



**Digital Health Innovations: Engaging the Patient
and Transforming Health Care Delivery
The Commonwealth Fund
Alliance for Health Reform
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ED HOWARD: Good day. My name is Ed Howard. I'm with the Alliance for Health Reform. On behalf of Senators Blunt and Rockefeller, our Board of Directors, I want to welcome you to today's program on one of the fastest growing areas of the health field, so-called mobile health, or mHealth technologies. By that we mean everything from the FitBit devices everybody's hoping to find under their holiday tree to GPS-enabled asthma inhalers with a whole lot of stuff in between and on both ends of that spectrum.

These technologies have the potential to transform, or at least help in the transformation, of the healthcare system, with the goal of moderating costs, improving population health, and engaging consumers and patients, especially the high-need, high-cost patients.

Today we're going to be taking a look at these emerging technologies, how well they work, how they might help vulnerable populations, how can we make sure that they are safe to use, among other issues. So, it looks to be a great conversation and we're pleased to have, as a partner in today's partner, the Commonwealth Fund, which has supported a variety of research and published a number of papers on the subject of mHealth, and we're very pleased to have, not only as a partner in the program but a partner in the moderating duties today, the firm's president Dr. David Blumenthal. And we didn't talk about this before but maybe I can do a little housekeeping before you kick off things so there'll be more continuity in the conversation. David has a wealth of experiencing dealing with the issues of today's program, including most recently as the National Coordinator for Health and Information Technology, as many of you know.

Let me just say, as you can see on the screen behind you, if you want to Tweet about this event you can use the hash tag dHealth. If you need WiFi you can see the instructions on the screen in front of you. You might leave that there for a minute. There's going to be a video recording available of this briefing on the Alliance website at allhealth.org as early as tomorrow, but certainly by Wednesday. There'll be a transcript a couple of days later. There are also all of the materials that you find in your packets electronically available on the website as well as links to the full complement of documents that we have only executive summaries for in the name of preserving more trees in your packets.

At the appropriate time you can use the green card in the packet to write a question. It'll be brought forward, or you can use one of the microphones to ask the question orally. And, at the end of the briefing, there's a blue evaluation form in your packet that I would appreciate it if you would fill out for our guidance as we try to respond to the needs that you have. And I should say to those of you on Congressional staffs, there's separate section in there that pertains only to your interests because the Alliance was started initially by Senator Rockefeller as a way to reach and respond to the needs of Congressional staff. So, we'd very much appreciate your filling that in.

Now, let me turn to our co-moderator, David Blumenthal. In addition to his moderating duties, David has agreed to help us get started by giving us a broad look at the state of

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today's digital health, what the outlook is for the near future, what the policy issues that policy makers may need to be alert to are as this new area develops. David.

DAVID BLUMENTHAL: Thank you, Ed. Thanks to the audience for being here on a Monday morning during a Lame Duck session. It's always great to see so much work continuing to go on. And, thanks to our panelists for their participation. Thanks to the Alliance for Health Reform for their work in organizing this activity.

I'm mostly just going to tee up some of the basic issues and first raise the question of whether this is our future and I think there are some folks, particularly in various alleys, Silicon and others that would like to make believe this is the case, and I think I'll show you some numbers that show that some folks are putting their money where their imagination is with respect to mHealth and digital health in general.

There is a trend toward consumer adoption of mHealth and digital health applications. We are all very familiar with the fitness apps. I'm wearing one myself right now that measures everything but my brain waves, I think. And that would be sort of a hopeless proposition, if you tried to find them. There are 46 million U.S. users of health or fitness apps, about 10% of Americans use one or another wearable technology and a lot of them who use them believe that they're healthy, that they help them become more healthy, and there is more and more use of bio-sensors of various kinds, mostly still in a fairly experimental mode. But venture capital funding believes in the future of this sector. As you can see, there's been a discontinuous jump in the last year in the amount of venture capital funding flowing into digital health applications, and certainly, if you wander around Silicon Valley you will find a lot of startups that believe that this is in their future.

Globally, revenue from mHealth applications is projected to grow very rapidly over the next 3 to 4 years. This is Price Waterhouse Cooper data and you don't need to be an advanced mathematician to see that if this keeps going lots and lots of money will be flowing into this sector.

A lot of that is going into monitoring. As a physician, I'm all for monitoring but monitoring is really the way towards something else and that is toward either behavior change, diagnosis, or treatment and, as you can see, that is not yet as well funded or applied in the digital health era and, I think, in the conversation that follows we'll probably be talking about the different healthcare and also regulatory implications of monitoring as opposed to diagnosis and treatment and the support of clinicians in their decisions around those.

Ed mentioned the high-need, high-cost patient, and the Commonwealth Fund in particular is interested in this population right now for a very practical and also for a humane reason. These are the folks who cost the system the most money and are most vulnerable to its failures. They are disproportionately the victims of safety and quality problems because they have the most contact with the healthcare system and a contact is an

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opportunity for risk. So, 5% of them, as many of you know, account for 50% of our spending 10%; 65% of our spending. If we don't find a way to take advantage of mobile health for this to improve the health and reduce the costs of this population we'll be missing a huge opportunity and we won't really be confronting the serious problems of our healthcare system.

Now, the Veteran's Administration in this area, as it has in so many other eHealth areas, is beginning to experiment with ways of addressing the problems of their neediest and most costly patients. They are doing Telehealth work; they're doing remote monitoring of patients with congestive heart failure. That actually is not a VA project. That is actually a different project. There are new—this is again, not VA—but smart pill bottles that track the adherence of patients who take medications to their medications, and we have new mobile mental health opportunities using a technology or a technique called CBT, which is proven effective in managing acute mental health problems and also seems to be effective remotely using digital applications.

Some of the problems that we face in this area, obviously, there's no lack of funding in the private sector, but we have an increasingly powerful and widespread electronic health record infrastructure incorporating data from mobile health into those electronic health records and incorporating data from electronic health records into mobile health applications that are available to consumers are both challenges. I'm sure we'll here from Christine Bechtel about privacy and security issues. They're major. There is a need for evidence that all this very creative, highly promising conceived application actually works. Physicians, in particular, and other healthcare professionals are going to want to see that evidence before they use this work. We are at just the dawn of big data analytics and understanding what it can do. And then, as a clinician, I am empathetic with clinicians who are struggling, we're struggling, even in the paper world, to manage the information available to them and the tsunami of data that they will have available to them when the mHealth and digital health worlds are mature is really hard to imagine.

So, with that, I'm going to say one more thing. Commonwealth Fund is sponsoring a global health online brainstorming using a network that is highlighted on this slide. It's available to folks who want to participate. There are 13,500 healthcare professionals around the world who are signed up for the use of this brainstorming application and the question we're putting to them is: how can we use health IT to support patient and consumer engagement in healthcare more effectively? So, this is a global brainstorming innovation, health IT activity that's about to begin today and will last a week.

So, thank you very much and I'll turn over the—

ED HOWARD: Thank you, David, and I should point out there's a flyer describing that project in your packets so that you can follow up and take from it what you can.

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We're going to turn, first in on our panel, to Dr. Michael Blum, who directs the Center for Digital Health Innovation at the University of California San Francisco, and he's the Chief Medical Information Officer there as well at the Medical Center. He's a noted cardiologist. I always feel much more secure when there's a cardiologist in the room. And we've asked him to walk us through some of the triumphs and challenges that he and his Center face in trying to make progress in digital health. Michael.

MICHAEL BLUM: Thanks, Ed. And David thanks for setting the table so nicely. I'm going to follow up from where David left off. Being in Silicon Valley in San Francisco, we see a tremendous number of startups coming up to us with pitch decks in the digital health space and this is the fairy tale that they bring with them. So, they've invented a new digital health sensor that's on the left side of the top there, and it communicates via Blue Tooth to your mobile phone and that's all true and it zips it up to the Internet where all that data then lives in the Cloud and then it miraculously zips right down to your provider, who is sitting there with nothing to do other than wait for your piece of data to come to them, and then they'll get back to you immediately.

And this is the reality. The sensors exist, the connections exist, and the iPhones or Androids zip it up to the Cloud. There is no connection to the doctor and the doctor is not sitting there waiting for your information. They're pulling their hair out saying do not send me more data.

So, at the Center for Digital Health Innovation we're trying to attack these problems on multiple fronts. I'm going to talk a little bit about it from the private provider perspective and the innovation perspective and then we'll have lots of time to get into that.

We focus on four pillars of activity at the Center. Innovation is incubating internal innovation. We have lots of what we call frontline innovators who live in the problem spaces and they say how can technology really help us with these problems? I contrast that to a lot of the technologists. We have fabulous, fabulous technology and design in the San Francisco area. Much of it ends up being technology looking for a problem to solve rather than a problem looking for a technological solution. We spend a lot of time trying to explain that to people.

Validation, David touched on as well, and that's one of our primary focuses is, okay, you've invented a technology. We have a problem. Let's start looking at whether the technology really addresses it. Does your new technology that the most brilliant sensor technologist in the world has invented, does it actually measure what you think? Many of these technologies actually are built to show providers what they're used to seeing through brilliant visualization and signal processing, but are they accurate? Are they precise? Are they reliable? All those questions need to be answered, and that's what we do in that validation step.

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Integration is critical as well. That's how we do that last mile problem, getting from the Cloud into the clinical processes, into the workflows where the data—even better, the information, the knowledge—need to end up to allow the process to provide care for the individual.

And lastly, we educate. We educate the community. We educate our next generation of providers, and we educate our faculty and staff about digital health and how to make a difference in digital health. This takes a huge community to do this. My CMIO team, which are the actual people on the pointing edge of these technologies, in the clinical space all the way through obviously engineers, researchers—security is a huge piece of getting this right. Medical educators—we do a lot of licensing out, tech transfer out, and project management because none of this stuff works without going through rigorous project management.

So, let me just touch briefly on some of our internal incubations. Don't have time to get into these in detail, but I'll start with CareWeb, which is taking clinical communications into the social world. So, clinical communications are currently either paging or cell phone point to point communications, but healthcare is very much a team sport. You absolutely need to be communicating with a whole range of caregivers and providers. The patient should be at the center of it. So, what we've created is an application, mobile, social as well as Web that puts the patient at the center. You can think of it as a Facebook and Twitter mash up with the patient at the center of it. There's a wall of all the team-based communications for that patient and all of the providers can see it to know when their part in this ballet occurs and the patient and the family can see it to know when they're going to be going home, when they need to do things, when they have tests coming up, and so on.

We have been piloting that internally at UCSF for about a year now and we're working on licensing and now commercially as well as going to other county and community hospital providers to demonstrate it there as well.

Secondly, Tidepool is a type 1 diabetes application. It was a huge problem. We had these kids with type 1 diabetes. They had multiple glucometers. They had insulin infusion pumps. They had continuous blood glucose meters—none of them talked to each other. They all provided data on individual websites and it was a big morass. All it was was data. No one could do anything with it. In your two 15-minute visits a year the providers couldn't go through the data. So, Tidepool essentially gathers all that data, produces a beautiful visualization that you can look at in real time or retrospectively, and you can actually manage a patient's type 1 diabetes with that. The common scenario there is, a historically a patient would show up in the doctor's office, the doctor or the extender would look through and say, hey, what happened to you 3 months ago? I see your glucose was high, or it was low—what happened to you then? And no one ever remembers. Now that information gets sent in real time and can be acted upon.

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Lastly, I'll talk about the Healthy Heart application, which is redoing the seminal Framingham study which is a study, which is a study that really generated what we know about cardiovascular risk factors. It was done over a period of about 50 years, it's still ongoing, and had about 4,000-5,000 patients in it in that time. The Healthy Heart study will redo that work but do it in the contemporary era. We'll do it with web recruitment and trials, web consent, and the goal is to redo the Framingham study but at 100 times the power in a tenth of the time. So, this will generate far more powerful and really defining risk factors so that I can talk to an individual patient about their specific risk in the current year, the next year, rather than the 10-year Framingham risk.

This is getting a credible traction. As I said, Framingham had about 5,000 patients over the 50 years. The Healthy Heart trial has already enrolled 14,000-15,000 patients in about three months. It has access to the American Heart Association database through a partnership where they have access to a million patients.

These are some of our external collaborations. We have a large partnership with Samsung that looks at those validation pieces that we talked about so they're developing new sensors, new app, new Cloud technologies—we take them in in the lab. We validate them and we demonstrate that they actually measure what they're supposed to, that the data transmits properly, that the algorithms are working properly, and then we test them in real clinical trials populations to see if there are outcomes out of these. We have a variety of large and small partners who are looking for very similar or broader collaborations out of the Center for Digital Health Innovation.

We've gone through over 100 startups, some of whom had the fantasy that I talked about previously, some of whom are actually very well versed. We've gone through those and we have three active projects that have come out of those, so you can get the sense that the ratio there is similar to what it is in venture capital.

So, what's this all mean? I think trends that we're going to see over this coming year is the reality is going to set in in this space. We've already seen the cancellation of Nike hardware business. They're moving towards the data and algorithm business. David talked about a lot of the FitBits that everyone wants under their Christmas tree. Well, it turns out that those don't work for very long. Aside from accuracy issues there's the issue that people wear them. The half life of those devices is about 3 months before it ends up in the drawer with many of your other devices. And many of these companies are struggling with their business models. Most of them haven't figured out how to generate money despite the report that says there's going to be a bazillion dollars in this space, people are struggling to figure out how you're actually going to generate money. And the investors are going to start demanding results, so while there's, at the end of this year, it looks like there's going to be about 4 billion dollars having been invested in the space, I think we're going to see, in the coming year, people are demanding it.

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What you're looking at there is what's called the Gartner Hype Cycle and every new technology transits through that. Starting at the bottom left is when the technology gets created. There's a lot of buzz about it and you get to that peak there that's called the "height of inflated expectations." And that's where we are now where we think that these technologies are going to dramatically fix everything. And then reality sets in and you rapidly fall down into the "trough of disillusionment," which is where I think we're going to be over this year as a lot of the stuff is shown not to work. A lot of the stuff falls away. A lot of companies go out of business and the data disappears. And then, from there, we'll go into the "slope of enlightenment" and the "plateau of productivity" when the surviving technologies really start to demonstrate results.

Secondly, we're going to see much more sophisticated wellness devices. We'll see new platforms and ecosystems coming out. Samsung is leading the charge. You've heard also about the Apple technologies that will be coming out, so we're not going to see individual devices but we'll see platforms coming out, and we'll see multiparameter sensing in a much more sophisticated way. You're going to see blood pressure sensing, you're going to see oxygen saturation sensing in combination with the typical steps that we've seen for a long time. We'll see much more advanced analytics on these platforms which are going to start to be helpful, and the payers are going to be getting in the game. We'll hear some more about that.

We're in a transition from how many steps did you walk and that'll make everything better into true chronic disease management. We're going to see a revolution in the management of hypertension, diabetes, asthma, COPD and, most importantly, we're going to see applications specifically directed at behavioral health. None of this, none of these problems that David talked about, in terms of reducing the costs, are going to really make an impact unless we figure out how to reduce behavioral health issues. And it's do-able. At UCSF we have an application that addresses one of the most difficult populations, schizophrenics, you can actually address through some digital health tools.

Telehealth is going to become pervasive. I think we'll hear a lot more about that today. And lastly, we're going to see much more integrated systems. We're going to solve this problem of that last mile getting the data and the information usefully into the electronic health record, which will help with population health, ACL health, that'll be workflow driven and we'll see data aggregation.

So, I have zero seconds left and we'll stop there. You can find us at cvhi.ucsf.edu and there's the Twitter handle. Thanks much.

ED HOWARD: Great. Thank you, Michael. And as we pass the clicker down, I want to just point out; somebody gave me this article this morning about an application that probably hasn't gone through Dr. Blum's Center for Validation. It's a popular new exercise app called ProMiler and apparently the way it works is that you turn it on and it tells you that you have run 5 miles that day, no matter what you have done. [Laughter.] It

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is a way, according to the developer, of achieving your exercise goals in as simple a way as turning on your device in the morning. So. You may want to try to take a look at that one in the future.

In the meantime, we're going to turn to Dr. Andrey Ostrovsky who's our next panelist. He's the CEO and Co-founder of a much more useful application, actually, an enterprise called Care At Hand. Care At Hand's a mobile platform that uses observations of caregivers who aren't nurses or physicians to try to avoid unneeded hospitalization, and Dr. Ostrovsky is going to help us understand the challenges in channeling digital innovation toward serving vulnerable populations, so the high cost, high need people that Dr. Blumenthal was referring to. Dr. Ostrovsky thank you for being here this morning.

ANDREY OSTROVSKY: Thank you very much. Thank you. It's really an honor to be sitting at this table. I was sitting in the audience about 5 years ago as a speech writer and intern for Senator Cardin while I was a medical student and I saw some speakers here many times over which really, as I pointed out, shaped my career, so it's really humbling to be on this side of the panel.

I want to ask the audience a quick question. There's a lot of young people here. Anyone ever use Tinder? I guess, probably have. So, I'm married. I don't – I watch my friends use Tinder just for full disclosure. I have friends in the audience. So, Tinder is this app, right, you know, you—I have no equity stake in Tinder—but it's an app where it's fascinating. It's a very simple problem which is you have people who want to find other people and, you know, hang out with them—or whatever. So you turn on this phone and you swipe and you either like the people or you don't, and you keep swiping and it's just like limitless options and they're all around you and you just go on dates and it sounds like fun. And there's this beautiful design and I don't think you have to charge—I don't think you pay for Tinder. I think it's free, but I think Tinder highlights a really interesting circumstance in digital health, particularly for vulnerable populations.

So, vulnerable populations, they like to date, too, right? It may be economically impoverished but you still may want to go on a date. But when you think about access technology, especially technology that charges a whopping 99 cents, and I don't think Tinder does, but a lot of them do, a real problem we face is purchasing power, so a lot of design right now, a lot of brain power in Silicon Valley and in New York and in Boston, and in the Midwest and in Austin—so much design is catered toward a consumer facing business model, and usually that consumer is someone who has a job and can afford to actually buy an iPhone many times. But that consumer typically isn't part of the 5% or so population that Dr. Blumenthal alluded to, which is driving so much of the cost, driving so much of morbidity, mortality, the suffering that vulnerable populations experience. And so we have this challenge. We have a few challenges which I'll talk about. But a really big challenge is the financial incentives to create beautiful experiences that solve real problems. A lot of the financial incentives to do so are toward consumers and toward consumers that can pay. The problems that exist, that we really should be focusing on,

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exist in very complex healthcare systems with multiple end users where the consumer, the patient, the person is ultimately an end user but usually they're not buying the software, it's 5 or 6 steps away from the end user. That's who buys the software. It's a provider. It's not even a doctor anymore. It's a doctor's boss. It's a hospital, a health system, a payer. And so, when I remember going back to Senator Cardin, reporting all the notes I wrote down and it wasn't to him. I would speak with the head of—you know, it was my boss I spoke with, and she said, well, what do I need to tell the Senator? I was like, it wasn't actually the things that would be in the regulations or legislations, it's what wouldn't be in the regulations that become so important, and I think oftentimes, it's the vulnerable populations and the policies serving them that are often not in the regulations and that's a really key part to think about. I'm asking you all to think like designers as you go and advocate, or as you go and write legislation and think about what about someone who can't purchase an app? What about the complexity of the multiple end users out there?

So, with that, three issues that arise, and there are many more challenges. But these, I think, are ripe for opportunities in terms of digital health and the policy landscape and the regulatory landscape that exists or can exist in the future. So, one is—I should point out, I'm a physician. I'm a doctor. I will be a hospitalist. I will be a nocturnist because I am afraid to work daytime because I have to do care coordination and I would have probably quit my job a while ago if I had to do that. So, I'm a nocturnist and as a physician I strongly, strongly think healthcare should be moved away from us. And it's not that we can't practice well. We're very qualified, especially in the U.S., to practice as physicians. I think a major challenge is that a lot of care delivery and health can be achieved out in the community, and so it's a huge opportunity for technology design to happen catering out to the community and the services provided out there. A major challenge opportunity is the moving reimbursement model. It's really to create a business model when, you know, one CMMI initiative is kind of fading out and so your reimbursement from that is gone, and now you have to go back to fee for service as a business model. It's really challenge. Digital health, whatever. Like, I'm sure I can always find a job somewhere, but the community organizations that are subjected to the whims of grant funding or challenges coming and going on reimbursement streams they serve vulnerable populations that depend on sustained service and innovation. And three, is this evidence gap. So, not everything has to have a randomized controlled trial to be effective or to be proven effective. And, in fact, I think overemphasis on randomized controlled trials as a precursor to, you know, being a standard, it may miss the boat in terms of customizing for a local environment. And so that's where quality improvement and rapid cycle testing come into play, and I'll get to that briefly.

Briefly, what we do, and it's much less important what we do as a company and more so our space, but we basically created smart surveys that predict hospitalizations using the observations of nonclinical workers. So, home care workers, community health workers, navigators—there's about—I'll get to this in another slide—there's about 5 million of those workers out there that are not tapped into. But I'll dive into the first challenge and

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add a little bit more color to it. So, not focusing on doctors, a lot of regulations out there and most of reimbursement is really geared toward what can clinicians do? What can the healthcare system do, when, in fact, most determinants of health have nothing to do with whether you have access to a physician. Determinants of health have to do with what is your built environment like? Do you have access to healthy nutrition? Are you going to walk outside and get shot? Subtle things like that that have major implications on healthcare and healthcare costs, and so there's a whole world of care delivery and technology creation around long term supports and services. And LTSS, if you guys don't know that acronym or HCBS, Home and Community Based Services, that is, I think, one of the biggest pots of money out there in terms of digital health innovation. So, it would be interesting to see where regulations or legislation emerge on that front.

And I highlight this example and you can refer to it in your slides. This is in January what reimbursement is going to look like for chronic care management, and just to highlight that, as a physician, you actually—it's not financially worthwhile to provide chronic care management because you don't get reimbursed enough. So that's where really inexpensive workers come into the picture.

I'll skip over this slide just to highlight that 5 million dollar number. So, of nonclinical workers that are really being underutilized, so oftentimes they're in the home, they're interacting with the consumer, and they miss the fact that the consumer can't put on their slipper anymore. They don't realize it's acute chronic heart failure and they're destined to go to the ED. Wouldn't it be nice if there was a way to pick that up. That's all our technology does. And what we do is a variation on a theme. A lot of other people are taking similar approaches. I think it's really key to differentiate yourselves and I don't want to disillusion everyone to say we're the only ones out there doing this thing. The key is making sure there's an environment to support innovation and rapid cycle testing, and letting really the best technologies bubble to the top.

The other key pain point I highlight is that kind of moving business model. So, I find that a lot of grants and a lot of challenges, they create this funding bolus. There's a lot of investment of personnel and opportunity costs, especially among community organizations, but just anyone participating on say the CMMI initiative. And then, if the funding goes away what happens next? What I think is emerging is potentially kind of a lot of organizations are going to be potentially worse off than when they started. Wouldn't it be nice if getting de-funded was actually a productive endeavor where even if you lost funding for a grant or a challenge you were left with the capacity to do rapid cycle testing and quality improvement, a skill set that could carry on, moving on regardless of what grant funding were available? So, I think that's a theme as new regulations or policies are created to think about is there a role for requiring that quality improvement be demonstrated in any regulation or grant funding that's emerging.

And then, finally, I'll finish with highlighting this gap between randomized controlled trials and evidence based practice and what oftentimes is the case, which is there is no

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evidence for an innovation. And a really nice way to fill that gap is, again, with rapid cycle testing and the opportunity here is, if we were to encourage the startup community to partner with providers, payers, patients to together take quality improvement as a theme for piloting, that may be a way to very efficiently, at least in a local microsystem, validate or invalidate very promptly. Now, if that were productive you could publish that research which—separate discussion around publishing quality improvement data—but I think those are the kind of three realms that could be productive moving forward.

ED HOWARD: Okay. Thanks very much. We're going to turn now to Liz Hall. She is the Vice President of Federal Affairs for Anthem, nee WellPoint, one of the largest private coverage providers in the country, one of those payers that Dr. Blum was talking about earlier. And she's going to share the perspective of such a major carrier as it decides which mobile technologies to develop or obtain for their millions of members and how best to deploy them. Liz, welcome back.

LIZ HALL: Thank you so much for inviting me back to talk with you all today. The Alliance is a long time partner and friend and part of the family from when I was also on the Hill, so it's always fun to be on this side as opposed to that side.

I'm going to talk just briefly about Anthem, where we are, just to give you a sense of who we cover. I'm going to talk a little bit about some of the technology that we have invested in including Life Health Online, which is in the slides, why we've made some of the investments that we've made, and then some of the barriers that we foresee because I would not be a good advocate if I didn't talk about barriers.

First and foremost, we did just change our corporate name from WellPoint to Anthem officially last week, so I may slip up. I wish there was a buzzer. You could help me learn, get used to it faster. But, the nice thing about having Anthem and it can be our corporate name is it does align a little bit better with the names of the businesses by which we serve our customers. So, first and foremost, we are the largest individual and national health insurer in the country doing business primarily as Anthem Blue Cross or Anthem Blue Cross and Blue Shield in 12 states. We're also Empire Blue Cross and Blue Shield in the state of New York, and we are Blue Cross Blue Shield of Georgia, obviously in the state of Georgia. We're also the largest nationwide, not nationwide, but we're the largest Medicaid Managed Care company in the country providing managed care services in 19 states.

So we have a lot of folks that we are trying to reach from all different walks of life, be it in the Medicaid space and that space I think everyone knows is very broad, can be everything from young moms and kids to individuals with multiple complex disabilities or needs all the way up through the corporate customer who is trying to provide the best benefits they possibly can to their employees to try to attract them.

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So we have an interest in looking at all sorts of different technologies and do look at all sorts of different technologies. As has been alluded to here today, we have to decide where we're going to invest our money, both as an investor and a supporter of technology, but also where we are going to reimburse for services. And one of the things that I'll talk about today is both where we have made an investment as well as where we're offering reimbursement which is our Live Health Online technology. We have looked at lots of the mobile devices, looking at the trackers, looking at other ways that we can enrich the data and information that we have to help providers provide better care to our members and continue to look at those opportunities.

So, what is Live Health Online? It is an online way to see a physician. 24/7, 365 days a year, you can go online on your iPhone, on your iPad, on your Android, on your home computer as long as it's appropriately equipped to see a physician. We have tried to make it look as much like a physical physician visit as possible. You'll input your insurance information. You'll input your patient history. If your provider information is available and can be shared over appropriate platforms, we'll input that information. You can input your temperature. If you have equipment at home or if you're in a kiosk, because we do provide kiosks, you can input that information as well. You then have the opportunity to select the provider. All the providers are licensed where you are located, as required by state law, and you can select which one you want to see. Usually what you will have an option, sometimes based on the hours you may have a smaller selection than others, but you can select the physician. And similarly, the physician or provider can select you. They will look at why you are calling today, what your complaint is, and they will decide whether they're going to take the call or not, whether it's appropriate to take that call via Telehealth.

This is available in most states. There are some states where you cannot access a provider or you must have an in-person visit to quote/unquote establish a relationship, so, by state law or regulation, in a few states you cannot access this service. And in most states the physician can prescribe. Again, there are some states whose regulations and laws will prevent a physician from prescribing online without having an in-person visit first. So, this is barrier number 1 that I'll come to in a minute. But, in many states, the physician can prescribe. Again, it is at the physician's discretion and we want the physician to do the right thing for the patient so if the physician does not feel like they have enough information or the right information to prescribe they will not. The next slide just gives you a couple of pictures of what it can look like, again, if you're accessing it from your personal device.

It is audio and video. That's another thing that was very important to us in deciding to offer this to our members. It is a full benefit, fully reimbursed benefit for all of our fully insured members. It is available in some of our states for Medicaid, depending on our arrangements with the states, and we are making it available in some of our states to our Medicare Advantage beneficiaries as an extra benefit. It is not part of the base benefit, so it is depending on how we have bid in an area available as an extra benefit.

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So, that is what we are offering. Where we are offering it—the reason that we were really interested, why we made, again, both an investment in this product as well as why we're reimbursing for it is for all the reasons that we all want to improve healthcare, starting with access. A lot of times we talk about Telehealth or we talk about access as a rural issue. It is an urban issue as much as it is a rural issue, being able to access a provider in the right setting when you need to access a provider. I think we all know, for another reason, for a cost reason, that it is less expensive to treat someone in the physician's office. Next step would be in a doc in the box, as you would describe them, a CVS, a Wal-Mart, a Walgreen's type of setting. Then you would progress to an urgent care center and then you would progress to an ER. We want to provide service. We want to make sure that our members can get access to a physician when they need access to a physician and in many places in the country it's difficult to get access, particularly same day access to a provider. Live Health Online provides that access.

There's obviously a quality component here as well. If you can get access to a provider, if you don't let something wait, hopefully you can have a very high quality encounter. There's also the ability to have a recurring encounter, so, oftentimes, Live Health Online can be used for mental health services in some of our contracts with Medicaid, Medicaid agencies. So depending on how you want to use it, how you can use it. You can make appointments on Live Health Online. We're really trying to provide quality encounters for members.

And then there's a convenience aspect. There's a convenience aspect both for patients as well as for providers. We talk about physician shortages. There's actually an article in the USA Today, I think it was today, that talks about rural hospitals and doctor shortages and providing care out where you need to get them. One of the fastest uptake among providers of joining the network for Live Health Online are actually moms who went to stay home with kids and are able to practice during school hours, or during hours when kids are in bed asleep, etcetera. They can actually choose when they want to go online. They can go online anytime. They can say I'm going to go online, I'm going to be available for the next hour, the next 1/2 hour. They can schedule as well as take just dial up calls. So there is a true convenience, both for the patient as well as for the provider.

I talked about barriers just briefly. One of the barriers is this definitional piece. There is a complex patchwork in the states. Some states will full out—California is a good example—will full out allow a physician to establish a relationship to prescribe, to treat at their discretion. Other states are much more restrictive, and so one of the things that we have had to do is really work through, and number 1, figure out what is allowed in a state because it's not always clear when you look at the regulations what's on the books. But also, help make sure the providers are aware and are comfortable. There are a lot of providers who say that they would provide care through Telehealth but they are not sure what's allowed. They have questions. They don't want to put themselves in a difficult position.

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So that is one of the key barriers—definition and how you use it. I will say that the Federation of State Medical Boards has put forward updated guidance that is really great guidance from our perspective. I think it includes all of the key protections, again from our perspective, for consumers, for providers that we encourage states to take a look at.

Reimbursement is often a barrier for Telehealth. Again, we are providing this as a reimbursed service, but if you look in the Medicare program, Telehealth is not reimbursed unless you are in an originating site as a patient and you are in another physical site as a provider and so that does interfere in the uptake of Telehealth. There are some licensure concerns. Is it easy, is it simple, is it straightforward for providers to get licensed in multiple states?

And then, last but not least, is consumer comfort and consumer uptake. I'll leave you with my experience, my personal experience with Live Health Online as just an example and you all can go and try it out if you want. You can go online. If you are not covered it's a \$49.00 visit for your initial visit if you want to see a provider. I have had two encounters with Live Health Online. One, 4:30, inevitably, 4:30. I get the call from school that my son has a rash and that I don't have to pick him up immediately, which I questioned, but that I could not bring him back until he had a doctor's note. Being my second child I'm a little bit more lax. I went and I picked him up and I took a look at him and I said this is nothing. I've seen this before. This is a viral rash, when kids have – little kids have colds, it's common. They all get a rash that goes along with that. I took him back to my office where we have a kiosk. I hooked him up. In the kiosk we hooked up to the physician. We have a derm cam that actually gives you a more magnified view of the rash, and at the end of the consult I had a recommendation for Benadryl. I had a full record that was written down that I could email to his pediatrician, and I had a doctor's note that I emailed to the principal of his preschool. So, it was a great experience.

Second experience that I had was for myself. I went in, definitely had an upper respiratory infection and thought I needed an antibiotic. We could not establish the video link. We weren't at a point where we had a good enough video link. And, by policy, physicians on the system will not prescribe unless they have a quality video link, and the physician basically gave me the option and said I can see you but I cannot prescribe or I cannot charge you for this visit and you can go see someone else or you can try when you have a better connection. And I said, you know, please don't charge me and I'll go get a better connection. I'll go see someone when I get home, or I'll go somewhere else. But at least I had control, I had that option and it was available to me. So, it's one place where invested because we think it makes sense. It's a great piece of technology, the application which allows you to actually interact with your physician.

ED HOWARD: Okay. Very great. Thanks, Liz. Let me just ask you the geographical spread of the availability of this service?

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LIZ HALL: So, it is in all states, is available in all states except for Alaska, Texas, Louisiana, Arkansas, Alabama, and New Hampshire, and that is based, again, on our either understanding or availability of clear guidance that it's permissible to have the service, and then we can prescribe, I believe, in 35 of the remaining states. There are a few of those that we can't prescribe in.

ED HOWARD: Great. Thank you very much. Now we turn to Christine Bechtel. She's head of the Bechtel Health Advisory Group. She's got a lot of experience working with consumer groups concerned about health issues. She also serves as a consumer representative to the Federal Health IT Policy Committee. So, today we've asked her to give us some consumer perspective on digital health and to describe some of the challenges to scaling up even the successful applications. Christine thanks for coming by.

CHRISTINE BECHTEL: Thanks, Ed. So, it's good to be with you guys today. I'm completely cognizant of the fact that you've all had enough time for the carbs to like set in, so we'll try to keep it lively up here. I wanted to start by talking a little bit about what we know about consumers and health IT, so how many of you guys in the audience have a doc where you have a patient portal, you have some online access to your physician practice? Okay, a fair number of you. How many of you guys have used that portal for whatever purpose, whether it's a secure message or med refills in like, let's say, the last year? Okay. So, all of you have pretty much have one use it. So that's awesome.

So, you guys are, you know, among those who are, I think, becoming increasingly expectant that health IT is going to be part of the healthcare experience for consumers in some way. Love it or hate it, Meaningful Use has done that for us. It is the single federal health policy that has done more than anything else in the country to open up access to health information and services for consumers. So, Meaningful Use has brought us the ability to have a portal, go online and view your health information. For most hospitals who are already in the second stage of Meaningful Use, and shortly physicians who are doing stage 2 of Meaningful Use, you're going to have the ability to not just look at your information statically but download it. And once we have the ability to download it and transmit it based on a set of standards I think we're going to see an unleashing of innovation in the mobile app marketplace for uses that we haven't imagined. The things that we can do with our own personal health data in pretty easy ways, too, right, without having to like manually type it in like you do to a PHR today, you'll be able to upload your med list, you're going to be able to work, you know, with FitBits and other trending devices and combine all of it with your own personal health information. That's going to be pretty amazing and I think we're going to see some really different stuff in the coming years.

So, secure messaging is out there. The ability to email your doctor. Patient-generated health data is a big emerging area where I have actual health data that I can contribute to my personal health record and share with my doctor so that he or she can integrate it into their record. Care planning based on my own health goals. Getting a visit summary. How

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many of you guys have been to the doc in the last year and you got like a piece of paper, you're either handed to you or emailed to you that was a summary of your visit that day? Oh, come on. Tell me – keep going – okay. I guess it's a lot more than—maybe the rest of you are napping. But anyway, so that visit summary came out of the very first stage of Meaningful Use, so some really interesting things are happening from this incredible public investment, right? And, on Wednesday of this week I'm excited to tell you that the National Partnership for Women and Families, where I spent 5 years, which is a wonderful nonprofit consumer organization here in D.C., is releasing a new survey report about how consumers are using health information technology. They gave me permission to give you a little bit of a sneak preview, but it tells us that we have now twice the rate of online access to personal health information as we did when we first did this survey in 2011, which means a majority of consumers have online access today. That's huge. For people who have it, just like in this room, they use it. Not surprising. And more than half of them use it three times a year or more. So, just as a side bar, for those of you who are getting the clinical folks in your offices saying we can't do this, it's, you know, it's too hard, because there's a part where you've got to get 5% of your patients to actually use your online portal one time, or send you a message one time in a year, it turns out that more than half of consumers in this country use their patient portal three times a year or more. So this should be a layup. Just food for thought.

Anyway, so, back to you guys. Two out of three people and two out of three docs actually support the ability for consumers to view, download, and transmit their health information. So, really good public support for all of this kind of work.

Okay. So, meanwhile you have all these really interesting trends happening in healthcare, even beyond the ability to go online and view, and soon download, your health information, so Liz talked about Live Health Online, I'm going to talk about that in a second. Minute Clinic and Healthcare Clinic, you know, these are the walk-in clinics that you're able to get at your retail pharmacies which, by the way, are located so much closer to every single person's house in the country than any doctor's offices on a wide scale, so it makes sense why they suddenly give you access to primary care services. You are seeing, you know, smart phones being used in new and interesting ways. The ability, this in particular, this picture is the ability to track your blood pressure, take and track your blood pressure. One of my favorites is Speak with Doc. This was an app that I discovered—I had been asked to do a talk similar to today and it was about how consumers select their physician. And so, I thought, well, my primary care physician is completely crappy and despite the fact that they're a level 3 qualified medical home and they have an HER, I want to find a new one, so I might as well be the test case. I couldn't actually find a doctor the way I wanted to in that case, which would be using performance data along with robust patient experience, but nonetheless, that's a whole 'nother talk. I did find this app instead. I'd had an experience with my primary care practice where it was maybe a year or so prior I got really sick. I had the flu. I had a very simple question. I said—I called them up, talked to the receptionist, you know, it's like the game of telephone, the message gets relayed. My question was this: I'm taking

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Nyquil at night. It's the old kind with the Sudafed, because I stockpiled it, and I want to know if I could take a half an Ambien, or if that will like kill me, right? 'Cause the Nyquil keeps me up. That was the question. It took them three phone calls to get any kind of an answer and actually they never got the question right in the first place. It was always like they got two out of the three variables but never all three together, and it was really fun permutations of this question that they answered. But whatever.

ANDREY OSTROVSKY: Did you take the Ambien and the Nyquil together?

CHRISTINE BECHTEL: I did, actually. Yeah. But, but – they – they made me go to the office. They said you haven't been here in more than 6 months. Six months. So, if you – if you want an answer to this question you have to physically come down here, and so I marched myself down there. And they said, well, look, you know, we just don't sit around waiting for patients to call us all day long. And I said, oh, good Lord. So, I found this app and for free I can text a doctor, or I hope they're a doctor. [Laughter.] I don't know. But it's free. And so I used it, and laying in bed on a Sunday morning, I'll be darned if I did not post that same exact question that took me three phone calls and an office visit, exposed me to all kinds of germs in the waiting room, and other people, you know, me being super germy, whatever, but it took me less than 20 minutes to get an answer and that included a 10-minute break because the doctor was driving and didn't want to text while driving. Fantastic! And, got me a clinically, much more robust sound process. I mean, they asked questions that my doctor in person didn't even ask me that I thought were like really smart, which led to things like do you have an Ambien addiction? How often do you take it? You know, no. My doc never asked me that. So, anyway, whatever. I digress.

Live Health Online, I decided well, since I'm doing this panel and I happen to have a finger injury, maybe I should check it out. So I checked it out. Laid in bed yesterday, Sunday morning, got myself a doctor on the Internet and for 49 bucks I had a good visit, right? So, the point of all of this being, and I'm not an Anthem member, but 49 bucks on a Sunday to get a real doctor who was like at least wearing a lab coat and I think Liz has vetted. [Laughter.] She looked like she was in an office, you know. I was like in, you know, like my headboard back here, I'm like, hey! You know, whatever.

So, anyway, point being, these are the trends that are coming out, right, so if we're not careful our traditional ways of accessing the healthcare system, which are horribly largely inconvenient for consumers, are going to be really impacted by this. Why is the question, right? Well, I mean, aside from the fact that healthcare is kind of inconvenient. So, we're opening up access in new ways and, you know, dare we say, like maybe we are finally—we have this habit, we ask patients and families to try to jam their life into healthcare, right? Because healthcare operates during the times that I work and when I'm off on my lunch break they're closed. I mean, right, so I have to try to rejigger my world to get in and see my physicians and so here we are with mobile platforms and nontraditional hours

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and portals and video links and telemedicine. So, things are really changing and they're going to apply some interesting pressure.

Second, price transparency. I have a high deductible health plan. I'm doing this as another consumer experiment and it's very interesting what you pay attention to when you have to pay for it out of pocket. And, by the way, how much care you delay, even though when you know you should, right? So, price transparency. I know that I can go to Minute Clinic or the Walgreen's equivalent and for most services pay somewhere between 79 and 99 bucks and I'm out the door. Oh, wow. Okay. Now, if I call my primary care practice and said, you know, or ask my doctor, you know, worse, right, face to face, well how much is that going to cost me? Most of the time they don't really know, okay, because of all the reasons that we know around how we pay for healthcare.

Third kind of key trend here, we're unlocking data and that's essential to consumer empowerment. So I'm going to suggest to you that we're changing consumer expectations and that that is a really great thing but we have some impeding progress here—issues—and I know that I'm going to run a little bit up against my time, but I spent too long telling my story. So, bear with me. I'm going to go fast.

Number 1 is culture. It's really about how we view patients. We tend to think about we want to make patients take responsibility but when I come in with my Internet research, right, we call it Doctor Google and we roll our eyes at it. But that's an engaged patient, right? So, how, as we start to see patients really taking healthcare into their own hands, like I've been doing, what's going to happen? Are we going to embrace that or not? Meanwhile, by the way, in the Netherlands, dialysis patients have said, hey, look, I get better outcomes if you teach me how to dialyze myself. And they're doing it. And they have far better outcomes, far fewer infections, at far less cost. So they're actually co-producing healthcare in this arena, right? We're like still fighting about the role consumers should play in the office or the hospital.

Payment. Huge issue. So, I want to just suggest that we don't pay for the things that we need to. We don't pay doctors to talk to each other. We don't pay them to have nontraditional hours. There's just too many payment issues, and we do pay for test and office visits. So, for example, Live Health Online, totally awesome service. My only complaint, and it has nothing to do with the platform, is that my recommended, I think it's like a little sprain or something, so my finger is swollen, my recommended treatment plan was going to involve an X-ray, which I'm a little dubious about, possible specialist and physical therapy, and I just think that's a lot when there are more conservative options that we should've started with. That's not a dig on the physician. That's a dig on our payment system because we train people to think that way. So the work that CMMI is doing to test payment models really needs to continue.

Work flow. You heard a lot about that from, well, from Michael and from David today, about the clinician's workflow. We need to think about patient's workflow as well and

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how do we make bringing all this data together and integrating it into the clinical workflow easy for both sides. So, the REC program, which is being unfunded going forward, but needs to find a way to still provide support to physician practices and small hospitals. Meaningful Use is another really good policy lever in this area.

And then, finally, technical issues, and there are a bunch. So, standards, particularly for devices so that you can have a device connect to a clinical electronic health record but have it connect in a way that doesn't make it so it's an avalanche of data that the provider has to sift through, but really allows the meaning to rise to the top, which is what we hope, I think, you know, the standards and certification program through Meaningful Use could be able to do. Connecting to community resources.

Privacy. David mentioned that early on. It turns out that all of these apps that we have, the mobile apps and the fitness apps, they're not covered by HIPAA, so we have to be very careful about how they're used and what consumers understand. They are accountable under the Fair Trade Commission, which, you know, looks at deceptive trade practices, so if you tell me you're going to protect my privacy and you fail to do so, then the FTC has a regulatory framework to pursue that. But it relies on people to say that, and actually voluntarily commit, that they're not going to reuse my data.

So, anyway. That's a big thing, and then this, again, this idea of data aggregation. If you look at my experience with Speak with Doc and Live Health Online, I generated datasets that my healthcare provider will never know about unless I have a way to share it with them, and I need to make sure that the way I share it with them is easy for them to ingest and act upon, otherwise we're going to continue to have huge silos in healthcare information. So, as we think about this healthcare revolution I'll just leave you with my one question here, which is: if you build it will they come? If you build it for them, right? I think we learned from policy makers during the HMO debacle that maybe that wasn't such a great idea, but if you build it with them then they'll already be there. So—and you'll get there faster. Thanks.

ED HOWARD: Great. Thanks very much Christine. It's time now for you to join the conversation. As I mentioned, you can either write a question on a green card or come to a microphone. If you do come to the microphone we'd ask you to identify yourself and keep your question as brief as you can. And if I could take the prerogative of the guy with the microphone in front of him, let me just go back to the references that Dr. Blum and others have made to the question of evidence. There is a piece – several pieces, actually, in the materials that raise this question about the extent to which digital health applications really are evidence based. One of them, David Shaywitz, says that it's not unreasonable to presume that digital health gadgets are, at best, amusing wellness devices. Well-entertainment until proven otherwise. And I wonder, when you're talking about the validation phase that you go through how rigorous is that, how big is it, how extensive?

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MICHAEL BLUM: So, we look at validation of these devices as a three-phased process. The first is, and the answer to part of your question is it's completely rigorous. It's the same rigor we use for all clinical processes and clinical trials. So, the first is, does the device actually measure or do what it's purported to do, and does it do it within a level of precision and accuracy that clinicians would expect, or consumers would expect if it's a pure consumer device? So, that's the first step. The second step is—and that's usually done in healthy volunteers just to get the measurement piece down, because most of these are developed in a lab somewhere or in an engineering house without access to the clinical material. So we do it with individuals, usually healthy.

The second step is, okay, now in the patient population, or in the wellness population that they're looking at, does it still generate those same results in the real world in real life? If it passes both of those gates then the third step is, okay, now let's look at that over a period of time and see if any value accrues to the individual, to the system, out of using this device. And all those are done in varying size samples and so on as clinical trials should be done with that level of rigor. And they all go through our human subjects' protection program to make sure that everyone is protected as they go through that.

ED HOWARD: Okay. Andrey.

ANDREY OSTROVSKY: Along those lines, what about technology that is part of process redesign? What about a technology that is part of a quality improvement initiative? Where does that fit into the three-step model you guys have?

MICHAEL BLUM: We wouldn't bring anything into a quality improvement initiative until we were comfortable that the technology itself is working, so once it's got through the gate of it measures what it's supposed to be measuring, and then it could be used in the process of quality improvement. If it's a new process that's never been seen before it would still go through our CHR for human subjects protection, but if it's just a quality improvement new process it doesn't need to go through that entire process.

ANDREY OSTROVSKY: Thanks.

ED HOWARD: Yes, go ahead, Liz.

LIZ HALL: So, just one thing to add to that is when we look at a technology and we think about are we going to reimburse for this, it's very different than are we going to make an investment in a technology. It is, you know, are we actually going to cover it, are we actually going to reimburse for it and we have to look at what do we think it's going to do on the overall cost of care. Not every technology is going to potentially help to keep it flat or reduce the growth in the cost of care, and so we took a strong look. There's actuarial evidence behind Live Health Online. We've looked at other technologies where there's not and that does play into the decision when it's reimbursed commercial coverage. Obviously there are some mandates out there, requirements,

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etcetera, but I think it speaks volumes, from my perspective being in the insurance industry, when a plan says yes we are going to reimburse for this.

ED HOWARD: Okay. Yes. Tony.

AUDIENCE MEMBER: Hi. Tony Hausner, formerly with CMS. So, one of the things—my impression is that the big barrier is that electronic health record systems don't talk to each other very well. Different hospitals will have different systems that can't share the data extremely well so it's one of the things that's holding back is the need for more standards in electronic health records, and I'm wondering what can be done to facilitate the development of more standards so that we can have better communications—and other steps to improve the communications between electronic health record systems? I'm particularly interested in Dr. Blumenthal's answer to that, but as well as other panel members.

DAVID BLUMENTHAL: Sure. So one of the real shocks I got when I came to work in Washington as National Coordinator was how undeveloped the standard's world was. Also how political it was and how much the different standards were stalking horses for interests, political and economic interests. So I do believe that we are now at the point where there's a sufficient political will to basically create standards that are uniform and mandatory for systems that qualify for Meaningful Use, reimbursement. The only lever we have for the industry to adopt those standards is the Meaningful Use marketplace, the marketplace created by Meaningful Use, so it's going to be very important that those penalties, the incentives are going away, but those penalties persist because unless there is such a market driven requirement for adoption there will be no leverage to require vendors to adopt those standards. But, we have all the mechanisms that we need to create uniform standards. We are developing the standards but they had to be developed—and that was the astonishing thing. There was much work done on standards, but they were conflicting and inconsistent and not ready to really be developed. So I think there's been a lot of work done. There needs to be more work.

I do want to say one thing about interoperability and exchange. It's a team sport. Standards will not accomplish it. What I'd like to say is that you can be the Tom Brady or Peyton Manning of information exchange but if you have no receivers down the field you're not going to look very good on Sunday. And that is the situation we have in local healthcare markets. We can have all the technology and the standards in the world; unless there is an economic business case for hospitals to exchange information with the organizations that they try to outcompete every day of the week, unless there is an economic incentive for them to give away proprietary information that we would not require any other economic entity in a local market to give away free and actually to pay for, exchange will not occur.

CHRISTINE BECHTEL: Well, I miss working with the U.S. National Coordinator. So I was going to say largely the same thing as David, which I won't repeat, but I will say that

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I want to be careful, too, how we characterize the level of interoperability that is out there because there were two standards that were included in Meaningful Use that did facilitate communication, maybe not full—well, definitely not semantic interoperability, but there were the direct standard and another to facilitate sharing of care summaries and the ability for physicians to securely email others, including the hospital. So, Meaningful Use has made progress there, but I think, as David is suggesting, it's not where we need to be yet. We're now, as a member of the Policy Committee, we're now thinking about different strategies like Open APIs, etcetera. But, if we start paying people—David's right. If we start paying people for care coordination they'll start sharing information by hook or by crook.

ED HOWARD: Andrey?

ANDREY OSTROVSKY: One quick thought. So, Meaningful Use emerged because of stimulus dollars and they were deployed very quickly and so the implementation was not, you know, it wasn't a nice slow methodical perfectly designed thing. It was we've got it, the money, let's do it. And I think, given the circumstances, it was implemented relatively well.

Now, there's another standards creation opportunity which is, as I alluded to, long term supports and services through the TEFT, T-E-F-T funding, and this is a more methodical, I think more—there's more an opportunity for thoughtful design around interoperability where imagine if Meals on Wheels could capture information that was a risk factor for hospitalization, and then Anthem got that piece of information. I mean, there's some potent new standards being created that do have the luxury, a little more luxury of time and elegant design, so I think that's an opportunity where some of the mistakes and successes of Meaningful Use can be, hopefully mistakes won't be translated, but lessons learned translated into long term supports and services.

MICHAEL BLUM: So, I would just quickly add to this, because this is a great discussion, but you could spend an hour and a half talking about this alone. I agree. Great progress so far, but there's tremendous risk for unintended consequences. It's relatively obvious that if the next doctor knows what the previous doctor or provider knew that patients will get better care just because the information they have. No question. But some of the unintended consequences can actually detract from that. So, for instance, the direct communications. Each individual provider who's at multiple different addresses, multiple different provider organizations, will have a different direct address for each of those. Okay, so how are you supposed to know which one to send to? When you're sending a referral out you proactively say, oh, I think this person's going to go to that doctor and then that doctor, in their direct mailbox, gets this referral information, having never seen the patient and maybe never will see the patient.

So you're getting this tremendous influx of information that the providers need to know what to do with and they have this general sense of concern that now this additional

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information, sometimes on their patients sometimes not on their patients, is now in their possession and they're supposed to do something with it. And they're already, as we said, a little busy trying to figure out what to do with information that they're getting. And there are multiple different examples of that. So I think we have to be careful, extremely careful, and there's a tremendous amount of thoughtful discussion going on around how we develop these standards. But we do need to progress slowly. We need to start to chunk out the things that are relatively obvious, that a primary provider who's known, who's seeing a patient, should receive a quality discharge summary. They should be able to import that into their record. They shouldn't be copying things over again. And, as David said, the industry should be able to take care of that.

We have to be careful that we don't reach too far and start creating more work, more burden that is of questionable value while we're trying to do that. So this is a little bit of be very careful and be careful what you wish for.

ED HOWARD: Terrific. Thank you. Yes, sir.

AUDIENCE MEMBER: Hi. My name is Al Guida. I'm with Guide Consulting Services and I represent the Behavioral Health Information Technology Coalition. The Coalition is pursuing two pieces of legislation: S1517, introduced by Senator Whitehouse, and S1685, introduced by Senator Portman that would add mental health and addiction providers to the High Tech Act. And my question is to Dr. Blum. At the very end of your presentation, Dr. Blum, you made sort of a parenthetical reference to the work that UCSF is doing with people with schizophrenia and I'm hoping you can elaborate on that a little bit. The Medicaid recipients with schizophrenia are three times the cost of other adult Medicaid recipients and this is largely because of uncontrolled comorbid medical-surgical chronic disease—cancer, diabetes, heart disease, cirrhosis of the liver. I'm just hoping you might be able to—I'm going to take the response seated, but I'm hoping you can just discuss that work in a bit more detail. Thank you.

MICHAEL BLUM: Sure. I'll try not to use up too much time, and I had negative 15 seconds when I made the comment the first time. But fantastic investigator at UCSF named Danielle Schlosser has done work in developing an application specifically for schizophrenic symptom tracking medication utilization, which is really fascinating if you think about it, because if there was ever a population that would be A) difficult to reach; B) underserved, vulnerable and really be worried about, in many cases, being tracked, devices, knowing what's going on with them, you would really wonder if a schizophrenia tracking application could work, and I was certainly very skeptical.

The initial results are looking very positive. The engagement with the application is very positive and reported outcomes and medication adherence, appointment adherence, time and therapy have been very good as well. Ongoing clinical studies looking at it and how to distribute the application to get more broader appeal, but we can certainly talk offline

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and I can connect you to it, but I'm happy to have heard your comments and I'll definitely take a look at that. Thank you.

ED HOWARD: Can I just follow up? There's a question on our card that came up earlier which focuses in on mental health and behavioral health and they ask about some of the best practices that people might have seen, and what might be on the horizon, and what policies need to be put in place to support and promote leveraging innovative use of these technologies for behavioral health. And, of course, you were describing one of the most promising in best practices in your situation and I wonder whether you have either opinions about others or if other panelists might have some contributions.

DAVID BLUMENTHAL: Ed, just—we don't have time to get into, I think, the details of behavioral health IT, but if you have total responsibility for the health of patients the way accountable care organizations do, the way health managed care plans often do, then you become focused, like a laser, on behavior health issues and you will look for the best possible way and the least—most cost effective way to handle those problems. And I think it's in that context that these applications are going to occur and be used most effectively. Until we get a system that emphasizes accountability we're never going to get the emphasis we need and the investment we need in orphan services. And my wife's a psychiatrist so I can talk, I think, with some credibility about what an orphan disease—mental health—often is. And it doesn't get the same, and it took years and years to get parity legislation and so on. So, I think that's, in some ways, the permissive policy change that we need to get mental health the attention it deserves.

MICHAEL BLUM: I think there's also a stigma that makes it even more difficult. If you look at, we were just talking about mobility of the records and mobility of the data, the only provider notes in California that are required to be held confidentially and not transmitted are ongoing behavioral therapy notes, aside from things like STDs, STIs and so on. But we talk about moving the data and making it available to others to do ongoing—you wouldn't even know that a patient was having ongoing issues, so I agree with David's comments, but somehow if we're really going to make dents in this we've got to remove some of the social stigma attached to it as well.

AUDIENCE MEMBER: I would say another reason—I'm Dr. Caroline Poplin. I'm a general internist. One of the reasons mental health is underserved is because it's expensive. You have to deal directly with the patient over some time. You can't just say here's a prescription for an antibiotic, call me if you don't feel better. My question was about the other end of the spectrum, especially given the last speaker who was able to access a doctor anytime, anywhere for anything. I used to take calls at Bethesda Naval Hospital where I was—when I was on call I was responsible for the whole outpatient—the Bethesda Patient Panel. And people used to—completely strangers, would call me up at all times of the night with some difficult questions, with some easy questions. It was very difficult. Of course, I didn't get paid extra. It was part of my job. But how do you reimburse physicians for this kind of thing, and are we bringing the worried well into the

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system and overwhelming—we want to focus on the 5% because 50% of the expenses, not the patient population, you know, somebody with a cold who calls at 11 o'clock at night.

ED HOWARD: Liz, that sounds like a question you'd like to take the first crack at.

LIZ HALL: Sure. And when I talked about the actuarial science behind it in terms of us making the decision are we going to reimburse, one of the questions that the actuaries really asked of the business was, okay, is this going to lead to a continuity of care? Is this going to potentially provide care at an appropriate site and an appropriate time, or is this going to just generate a bunch of visits where someone says that they need to go to the doctor, you know, that either it doesn't work and the patient still needs to see, you know, someone face to face in an office two days later, or you're going to see a physician and the physician's going to say, well, I can't treat you. You need to come in. And it was a question that we struggled with. I mean, the primary sort of target of the basic see a doctor anytime anywhere is going to be much less complex but there's also a use and a benefit on the much more complex side. Again, if you are not conveniently located to a doctor and you need a specialist it is a lot easier to call up and have, you know, the conversation online. So it can be used in both circumstances. It has to be used appropriately, and that's one of the big things that we have tried to do in working to build some of the basic rules around Live Health Online, just in terms of, you know, no narcotics are prescribed on the system. That's just a no-go. Again, no prescription without a video consultation, not just a phone consultation. So, I think that there are very talented providers out there and one of the key principles behind Live Health Online is provider discretion. And the provider should decide what's appropriate to treat and what's not appropriate to treat through the platform.

DR. CAROLINE POPLIN: Thank you.

ED HOWARD: David?

DAVID BLUMENTHAL: So, I would like to put the conversation about alternative sources of primary care in perspective. Now, the United States is the wealthiest country in the world and has the least functional primary care system of any developed country. We have fewer primary care physicians per capita. We have longer waits to get access to primary care, and we have less satisfaction with primary care. This is stuff that the Commonwealth Fund documents year after year after year through cross national surveys of developed countries.

DR. CAROLINE POPLIN: Right. This is not an accident.

DAVID BLUMENTHAL: Right. So, we are now talking about workarounds for systems that are not in demand in the rest of the world because people can get access to primary care quickly and they trust their primary care physicians.

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DR. CAROLINE POPLIN: Right.

DAVID BLUMENTHAL: It would be a shame if we threw out the aspiration to have a functional primary care system by satisfying the demand of basically healthy people, mostly healthy people, for much more rapid access to primary care and fail to invest in an adequate primary care system where Christine could actually get a return of her phone call and a conversation, probably not with a physician because she didn't need to talk to a physician, but with a nurse practitioner or a physician assistant she trusted within half an hour, an hour of her call. That's the standard we should set. It should be someone who has her electronic health record, knows her as a person, knows if she has an arrhythmia that should be taken into account when she's taking Sudafed, or if she has any other complicating condition. What we are talking about with Live Online and these other things, which work quite well for people who don't have that kind of relationship with someone they trust and know, we shouldn't forget that we absolutely need to create a primary care system in this country that works as well as the one in the UK and the Netherlands and Switzerland and Sweden and Australia and New Zealand and throughout the western world.

CHRISTINE BECHTEL: Part of, I think, your question relates to the stories that I told. I think David is absolutely right, that the primary care system, if it's not really working for me we have a huge problem beyond that, right, for people who have much more complex life circumstances and illnesses, certainly than I do. So, I get that, but I would say two things. One is I think we want to make sure that we don't have people sliding into the top 5% or 10% of high-needs, high-cost patients; and so, if access means providing different ways and methods of access that work for different people, regardless of socioeconomic background and other things, I think that's a good thing. And when I hear you say words like "the worried well," I worry about that, ironically. And I worry about that because on the one hand we talk in policy circles all the time about we need to get patients to take responsibility and we need to get them to be more engaged in their care and more activated—not saying that you do, but there's a very large discussion around compliance and adherence and how that feeds all these high costs and high needs patients. So, if we have people who are worried and well I'm actually kind of excited about that because they're activated. They're engaged and they're paying attention and, you know, like me, I have the resources to support that but I don't want to marginalize that because I don't want to end up in the 5% or 10% either. So, I think it has to be a system that is built on a strong foundation of primary care that works for a very, very diverse patient population. You can't ever talk about patients as all one thing. We know that. So, understanding the diversity of needs and backgrounds and building a system, again, to my last slide, with them instead of for them, will work better for primary care clinicians and practitioners and professionals and for patients and families.

ED HOWARD: I don't want to cut anybody off but we're getting near the end of the time and Dr. O'Day has been very patient at the other microphone.

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AUDIENCE MEMBER: Well, it's just a line to what you were saying, Christine, you know, one of the most transformative ideas that I think I've heard from this panel is that these tools could actually change the consumer expectations and we've never really been able to do that. But then, my question is, you know, we've heard a lot of examples of how tools are aimed at consumers that know already what to do and they're just looking for something to help their lives, so how do you connect the 5% to the developers of tools so that in the end it's not if we build it will they come, but if we build it we will come. And how do you start? Maybe there's bringing patient-centered designs linking the 5%, not the well, but the 5% to engineers, to designers who will really understand the challenges they have so in the end we can have a lot of vignettes about the schizophrenic who's smoking who says hey, I have this tool now, it's really helping me stop smoking, or the frail elder isolated at home saying I've made new friends this week. So how can we get to those vignettes with the 5%?

CHRISTINE BECHTEL: I agree and I think you're right to focus on how do we create partnerships in the design of those tools and applications, but even also workflows for clinicians as well. How do we create partnerships between consumers and the co-creators of the system so that we're really creating together? And I think I would say two very quick things. One is we can do that almost informally, a market-based solution, you know, hey, Andrey, when you guys built Care At Hand did you, you know, have consumers and involve them, and where in your process, and what was that like? That's great. But I would say, too, that—and I'm going to speak to, of course, as a funder, that Procori is a good example where we wanted—and Congress had a big role in saying this will be a patient-centered outcomes research institute and you've got to have patients really involved, and Procori is a great example where they require involvement for their grantees. They have involvement—they practice what they preach. They do it themselves. So that kind of co-partnership, I think, is really essential for creating something that works.

MICHAEL BLUM: ... diabetes story is a fantastic example of that. This application, the whole system, was developed by a dad of a kid with type 1 diabetes who got tired of having all this disparate useless data and he was a technologist and made his bazillion dollars and said there's got to be a better way. And he went to the companies that had all of the data and said bring it to us, let us build a better visualization, a better process to work with the clinicians and they said, no, the data is ours. The data is not yours. We have it. It's our property. And he said, oh no, I disagree. That's my kid's property and my property and we're going to use it to take care of my child. And they had a long battle and they eventually, being technologists, figured out a way to get the data, which is too long a story to go into, and then more patients, more family members—this company ended up being built and driven by families of kids with type 1 diabetes. So it was built from exactly the perspective that you're talking about and it's getting to be incredibly successful. So we always have focus groups and patients involved in the tools that are being built for them to use. When we built our communications application we had

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regular focus groups with the users to be sure that it's meeting their needs. I completely agree with the comment.

ED HOWARD: And, as we turn to Dr. Ostrovsky, for what may be the final comment of the panel—I don't want to put any pressure on you—I'd ask you to pull out the blue evaluation forms and fill them out so that we can improve these briefings for you. Yes, Andrey.

ANDREY OSTROVSKY: So, I'll be very brief. I think if we focus on that 5%, a few of them had that billion dollar exit who are also technologists whose children don't have type 1 but type 2 diabetes, oh, and on top of it, even if they had all the access in the world to care, or the greatest apps, they would oftentimes be too distracted by the fact that dad or mom, single mom, was going to her second job at night, which is a user experience. When we think about co-designing that is a very challenging co-designing experience. So, I'll just highlight two legislative examples of where we can, maybe you guys can do something with: Telehealth Enhancement Act—very interesting. Extends Telehealth coverage for Medicare services. Medicaid often is 5-10 years behind. As a pediatrician, all of the nice incentives or disincentives to provide accountable care—we don't realize until 5 years after all the Medicare innovations so can we expedite Medicaid innovation faster?

The other piece: MedTech Act. There's a letter from AMIA to the Energy and Commerce Committee that basically highlight a response and suggestions around the MedTech Act. Basically saying we need to not overly regulate technology but we have to maintain transparency and safety and I leave that difficult balance to you guys and the regulators, but I, as a technologist, we have to be transparent and accountable, but being overly regulated may preclude me from starting this great company and just go apply for a job at a payer, which I love, but maybe not as quickly discover value, so.

MICHAEL BLUM: You could apply for a job with me if you want.

ANDREY OSTROVSKY: Thank you. I think my wife would appreciate that.

ED HOWARD: Okay. Well, let me apologize to all of you who have written some very good questions on green cards but we've pretty much run out of time and we didn't get at all to the question of regulation, which is raised in a couple of the pieces of material in your packets and I would commend the FDA report from April to you on that issue. And I have a hot news flash, courtesy of HHS that this morning the Office of the National Coordinator issued the Federal Health IT Strategic Plan that looks at some of the issues that are being discussed here today from a federal agency perspective, so I commend that to you as well.

I want to thank the Commonwealth Fund and particularly David Blumenthal who is still operating on Adelaide time for making this event possible, and I want to call your

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attention, again, to this Breakthrough Opportunities event for which you have a flyer that I think will carry this conversation further than we were able to do it today. So, I would ask you finally to join me in thanking the panel for a great discussion of a very tough issue.

[Applause.]

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