper on a free Wi-Fi network at a Starbucks or an airport. The patient needs to be told about these dangers. So suppose a patient downloads an app about, say, diabetes or bipolar disorder. Some potential employers will pay a hacker or a data broker good money for that intelligence so they can hire someone else or not hire that patient’s parent or child in order to avoid medical insurance costs and sick time issues. A good published review would check out an apps confidentiality and privacy protection, so allowing a clinician to decide if the vulnerabilities outweigh the apps potential benefits. Just as we have ways to live with the vulnerabilities in our email, browsing, messaging, social media, we can handle apps safely enough if we know how.

Speaking of vulnerabilities, however, most patients are particularly vulnerable to abuse and there certainly are abusive apps. Which brings us to maleficence causing deliberate harm. The opposite of beneficence. We know that people can and do suffer direct harm from information technologies from the internet and potentially from apps as well. Bullying has resulted in severe dysfunctional states and suicide the media report all sorts of scams, identity theft, subduction, etc. As far as actual clinical decision making is concerned however, most apps that have been produced by or recommended by healthcare people and organizations are very unlikely to cause trouble for a given patient. Even so is it ethically okay to guide patients into dangers unprepared. Someone who doesn't ordinarily use email, browsers, messaging, Facebook, there really are such people. And pushing them into the wild west of the internet in order to use an app can mean trouble even if it's not directly from that app. Besides if we prescribe an app or okay it and something bad happens even just in a news report to somebody else, the patient’s disappointment and resentment to us could undermine treatment.

Does the premise of benefit based on personal experience app reviews and studies or an experienced eyeball evaluation outweigh the risk of harm? That's always a tough guess but it a question we've got to ask about any clinical intervention. It may be useful to have some specific informed consent documentation available that explains how to minimize the risks posed by apps and by any sort of online activity, including how to deal with arousal of strong emotional states by a potent and well intentioned app when the patient is not in immediate contact with us. Even if we happen to be discouraging a patient from using some particular app and not recommending it, a discussion about apps in general may legitimately fall within the scope of the treatment plan. Of course, informed consent for a prescribed app is part of this. But helping the patient to consider using or not using apps in general can be not only a direct benefit but can also be a way to partner with the patient and family as active agents in planning and effecting an overall treatment approach.

Beyond informed consent, this is a matter of patient empowerment of attention to the patients welfare beyond the presenting complaint or main focus of therapy the way to define instruct them in the working relationship by dealing with a professionally relevant issue. Even if the decision is not to use an app giving consideration to a patient having asked about it or patients misgivings about using limits prescribed. Taking this seriously shows respect and sensitivity to the patient’s preferences and tastes. If nothing else an app can be a sort of transitional object or token an exercise in reaching an agreement that, if you will, can train the patient into agreeing with, adhering to, elaborating, actualizing, or generalizing other matters in the course of treatment. As I suggested patients will be thrusting apps upon clinicians which calls for clinicians to expand the boundaries of their competence as per APA guidelines. This means becoming sufficiently familiar with the issues to estimate and discuss benefit and harm, risk, and risk avoidance beyond just being able to say the “psymaps” seems too untested or to odd or likely to be a distraction from real therapy.

More generally, apps can be a gateway to engaging with TeleMental health methods in one’s own practice. Taking training or professional meetings that are online is a good way to develop competence is a good way to deliver care ethically through the available technologies. So some concrete advice. Before integrating an app into therapy, practice using it as a patient. This does not include joining a group of online users and pretending to share the same issues or revealing that you are just there to look around that would be disruptive. For an app, we would interact online with a patient via your computer or mobile device. Learn the features, where all the buttons are, the where the ropes are and how to undo errors. Practice with a college or someone in your family. Electronic communication with a patient which goes beyond a brief telephone call changes the professional into personal boundaries, boundaries that may be essential to treatment. Interactions tend to be less formal, not as confined to time and place, less constrained about immediate concerns about consequence, and more prone to misinterpretation and projection. Therapist googling patients and scouring their Facebook postings, is likely to come across as intrusive and offensive. Yet, patients often turn up all sorts of personal information about their therapists that we would rather they did not have. Professional caution in ones online presence all over the place online. This is important and this applies to interaction via apps as well. The topic of online presence of patient and therapist is something to address with patients proactively in a well thought out, expanded, informed consent like intervention.

Here's a point we push in our TeleMental health training and our textbook; think of informed consent as an ongoing process. Not just that all twentieth century, one shot, cover your ass, form signing ritual. Actually a discussion about including technology in treatment can be a neat way to define the entire professional patient relationship to spell out what treatment is, how it should work and what we would do if it’s not going as well as expected. Ethically all of this should rest on the foundation of science. Are apps evidence based? APA’s guidelines for the practice of telepsychology it is worth checking out. They apply to all aspects of using or even tolerating apps. Guideline one okays using technology with a patient even without scientific evidence of efficacy as long as the clinician judiciously considers available information about safety and usefulness, documents this and informs the patient about the status of the app. Of course there is good science behind an app, if there is that's a plus. Basing an app on magics, a French theory, or even on the latest fad is a minus. An app should apply its underlying scientific theory appropriately in its design and in its interpretation of data to qualify for use in practice. If outcomes research is available that increases an apps desirability, great, however an app should also suit a patients culture, taste, and preferences.

How can a clinician find good enough and safe enough apps? Consultation with colleges is one important way to provide insights on how to use an app and for which patients to use it. Consumer’s comments on download sites can be surprisingly helpful if taken with a grain of salt. But going deeper into evaluating an app, discovering unacceptable flaws, such as poor encryption or misleading information. Looking critically at research conclusions, aggregating reviews, and making comparisons with alternative apps, for this you need knowledgeable professional reviewers who will address all aspect. I mentioned being a part of a task force, working on how to evaluate mobile behavioral health apps in a scientific way. We are convinced that the best route towards actually unrealizable ideals of scientific proof. Ideals that we can't really meet. But the best route towards that and towards excellence in apps is experience that is guided by these impossible ideals. To that end our group is putting together a reviews tool kit, consisting of a dictionary of review criteria, a reviewer’s workbook, a review template, and a review database. A few, a brief description of this may throw light on the inherent nature of mobile apps. The dictionary is an annotated list of criteria. Relatively specific items that may be rated or described such as encryption, accuracy of information, or degree of efficacy reported. The annotations define each criterion precisely and provide discussion even amongst relevant publications. We're grouping criteria into more general qualities such as ease of use or safety.

Eventually factor analysis may improve such grouping. We divide all of this into four quadrants. This is based on the hierarchical structuring of psychological theories that Luciano L'Abate whom, everybody should know about. He's written like fifty books, he's the father of all sorts of psychological theories. Luciano L'Abate was developing in several of his books this idea of quadrants. Dr. L'Abate was working with us on this until shortly before his death last month. Dr. L'Abate's insight helps us to develop, to identify, the paradigm behind the app, its assumptions and notions, what it's supposed to do for a user. For example, the developers may assume that app users who keep describing something they find unusual in what they are seeing around them. If the app user does this that this will generalize into some sort of mindfulness and will reduce rumination and worry. That's the assumption. A different paradigm may rely on entertainment and distraction to breakup rumination. So our quadrant one set of criteria are for describing an ups paradigm. Let's see. There we go quadrant one. When selecting an app the clinician would look for a paradigm that suits the diagnosis and treatment goal and that fits the clinicians own theoretical persuasion. Quadrant 2 is for identifying a particular app under review. L'Abate's quadrant three addresses how the app effects its users. The bottom line for the clinician, usefulness, usability, interoperability with other technologies, security, validity, reliability, informed consent.

Finally, the criteria in quadrant four address the mechanisms through which the app works, the technical aspects. We're constructing a reviewer’s workbook in which a reviewer could record her observations about an app. This would be a data repository and a place for scratch notes. From this workbook the reviewer would mine the data and write an actual review for publication. So we'll offer a template system to facilitate review submission and editing. Data entered into multiple reviewer’s workbooks and held in a database could be compared. The data could be used to compile aggregate reviews to stock an app formulary, which would be a search... searchable resource for matching apps to the needs of particular patients and for research into what makes for effective apps. The overall project also aims at defining standards for app development and how to review apps. The app review field is in an early stage but there are a few groups working in this area, notably one under the egus of the American Psychiatric Association and another at the University of California Davis.

To sum up, mobile behavioral health care apps are ready for prime time and clinicians are increasingly being called upon to include apps in working with patients. This requires expansion in ones scope of competence. With special attention to matters of ethics as generally described by APA codes and guidelines. Apps can be a transition into other applications of technology and delivering care including various telemental health services. It's a good idea to pick up some specialized training and to become familiar with a few mobile apps. There remains the issue of finding an appropriate one that are effective and safe. So we have task forces putting together methods for addressing this need for science based app selection. So the bottom line engaging with apps is no longer just an opportunity apps are wrapping on the door.

And now I'm going to let Marlene take it from here.

(Marlene): Thank you Myron and also thank you David. I also want to thank everybody in the audience, we have been deluged with questions, if you haven't yet asked yours please do so, type it into the chat box. We have so many questions that I think it would probably wisest for us to try to answer a few of them here, but then to write them all out in a document and answer them in writing and when we send you a link. When the APA sends you a link to see this recording, and I believe it will take a couple of weeks or so then we can include the document with that. We did have a question slides and slides can be included we'll give you a link to the slides as well. So you'll have a whole lot of information. So once again if you haven't yet asked your questions go ahead and do so.

I'm going to summarize what the questions that have come in while I'm doing that I want to encourage you to write down the URL that we have underneath the word "questions" on the slide you’re seeing now, “tinyurl.com/ctibs-survey.” We are very interested in getting your opinion about app usage so far, we have over 1200 people that are registered for this particular webinar, even though we, the APA, did not offer CE's with the webinar we still have that type of need so we'd like to take advantage of the ability for us to put some data together and possibly post a paper about it. So please if you would write down that URL, “tinyurl.com/ctibs-survey” and it takes about four or five minutes to answer.

I think we have five or six basic questions there just clicking answers will do and then we'll let you know the information that we gather there too. So the bulk of the questions have come in asking about one app or another and we really don't want to name apps and say this one is good this one is bad. You know you can imagine that would put us in a precarious position. But looking at the questions that we get we will try to address them as best as well can when we get them in a written format.

We had one question come in that I thought was particularly important in terms of ethics and that is my area of focus so I'll address it and then ask you Dave, and Myron if you have any other questions. But then we have other questions that have come in that I want to address um after that. The first one has to do just real hands on. Should we use a hands on approach introducing apps with patients or clients? And the sort of normal response to that is yes. It's really best to sit with your client or your patient and have them download the app on their phone so they don't get frustrated by it later if they can't do it. You should be familiar with it of course, and know how this works. And then a very important issue to pay attention to is that most app developers ask for permission to collect data and usually they will give the reason of in case there's a bug. You now report the bug to us. But the truth is you never know what they’re doing with the data they’re collecting.

And I’m going to address another question that came in in-line with this same issue. There is an issue with big data and if you haven't looked it up I strongly encourage you to do it. Because there's all kinds of data being collected on all of us as we do a number of things from buying gas at a gas station to buying coffee down at a coffee shop and, our movements are being tracked. It's our job as clinicians to protect our patients from unwarranted data collection about their behavior especially the behavior we are asking them to enter into an app. And that can be particularly sensitive information. So the usual request of patients is to consider toggling off that question that asks them is it okay to collect their data. Even if it's under the premise of reporting bugs. So you can actually open the app and take them to that screen and talk to them about big data in general and being mindful of any personal information, PHI, personal health information their entering into an app even if it's just on their phone and not being communicated to you. So, that brings up the question of a resident app a native app that stays only on a person’s phone or the ones that might connect to us or to database or in this case to developers. It's our job to make sure that our people’s information is safe so, that's something to be particularly mindful of.

We've had a number of questions about HR- about FDA. We've had questions elaborating FDA we know the question about are even educational apps subject to FDA review. I think Dave it might be useful for you to say a little bit more about the FDA and exactly what they, how their involved.

(David): Sure! Thankfully as a government employee that's one area where I can actually speak to cause we've been having conversations with the FDA how to handle this. So the FDA right now, this is a new area for them, their dipping their toes in the water, there really is no good path forward. Their trying to balance, not stifling innovation while at the same time trying to protect patients. That's their overarching framework that their trying to apply. So, what they've said is that there are different categories of apps. Typical psychoeducational apps that you all are probably thinking about fall into an area called "Stage 2" and what the FDA has said about “Stage 2” is that we reserve the right to review those apps. They’re not going to out and out say you have to get FDA approval for those kinds of apps, but the FDA also wants to have in its back pocket the ability to punish people and remove apps from the market that are clearly fraudulent or, you know, saying things that are potentially harmful. A good example of that is there was an acne app that said if you turn the screen on your face and shine it on your face for three times a day it will remove your acne. That's patently false and so the FDA was able to actually say no you have to take that application down.

Where we’re moving is towards “Stage 3” applications where treatment is actually being provided and apps are actually part of treatment. That is absolutely going to be subject to FDA review and again we don't really have a good way to deal with that now because it mostly geared around things like, uh, attaching a heart rate monitor to an app or things like that, but it will be increasingly important as we deliver CBT based interventions or things that we know efficacious via mobile applications.

(Marlene): Thank you Dave. A quick questions that we got is about Myron and the work he's talking about with his app review or toolkit. That is a function of the telemental health institute, which is my institute, so Myron and I have been colleges for over twenty years now working various aspects of technology and writing together, including a textbook on it. And if you’re interested in joining that group, that particular task force you can just write to us at [contact@telehealth.org](mailto:contact@telehealth.org) and we will review, we'll tell you about joining our task force for that.

Another question that is important is our wrap up question and, well, I’ll give you two more. One has to do with specific recommendations that we would make. We will include those in our written responses to the last of the questions that we've gotten. And that includes smoking apps, stress management apps, apps for children, and teens, and all kinds of things that we've been requested to provide today. And then, the other one I think is particularly important is what our thought might be about smartphone apps that actually that actually offers therapy with a monthly fee. And there are a number of them out there when you are evaluating an app based service and a lot of these are text messaging services where they'll do therapy with you through text messaging. I strongly want to encourage you to take a look at whether or not they are adhering to basic ethics of telepsychology or telepsychiatry, distance counseling, online therapy. Practicing over state lines is reboatant.

For, no matter what reason its reboatant, and if you have any questions about that write your licensing board and ask them if you can practice over state lines. None of us can, so far, in the United States, without proper registration or licensure in a foreign state, or country. So when you see these services that offer worldwide text messaging services to people over state lines by licensed clinicians you've really start, you really need to start asking questions. Another one is are they offering this service anonymously to people. Anonymous care precludes our ability to deliver, to operate as mandated reporters that's against our requirements as professionals in the United States. So be very careful when you look at those things. And we hope to bring you more information along these lines as we move forward with the APA.

Once again, this is Marlene Maheu. I've been joined by Dr. David Cooper and Dr. Myron Pulier to bring you information about apps. Thank you very much for your participation.