

**Meaningful Use Public Hearing**  
**Draft Transcript**  
**August 5, 2010**

**Presentation**

**Judy Sparrow – Office of the National Coordinator – Executive Director**

Good morning, everybody, and welcome to the meaningful use workgroup. This is a hearing on care coordination. Just a reminder, this is a federal advisory committee meeting, which means there will be opportunity at the end of the meeting for the public to make comment, and the transcript will be posted on the ONC Web site. Another reminder, please, for the committee members to identify themselves when speaking for attribution.

Let me just go around the table and have the committee members briefly introduce themselves starting with Christine Bechtel.

**Christine Bechtel – National Partnership for Women & Families – VP**

I'm Christine Bechtel with the National Partnership for Women and Families.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

George Hripcsak, Columbia University.

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

Paul Tang, Palo Alto Medical Foundation.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

David Bates, Brigham Women's Hospital and Partners Healthcare.

**Charlene Underwood – Siemens Medical – Director, Gov. & Industry Affairs**

Charlene Underwood, Siemens Health Systems.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

We have a number of committee members dialing in. May I ask if any workgroup members are on the telephone, please?

**Michael Barr – American College of Physicians – Vice President, PA&I**

This is Dr. Michael Barr from the American College of Physicians.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

Anybody else from the committee? Okay. With that, I'll turn it over to Dr. Tang.

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

Welcome, and this is the last in the series of hearings we've been having on the various categories of meaningful use, and we're building up to working on the stage two and three draft recommendations that would go on to the full committee. The plan is we'll conclude with this one. We've had really an outstanding series of panelists, and this won't be any different. I want to thank Dr. David Bates for spearheading this, along with Judy Sparrow. Just a superb group of panelists and a very diverse set of very helpful and relevant comments on the written testimony, so thank you very much. And thanks to my co-chair, George Hripcsak. Fortunately, he's recovered from his illness from the last hearing.

We'll take all this information, including all the public comments. We'll be meeting face-to-face in September, and going over sort of formulating a draft set of recommendations or draft at least some findings and thoughts, and send it out for an RFI towards the end of this calendar year to get more public input before we put out draft recommendations for committee members the early part of next year. That's sort of our plan, and we want to meld that in with the feedback we get from stage one submissions coming in the early part of the year. So this is really important, and this is an important topic, and extraordinarily important topic. We haven't done as much on it as a country, and so we're really looking forward to your input.

I'll turn it over to Dr. Bates.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

This is an important day, and I think we have a really terrific set of testimony. I want to thank all our presenters in particular for agreeing to do this. It is August after all. I do think this is an especially important domain, and as everyone recognizes, chronic diseases account for a large proportion of the cost of care in this country. To do better with chronic diseases, it's clear that we just must do better with care coordination. But it's also clear that much of the care that we deliver in this country is relatively uncoordinated. The patient centered medical home is one of the most exciting concepts for changing care, and several of our presenters today will have had experience with patient centered medical homes and trying to enable care coordination within medical homes. But we're interested in care coordination, both inside and outside of medical homes.

Now the core concept of meaningful use is that providers need not just to have records, but they need to have them and then be able to use them in ways that change the care that is delivered and make it more efficient, higher quality, and if we're going to do that, they have to enable care coordination. And yet, electronic health records so far have not done an especially good job of assisting with this process, and today's goal really is to explore this area. We've very pleased to have a number of the leading experts around this with us today.

We want to go through several things. What are records doing today with respect to care coordination? What could they and perhaps should they be doing down the road? What are some of the key processes that need to be supported to make care better? And we have several people who will be commenting on some of those processes like medication reconciliation. And we have on the schedule three terrific panels.

The first panel will focus on current support of care coordination through HIT. The second one will focus on transitions in care coordination. That's especially important because I think, as everyone recognizes, transitions are incredibly vulnerable times. There are things that have not been necessarily managed as well as we might in our current system. And then the third panel will focus on care coordination and the ambulatory environment, which again is an area that we just have to do better with if we are going to improve care and reduce costs.

We, in particular, seek your input on some things like what might we reasonably ask for in 2013 and perhaps 2015. Where do we need to go in the future? It will not be reasonable to ask for everything in 2013 because practices in many instances don't actually know exactly what they need today, so that's complicated. And we also, again, seek your input on what are the key processes that will make the most difference for improving care because it will be desirable to focus on some of those first.

Now let me very briefly introduce our first panel. I'll be moderating the first panel. Going first will be Ann O'Malley from the Center for Studying Health Systems Change. She and her team have done what I think is some truly groundbreaking work on looking at how the electronic records of today do and do not enable care coordination.

Second, we'll hear from Marc Overhage from the Regenstrief Institute, who has been one of the leaders in data exchange. He'll talk about data exchange and care coordination.

Then Rushika Fernandopulle from Renaissance Health who has had on the ground experience in a patient centered medical home. Then finally from Peter Basch of MedStar who has been an expert in this area for a long time brings both the experience of a provider who has delivered care, but has also been involved with working directly with a vendor and has brought expertise in HIT.

With no further ado, Dr. O'Malley.

### **Ann O'Malley – Center for Studying HSC – Senior Health Researcher**

...meaningful use workgroup. Thanks for the opportunity to share some research from the Center for Studying Health System Change. We examined medical practices' experiences using commercial, electronic, medical records to support care coordination. We interviewed a total of 60 clinicians from 26 practices in 12 communities across the country, combined to use a total of 17 different commercial ambulatory care EMRs, and we really made an effort to over-sample the small to medium sized practices because they represent the bulk of providers of healthcare in this country in terms of outpatient care.

In some, we found that EMRs are currently designed and used to both facilitate and pose challenges to care coordination. Immediate access to data at the point of care and electronic messaging within an EMR are very helpful for coordination of care within the office. At the same time, providers face numerous challenges using EMRs to support coordination across practices, providers, and settings. Thus, practices often developed workarounds, which is the use of additional manual steps that might otherwise be automated to overcome challenges in using those tools to support coordination.

We feel that meaningful use measures can help guide HIT support for medical homes and other practitioners, both of whom are vital to effective care coordination. Just briefly, given some of the work on medical homes, I want to just quickly summarize everything a medical home practice is supposed to accomplish. They're expected to provide ongoing management and coordination of care for the majority of a patient's healthcare needs, incorporate recommendations from other specialists, track referrals, and care transitions, and perform population-based tracking.

Participants in our study found EMR support for many of these types of activities to be suboptimal. First, in terms of coordinating care within the practice, the most frequent comments pertained to medication management, problem lists, tracking an individual patient's progress over time, and population-based care. And I'll give an example of each of those four areas. First, in terms of medication, some electronic records lacked fields for providers to indicate why a particular medication was stopped or exceptions for medications for a particular patient. In addition, as you well know, transferring medication lists between systems was also a challenge.

In terms of the problem list, this was the one aspect of medical records that was identified most often by clinicians as particularly important to care coordination. Problem lists that allowed one to sort and search a patient's conditions chronologically, by acuteness, for example, were found to be very helpful. And some clinicians included important patient specific notes in the problem list to highlight issues about which other clinicians sharing care for that patient should be aware, such as a problem with ACE

inhibitors and renal function. Electronic links between the problem lists and other parts of the chart such as related portions of the progress notes and care plans were particularly helpful, although this capability was very uncommon. At the same time, as we've heard by numerous people, clinicians complain that problem lists grew exponentially and became cluttered with redundant and irrelevant information, as EMRs automatically listed diagnostic codes related to each new test.

In terms of individual patient tracking, it is difficult with many current EMRs to obtain a concise view of a patient's progress over time, both for preventive and chronic care management, which Dr. Bates points out, is extremely important to improving the quality of care and reducing healthcare costs and avoiding hospitalizations. In order to track an individual patient over time, a provider often needs to tab back through numerous screens and old notes. To this end, many clinicians felt that a management dashboard to assess progress along the care plan would be very helpful. The lack of linkages between progress notes and health maintenance screens was also noted by some.

As we know, coordination of care is a very complex process, and current EMRs have limited ability to capture the dynamic planning and medical decision making process in a way that supports a patient's future coordination needs. Presently, EMRs focus on linear point in time documentation. My favorite quote from respondents in the study came from an internist who said, "The ability today to take an action that will prompt providers to do something in the future is an underdeveloped capacity. EMRs were built to manage visits, and when you finish a visit, you close it. Care coordination occurs over a year or more. There isn't an EMR that keeps a note open for decision support so that when results come in or don't come in, one is alerted."

Next in terms of population based tracking for a patient panel, practices often needed workarounds to identify patients for whom specific monitoring was indicated. For example, one clinician's practice listed Coumadin therapy on the problem list for patients whose Coumadin they manage because otherwise every time they try to identify those patients, the record would pull everybody who took Coumadin from the practice. Very important is the conversation of third party diagnostic results in a searchable, structured data element that providers can search when doing population based tracking with their EMRs. For example, determining which diabetics in their practice had had a history of eye exams and had abnormal eye exams. The canned reports that vendors developed to generate measures for performance reporting programs are often conflated with this issue. But those reports do not address the population level management adequately, nor do they address individual patient level tracking at the point of care.

Next in terms of coordinating care with clinicians across practices and settings, I'll briefly talk about referrals and consultations, which we know is very poorly coordinated at this point throughout the U.S. First, providers felt the EMRs assist in compiling information needed to communicate with other clinicians by phone and for generating referrals or consultation letters. On the other hand, inter-specialty coordination about patients and that communication was often limited by lack of interoperability. Data sharing was better in integrated delivery systems although even in those settings coordination was suboptimal. EMR functionalities and care processes to support referral tracking and care transition tasks are vital. This includes measures for the meaningful use of HIT by specialist and hospital providers around coordination and consultations, admissions, and discharge planning.

What are the implications for promoting meaningful use of HIT to support coordination of care? Moving more typical practices towards meaningful use of HIT to assist coordination of care will require extensive support to practices, clearer standards for real time data exchange across providers, better interfaces, improved clinical coordination processes, and EMR functionalities that better support coordination tasks. Our findings suggest meaningful use measures prioritize the exchange of medication lists, diagnostic

results, in care summaries, as well as standardized data content. Stage one measures begin to address the exchange of information between providers and the sharing of information with patients via the summary of a patient care record and tests of certified records capacity to electronically exchange clinical information.

Stage two might address the timing and narrative quality of electronic notes for referrals, consultations, and care transitions. By timing, I mean the sending and receipt of consultation requests and reports, and by quality I mean the key components, what is really critical to have in a referral request and in a consultation report back to the referring provider. New HIT and clinical tools to support and measure these functions could enhance the timeliness and quality of communication necessary for effective care coordination.

In stage three and longer term, more complex elements of coordination might be addressed through meaningful use. This might include share care plans and service agreements that define common expectations about how primary care, other specialists, and hospital providers will exchange information and delineate care responsibilities, perhaps the community-based information exchanges. As accountable care organizations hopefully become part of our landscape and integrate medical homes as a critical component, it is hopeful that this will happen.

Finally, I'd like to acknowledge the Commonwealth Fund for supporting this research, my collaborators at HSC, including Joy Grossman, Jenna Cowan, Nicole Kemper, and Mi Pham, and the many clinicians who participated in our interviews. Thank you very much for the opportunity to share our findings and for your dedication to moving our country toward meaningful use of HIT.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Thank you very much. Do we have a clarifying question or two? If not, we'll go on and hear from Dr. Overhage.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

Jim, is he on the line? I thought he was.

**Marc Overhage – Regenstrief – Director**

Good morning, and thank you for letting me join the group via telephone, Dr. Bates and committee members. I'm going to describe some of our thoughts and experiences that we had over the last years on how HIT helps support care coordination, particularly across organization.

The Indiana Network for Patient Care, or INPC, is developed and operated by the Regenstrief Institute starting in 1994, and it provides health information exchange across the state of Indiana. Along with the Doc4Docs clinical messaging platform, the INPC supports health information exchange for over 12 million patients and 15,000 physicians and their staff across over 4,000 separate practices. Approximately 65 hospitals participate in the INPC, along with independent laboratories, radiology centers, payers, long-term care facilities, pharmacies, and others.

As you heard in some of the opening remarks, and Dr. Bates described the importance of care coordination for our country to make real progress, and it's important to dissect what we mean by care coordination. You've heard from the first speaker how that has emerged from the ground up, if you will, from physicians who are practicing. One of the things that I found helpful is to focus on a framework or a structure for thinking about care coordination and the continuity that has to underpin it.

In a white paper by Haggerty, et al, they described three types of continuity: informational continuity, management continuity, and relational continuity, the person-to-person aspect of care. So that first part, informational, or I like the term beta continuity better, but the use of information on past events and personal circumstances to make current care appropriate for each individual, management continuity being the consistent and coherent approach to the management of a health condition for a single patient that's responsive to the patient's needs. And relational continuity and ongoing therapeutic relationship between a patient and one or more providers, so I'm going to talk about this issue from those three perspectives or addressing those three types of continuity.

The first type or level of informational continuity, data and the information derived from data is a common thread binding care across providers and healthcare events. There's ample evidence in the literature that we have poor information continuity in the U.S., particularly when patients receive care across multiple provider organizations such as by far the dominant model in our healthcare and our society today. Whatever continuity exists, it's facilitated by patients themselves or by directed communication between providers, usually by a letter transmitted by post or facsimile.

There's a rich literature on the deficits of this communication, including process failures, important data that isn't included, and lack of follow on. One example of this is the recent paper from our group from Martin Wary that showed that discharge summaries were available for 99.2% of patients in the sampling analyzed, but that they only mentioned 16% of the tests pending at discharge, and that they identified the follow-up provider who should receive this information in only two-thirds of those discharge summaries. So in one-third of the cases, it was unlikely for that discharge information to reach the relevant recipients. Knowing the identity of the provider that needs the information ... common problem.

In another example in work done by ... Vans and Sean Grannis, there were thousands of infants identified who, each year, their newborn screening results could not be delivered to the appropriate provider because there was not sufficient information to identify who the appropriate outpatient provider was and, in that process, they documented a number of unfortunate incidents where patients suffered direct harm as a result of that information not being received by the intended provider. While directed delivery or push from one provider to another can improve informational continuity, the process is dependent on the initiating provider's awareness of the need for information and the insight into what information the receiving provider might need. Dental care is a common example in which the medical provider may not even be aware of another provider's need for information.

Even when the provider is aware, they frequently fail to identify the corrected intended recipient, making the push or directed delivery strategy challenging to implement on a broad scale. The model for health information exchange that we've instantiated in the INPC is more of a pull strategy and overcomes many of these limitations by creating a patient centric model in which appropriate, authorized providers under clearly specified conditions are able to securely retrieve patient's data from across providers and encounters over time.

We've demonstrated that this relatively simple informational continuity results in more efficient care, reducing costs for each emergency department visit by \$27, and while more difficult to measure, based on anecdotal and clinical impression, improves the quality of care. One family practitioner, for example, identified that a patient's indigestion symptoms were actually unstable angina, which led to prompt, appropriate management that day when otherwise the patient would have been discharged to home for routine followup.

There are a variety of technologic challenges and requirements in order to implement this kind of informational continuity, but they are all doable today. It is also important to note, and the previous

speaker touched on this as well, that the data and information about a patient is not limited to objective clinical data such as laboratory results or medication names, but includes knowledge about the patient's preferences, values, and context, which are just as important for bridging separate care events. Today, these data are often available only in the memory of the providers who interact with the patients or perhaps represented in a variety of ... that certainly are not captured at the level and to the extent, which would be optimal for full informational continuity.

Turning to management continuity, some tightly integrated organizations such as Geisinger and Kaiser Permanente have successfully leveraged health information technology to improve patient management to improve continuity within their organizations. As a specific example, Mike Weiner from our group has demonstrated improved patient management by electronically integrating consultant's recommendations into primary care providers ordering workflows, increasing the number of recommendations implemented for intervention patients from 59% to 78%.

There are few examples of using health IT to improvement management continuity across disparate provider organizations. Health IT certainly has the potential to facilitate establishing patient goals, assigning responsibilities, or supporting shared responsibilities and tracking the success of management. The Indiana Health Information Exchange, through its Quality Health First Program, for example, is engaging providers across organizations in identifying common patient care goals and measuring progress towards those goals in order to facilitate management continuity, but of course there is much more to be done.

The third perspective, relational continuity, is one that seems to receive less emphasis today, although obviously of great importance to the patient and to the provider. Continuity of personal relationships may be facilitated by supporting a variety of interventions through video or other electronic communications. Several years ago, for example, we examined the value to patients and providers of using telepresence in long-term care facilities to improve the continuity of the relationships between the patients and providers with tremendous success.

The last issue that I will address is how we might think about measurement, again, using this same framework. Thinking in terms of these three dimensions—informational, management, relational continuity—separately facilitates designing measurement strategies for continuity. Conceptually, informational continuity can be measured as a proportion of the relevant data about the patient accessible to the provider at the point of care, but knowing the denominator is very difficult. So one approach to attempting to measure that might be to examine the number of inappropriate tests ordered as an indicator of the availability and use of ... underscored of that data at the point of care. I glycosylated hemoglobin repeated one week after a hospitalization during which the same measurement was made might indicate that the results obtained during the hospitalization weren't available to the ambulatory care provider.

Similarly, measuring management continuity is challenging. How, for example, can you assess whether the cardiologist and the primary care provider who share the care of a patient, taking into account the patient's preferences in specific situations, have the same goals for the patient's LDL cholesterol level. Do they share an understanding of how the goal is to be reached through dietary modification, medications, or other interventions? And do they understand who is responsible for tracking progress towards that goal with the patient?

Providers don't often document their own plan for the patient's care with any degree of specificity, focusing instead on today's actions, much less sharing these insights and strategies with their peers. Aligned incentives and accountability through a structure such as accountable care organizations may provide a framework to help change these practices. Perhaps the first ... measurement would be to

identify how often actions taken by providers collaborating in a patient's care seem to be across purposes. Given our currently predominant approach of fee for service billing, measuring relational continuity may be the easiest as long as the individual provider identities are properly documented on claims submitted. Individual practices have used these data to assess availability and continuity of care to patients and researchers have used these measurements in order to assess relational continuity.

Health information technology is currently being used to support care coordination primarily by improving informational continuity of care. There's demonstrated potential to improve management continuity, but a great deal of work remains to be done to understand and realize that potential. Finally, information technology may support relational continuity in a variety of ways, but workflow and payment models will need to evolve to realize that potential. I thank all of you for your time, and I look forward to the other panelists' presentations and to the discussion that follows.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Thanks very much, Dr. Overhage. A question or two, a clarifying question? Okay. Next we're going to hear from Dr. Fernandopulle.

**Rushika Fernandopulle – Renaissance Health – Cofounder**

Thank you very much for having me here. I'm a practicing internist and, for several years, I've been ... developing, building, and implementing medical home practices, new models of care to try to improve patient and physician experience, clinical outcomes, and lower total cost of care. In specific, I'll talk about a practice I've been involved in since 2007 working with Atlanta Care, a bit, not for profit health system in Atlantic City, New Jersey, and ... local 54 trust that represents about 25,000 low wage hotel and casino works.

We built a practice for their complex chronic patients from the ground up, enrolled about 1,200 patients with multiple chronic illnesses. The practice, called the Special Care Center, was designed to really address the sickest group of people and lower their cost, improve their outcomes. It combines several innovative features, which in the medical home and ACO models to try and accomplish this.

We use language and culturally concordant health coaches to try to engage patients in their care. We used a lot of information therapy, group visits, e-mail, phone contact with patients, home visits as needed. We proactively reach out to patients when we find they are not in control. We guarantee same day appointments, 24/7 phone access to the doctors, integrating mental health and other sort of disciplines into the practice itself. We coordinate with the pharmacy. We coordinate inpatient care with the hospital group, and we have daily huddles with the entire care team to try and coordinate our care.

What helps mediate this instead of the usual feel for service billing, we essentially are paid a primary care capitation rate that's double typical time rate care. And it allows us really, for the sick group of people, to provide them better proactive care, and the bet that's being made by our sponsors is that the lower total cost by lowering hospitalizations and ER visits. We've been in operation for three years now. We already have some data that we are accomplishing our goals of improving experience outcomes and lowering cost of care.

This is clearly not a typical practice. My ... not that of typical practices in the country, but I'd like to think this is where practice has to go. This is a sort of model that we want our practice delivering, especially with people with chronic disease. Let's talk about some of the challenges that we've faced using current HIT systems and where I think we need to go with this.

There are many ways I think a lot of our speakers have talked about that we need IT systems to coordinate care. Clearly reconciling medications for people with chronic disease is probably number one is knowing what people are on. It seems like a trivial task. It is extremely difficult. Tracking lab and other results that are performed often by different physicians in different places, communicating between different caregivers, diagnoses events, new treatment plans, and thought processes are very difficult. You know, mediating care plans between people in different parts of the care team, nutrition and physicians and physical therapy and mental health. And then allowing patients and their caregivers to interact with all of this, so they can play an active role in it. I think all of those are important if we want to try and coordinate care.

Unfortunately, even the best of the current off the shelf systems do an awful job at doing this. They're not designed to do it at all. They were designed to document visits and bill for them. They were not designed for this, and partly because there's no business model for doing what we're doing. Again, we're a little bit of the tail trying to wag the dog. I think we need payment redesign and practice redesign, and then we need IT redesign. But if we can get the IT to help drive the ship a little bit, that's great.

Let me give you some examples of some of the problems we have run into. The medication lists frequently get corrupted. When people go see other providers, of course, they get corrupted. They don't use our EHR. We don't know what they did often. Even if they do use our EHR, and it's a system that's implemented across a variety of practices in a system, often one provider can very easily corrupt the med list of another provider by not reconciling it.

Number two are the templates and the documentation structures we have in our system are very physician centric. They're written the way physicians think, HPI, past medical history, allergies. It's not the way that a lot of other disciplines think, and they're forced into our templates. The two users on the chart simultaneously, which we do often when we've got team-based care going, one can overwrite the other, and there's no sort of mechanism to prevent that.

And then despite having a large, corporate, IT department and two years of trying, we still cannot get many of our results in electronic format. We still get lab results as PDFs faxed into our system, which are non-searchable and non-trendable. And then in electronic communication, we do have an electronic communication system built into our system, but it's one-to-one, so I cannot communicate with my whole care team, i.e. the nutritionist, the health coach, and the mental health person working with my patient. I can't even assign who those people are and assign care teams to individual patients.

What would I like to see, and what have we been doing really? Ms. O'Malley mentioned really kind of kludging together systems around what we currently have. The first is really trying to get different disciplines to document in the medical record in formats that are appropriate to care that they deliver. Part of this very important is a concept we use called the shared care plan where we developed, and we use Word documents at the moment where we can document each patient a priority of what their problems are, what the goal is for what that is, and then what the plan is to reach that goal, and that the patient signs off on it. The primary care doctor signs off on it, and hopefully any specialist working on it signs off on it.

Of course ... easy and ... data flow between labs, pharmacies, other doctors, and the hospitals to give me data about my patients regardless of where they've been seen. I think, having patients being able to view the entire record is very important and their families, and also having patients being able to push their own data into the record, including biometrics and how they're feeling each day. Again, it's a way of kind of filling in data even between those visits. You have to move beyond the visit as a format of thinking about care. It's a continuous healing relationship. Real time analytics to flag me or my health coach

when things are awry. Again, the records, as designed now, are purely reactive. I need to go to the record if I want to get anything. The record ought to be able to tell me when things are wrong, when things are happening with my patient, either in their home or in another setting, or they've gone to a lab value.

Then, finally, dashboards, it's a way for me to roll out performance and allow me, as the person running a practice like this, to manage how a I doing, how are my health coaches doing, how are each of my doctors doing? Again, aggregating the sort of data that's being gathered by this. So, of course, as I mentioned, I think a prerequisite for all of this are different painted models, different staffing models, different process models like we've been lucky enough to be able to implement in Atlantic City. But assuming this is the way that we have to evolve, I think we need improved IT systems that I described to help us deliver truly better, cheaper care for our patients. Thank you.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Thanks very much. Any questions? All right. Hearing none, Dr. Basch.

**Peter Basch – MedStar Health – Medical Director**

Thank you and good morning, everyone. And I just wanted to make a comment first that this may be the only panel I've ever presented to where all of the panelists will be expressing very, very similar, if not the same themes. And if we were pressed for time, I would just say, like they said, and then move onto discussion. But you've asked us specifically to address two questions today: What are the key care coordination needs that are being or could be addressed using health IT? And how has the electronic health record supported your medical home to date, and the implications for future meaningful use requirements?

And if I may start with question two first, my practice in Washington, D.C., and I should add I am a practicing general internist as well, is part of a regional medical home pilot. We have been using a commercial EHR for the past 13 years, which contains customized content and clinical decision support and dashboards. Eighteen months into our pilot, we have made great strides in all nine of the standards for the medical home, are showing measurable and, in some cases, dramatic improvements in quality metrics and improved patient satisfaction with their care. We have also passed the NCQA requirements for level three, which is the most advanced medical home. Thus, our off the shelf plus EHR has fully supported our medical home pilot.

Turning to stage one care coordination requirements of meaningful use, I'm confident they will be fully supported by my current EHR implementation. And from what is known thus far about stage two care coordination objectives and metrics, I remain equally positive. Stage three is essentially to be determined. It's not possible to say.

However, as I attempt to answer question number one, what are the key care coordination needs that are or could be addressed using health IT, I find myself struggling, as in my view, neither the HITECH Act, nor the meaningful use final rule, present a meaningful definition of care coordination, which is disturbing, as care coordination is prominently referenced in both. My understanding of that disconnect, as I read both the references in HITECH and in the final rule, is that the reference is only tangential. Care coordination is mentioned as an example of useful health information exchange, which to me explains why the existing care coordination objectives and metrics are written as they are. And as the other panelists have attested to, and I will concur with my opinion, care coordination includes health information exchange as a necessary prerequisite, but it's far more than that.

Marc Overhage presented some very useful taxonomy of care coordination. I'll just throw in one from AHRQ in 2007. Paraphrasing, care coordination is a deliberate organization of patient care activities between two or more participants to facilitate the appropriate delivery of healthcare services.

From my 30 years of experience in primary care, I would agree. Care coordination is more than the availability or movement of data. It is not a game of informational hot potato. It is an ongoing process of retrieving and/or seeking information, consuming and translating that information, validating that information as it pertains to current health and chronic care plans of the patient, reconciling differences between conflicting recommendations of different providers, and effectively communicating the totality of that information and the information surrounding it to the patient. The stated objectives for stage two and three for care coordination and stage one metrics are essentially silent, as to the process of care coordination as defined by AHRQ and per my operational and practice based definition.

Now I presume that this workgroup is seeking testimony not for the current state of health IT to enable data transfer, but rather for what others and AHRQ and myself feel to be actual care coordination, and for what Dr. Fernandopulle found lacking in his implementation, and for what Dr. O'Malley found lacking in her recently published survey. What follows is what I believe would transform the EHR into a tool that would support the process of care coordination.

One, the ability to easily attribute multiple providers to a patient and further creating attribution by condition. Secondly, the ability to use that attribution to create virtual care teams. Third, the ability to easily intuitively operationalize these virtual care teams, which of course includes context sensitive, secure communication whenever: A, new, pertinent results are available; B, a change in therapy is necessary; C, a new symptom or side effect develops; and, D, the patient, family, or caregiver have questions or concerns. Four, the ability to anticipate when an expected result, ongoing consultation should arise, or should arise and does not. And, lastly, the ability to create, share, modify care plans between providers and patients.

The reason that such capabilities don't exist now in EHRs in my view is less due to technological limitations than to the lack of a business driver for the development. As my EHR vendor responded when I asked for these enhancements about five years ago, "Well, that would give us exactly one satisfied customer, but would probably drive away many existing and new customers who are already complaining about EHR complexity."

Correcting this vicious cycle in real care coordination software development, purchase, and use will unfortunately not occur due to the intervention of meaningful use incentives or penalties, at least as currently written, as these metrics, as I have stated before for meaningful use, do not address the process of care coordination. While the ultimate fix will be stimulated and sustained by an ongoing and compelling business case for care coordination, i.e. payment reform, this committee could jumpstart that process by suggesting better objectives and metrics that would stimulate the enhancements health IT and EHRs, as I had mentioned above. Otherwise, EHRs and health IT will continue to disappoint providers and patients and care coordination will never be valued appropriately. Thank you, and I'm available for your questions.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Thanks very much. All are really terrific presentations, and thank you all. Let me take the moderator's prerogative, and I'll ask the first question.

Dr. O'Malley, of the electronic records that you looked at, how many of them actually even had a place to put a care plan, and how well was that sort of flushed out?

**Ann O'Malley – Center for Studying HSC – Senior Health Researcher**

Well, we do not quantify that for each respondent's EMR, but I can tell you that very few did, and they're structured, as you know, like paper progress notes in a sense, you know, SOAP notes, and the care plan was really part of that note. And so it was the rare EMR that had a special location for care plans and that linked back to other components of the record.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Other questions?

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

I thought the comments and the testimony submitted were excellent. It was really a great summary of where we are, which sounds like the current EHRs not only don't serve care coordination. I think what you're saying is they reinforce the status quo. And that is, and I'll throw in maybe a personal editorial that this whole medical home concept, I think, reinforces the status quo by reinforcing how the medical model of thinking what health and healthcare are.

So as all of you pointed out, I think, it really maintains a single record for single people and do not allow the sharing of it, not only amongst various, let's say, physicians, but certainly the various care providers on a team, including the patient. So I think what you're asking for, Peter's latest talk was about virtual healthcare teams, and you mentioned it in, if you could only have a distribution list, which was for this patient, who is involved in the care or the health of this patient, that would be a phenomenal advance in and of itself. So I think, thinking about how do we look at the team for an individual and what's written about the individual.

You called it shared care plans and just shared notification, etc. I think it's something, you know, really worth considering. It may not be a 2013 thing just because it doesn't exist today. So we would have to give vendors some time to develop it. But I'm really intrigued by just that whole notion, and I think you've put your finger on what's missing and also the fact that what we're doing is we're not moving, we're not supporting it, and we're almost reinforcing care by individuals instead of care by a team. Thanks for sharing those sentiments and insight.

**Rushika Fernandopulle – Renaissance Health – Cofounder**

A comment, just to highlight something you said is that health IT done poorly can actually hurt and not help. One of the things we've learned is that if we use paper, we can fix it quickly. We can iterate rapidly on what a shared care plan ought to look like, and I can just do that in my Word document, and then we can just scan it in. That's not useful.

The problem with EHR is then not be able to be flexible. So if I want to change it, I have to put a development request in to our vendor, which, if we're lucky, a year and a half later, might get acted on ... no one else wants it, etc. So EHR's power is to standardize care. Their downside is to standardize care and to standardize care the wrong way. So we'd be very careful when, I think, pushing systems on people to not cause harm.

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

Yes, Peter?

**Peter Basch – MedStar Health – Medical Director**

If I can make a couple of comments, when you asked the question about care plans, I think you can shoehorn a care plan into an EHR, and I would reframe that question as an interactive care plan,

operational care plan, something that you cannot just see as a static element, but something that you can see over time and actions of weight loss, diet, medication compliance, new medication, interventions of other people, how that can influence in both ways that the provider can understand then make changes in the care plan, and the patient and their family can understand as well. I think that is technologically not that difficult to build. But as I said before, there really haven't been a business driver.

Paul, if I may disagree a little bit with the comment about medical home, I actually found while, yes, it really takes great thinking to think leaps above where we are now, I think the medical home by infusing attention and dollars into kind of a reinvigorated model of primary care, as well as a new relational model between patient, family, and primary caregiver, as well as consultants. It allows for more attention, focus, and I think it stimulates thought. I think some of the things that you've heard today probably would not have been thought of or studied if it wasn't for an intervention such as a patient centered medical home that moves us beyond reactive care. I think it does incent care teams. I think we do them poorly because, as my colleague said, our tools don't work that well to incentivize them.

My last comment was paper cuts. There's a theme and, I think, maybe a public conception that paper is dangerous. Bad processes kill. Bad processes on paper kill the right process, and I think we need to describe the right process. It's enabled by health IT, and I think we would all agree, it is far more effective than that done on paper.

#### **Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

My comment about the medical home probably refers to what people describe as the medical home. One instance of that is the NCQA certification. You can meet those and not do the things that we've been talking about. That's my biggest point.

Now you do raise— I don't want to place the blame on HIT vendors in terms of the products they give us because they essentially give us what we do currently and what you talk about is a lot of culture. So maybe the question to ask is how long will I take or how long will it take to move the culture to something that is not so physician focused to one that is far more multidisciplinary, inclusive of the patient, and when you do state the technical piece about overlap, you know, conflicting data into the EHR and how would you resolve that, there's a technical problem. Again, there's a cultural problem too, and are we ready for that, and how long will it take us to get more prepared and to be able to use, to leverage tools that would allow that technically?

#### **Rushika Fernandopulle – Renaissance Health – Cofounder**

I absolutely agree with you. I think the key to all of these is getting the culture right. If you get the culture right, you'll get the systems and the processes and all that right. If you try, and the reason I too don't like some of these medical home definitions is just getting that structural stuff right. If you get the culture wrong, it's not a medical home. I think ... agree. I've visited a lot of practices. You know it's a —“medical home” when you walk in the door. It just feels differently. People define their job differently. My job is to take care of this group of people, not it's cranking a bunch of widgets off the line, right? So it's very deep.

The problem, I think, what we've found, the challenge we've run into is that there are an awful lot of things in our current practices that reinforce the current culture. They include things ... trivial space design, doctors sitting in their own offices, the medical assistant perched over here, so what do we do? We create a bulkhead, and everyone sits in the same place at the same level around the same table. There's the glass between the patient and the receptionist. There are a lot of things that really reinforce the culture, and I think, again, I think we've found success in starting from scratch. And if you start from scratch with a different payment model, different people even, it works well.

The challenge is, I think, trying to take existing practices and moving them along that curve. I think, in particular, the challenge is when you, if you're lucky, you can get a medical home pilot with one of your payers, so now you're incented one way with some of your payers. But then you're still ... the old way with the other set of payers, and still stuck with all of the, some of the people, to be honest, and some of the structures you had before. That's difficult.

**Marc Overhage – Regenstrief – Director**

Some of you may have had the good fortune to hear Aaron McKethan, who is a health and guide to beacon project for ONC talk about the four tribes. I don't do it justice, but he takes the perspective that there are the sort of quality improvement folks, the payment reform folks, the patient activation folks, and the HIT folks or tribes. And, just as everybody was saying, that all four of those have to move forward together if we're going to successfully evolve this. One of them, and I think we've just seen 10 or 15 years of people trying to do them one at a time, that's going to succeed.

**Ann O'Malley – Center for Studying HSC – Senior Health Researcher**

...just said it. We can't wait for HIT to progress until the payment system reforms because we know the political will is not necessarily there for that to happen right away. I do think our primary care workforce wants to do what's right for patients, and the main problem is they're just completely overwhelmed. Financial incentives have to be revised to reward them to coordinate care and to do what's right for patients. If HIT and meaningful use can provide tools that make that a little easier for them to do, not just in the current payment system, but going forward if medical homes succeed in demonstrating improved quality at similar or lower costs, and if accountable care organizations become a reality, I think there's a lot of potential there for HIT to really boost that effort.

Payment reform absolutely has to happen. Physicians are financial actors. But I do think, professionally, they want to do what's best for patients. And in situations such as Dr. Sinsky's practice, who will talk this afternoon, and Dr. Basch is aware, you know, the alignment of inpatient and outpatient incentives are together. Docs do the right thing for patients, and they don't have so many obstacles in their way as practitioners and small to medium sized groups do. So I think it has to happen all at the same time.

**Peter Basch – MedStar Health – Medical Director**

If I could answer the comments as well, I agree that culture has to change. But I want to strongly pause at the need for business case first. I think business case trumps culture all the time in medicine. We've seen this in my 30 years of practice of dramatic changes in what physicians do based on this is now your job. This is what you get paid for. You can, you know, choose to do this or choose not to. Up to you. Most physicians who want to remain in practice follow what the business case is. There is a cognitive dissonance if that business case is against their professional or ethical beliefs. I think, fortunately, in the case of doing the right thing and of coordinating care, the professional desire and ethical desire is to follow that, but I still think the business case is important to reinforce it.

A second point that I want to stress was I know that reforming payment is difficult, but I think it's necessary. And health IT could lead, but one of my concerns is, even if we develop those capabilities, will they be used? I just completed. I hate to use the word study. I'll use it in very tiny letters in quotes because I'm not a researcher, and it may not be statistically significant, but we built a feature into our EHR system, which is essentially the equivalent of the EZ button.

It brings forth by role and specialty all care opportunities, protocols due, any point in care, and it's available throughout our form, so the physician can click it at the start of a visit to agenda set. They can click it in the middle to see am I missing anything. And right before they finish the visit, they could say, okay, this is an open book test. Someone has got to come back with these figures 6 months or 12 or 18

months from now. This is my last opportunity to see, have I done everything that this patient is due for. I think it brings these forth in a relatively unobtrusive and polite way that doesn't interfere with doctor/patient relationship.

We looked recently two days ago at some quality metrics for our primary care group. And as you might guess, they're all in the same IT system, and they're all across the board. Looking at relative points of did they meet a 50% threshold of where national metrics are, we scored between zero and four, and they really, you know, we had about a third at zero and about a third at four. We were able to find as recently as yesterday a correlation. It wasn't age. It wasn't motivation. It wasn't political beliefs. It was did they click that button to see protocols due, something that takes about an extra three seconds. But those who consistently clicked it achieved consistent, better scores.

Now as we go forward in terms of encouraging people, you must or you should do that all the time as a reminder. Having their reimbursement attached to quality metrics, patient satisfaction metrics will be an extremely strong driver. So we can build that. We can put it forth. But I really do think our payment system has to reinforce that. Otherwise it won't be used consistently.

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

I wanted to ask a different level question, which is, in how many records does the problem that Rushika brought up of having two providers writing things at the same time and that creating issues? How often does that come up as an issue?

**Ann O'Malley – Center for Studying HSC – Senior Health Researcher**

In the really big, integrated systems, I didn't hear about that as a problem. We only interviewed a couple of those. In the small to medium practices, what we more often heard was when two people are in the same system, it freezes up, and they can only afford to purchase so many terminals or whatever for their server, so that was more of a resource capacity issue for the small and medium sized practices, but I can't speak to that as well as others might.

**Peter Basch – MedStar Health – Medical Director**

We've only noticed that problem when we had multiple new updates opened by multiple providers at the same time, and typically that occurs because patients can't travel that fast between primary care and specialists, that some of the docs are not as good in completing their notes as others. So my sense is that the technology is less of a problem than workflow. I know there's some technical concern about providers updating the same portion of the chart at the same time, perhaps undoing or negating each other's changes to a medication list or allergy list that might be problematic. But I've noticed that very rarely.

**Rushika Fernandopulle – Renaissance Health – Cofounder**

It does strike me that that's something that we could require, even in the near term.

**Christine Bechtel – National Partnership for Women & Families – VP**

I have a question for you, Marc. I was particularly interested in the comments you made under informational continuity, particularly related to how we catalog and communicate patient preferences and values in context. You talked about the quality health first program briefly, which relates to establishing patient goals, etc. And I wanted to ask you more to describe that work a little bit more and what you've learned from it, and first to clarify whether that work under quality health first includes cataloging and communicating patient preferences and values, and then, if so, what have you learned from it? Is it the same thing as a shared care plan? What are the key enablers that have helped you succeed in this?

**Marc Overhage – Regenstrief – Director**

Just like so many things ... what we do is try to take some of the things that you just heard described by Dr. Basch, for example, about here are the things we need to get done, and here's our goals for this ... patient. And what happens or the interesting thing is, and really the physician collaboration, and this is, again, happening primarily today not at the individual patient level, the cardiologist and the primary care provider saying, okay, exactly where do we want to get John. But where you keep taking steps in that direction ... it started out with, as most folks ... hemoglobin goal is seven.

Well, wait a minute. Now what if they're over 65? Well, wait a minute. What if they ... and so what has evolved is, I would say more of a tailored plan, certainly not as individualized, and certainly not yet taking into account the individual patient preferences. And it goes back ... to the fact that ... not to do a great job of that with our patients, and then if we don't do it in our practice, it's hard to share it, and so we're really trying to evolve the culture in that direction.

Now the good news is that even at that level of, okay, this type of patient ought to be in this ballpark, we've been able to show a 5% improvement in the number of patients, just over one year, who are now in that zone that the ... committee feels like they ought to be in. So it's a baby step.

We have a long way to go. And I think that the capturing, and I think there's very little work, I mean, there's obviously some very good work done. There's not enough work done yet on what does it look like. How do I express that? How do I share that with somebody else in the way that they can understand it? Then it goes back a little bit to the relationships that we build in medicine today and the understanding of our patients that we gain that we simply don't share well.

**Christine Bechtel – National Partnership for Women & Families – VP**

Marc, thank you. I think it's hard to understand you. We're getting like every fifth word, and it hurts my brain to focus that hard at this hour.

**Marc Overhage – Regenstrief – Director**

I apologize.

**Christine Bechtel – National Partnership for Women & Families – VP**

It might be good to follow up. I think I got the gist of what you were saying, but it might be good to follow up offline with some more information. But as a follow on question for the panelists, when we think about shared care plans, and I think about things like the continuity of care record or CCD or whatever. You know, there's sort of a structure. There's a standard. There's a set of data elements, and it can move. Do we have the equivalent for a shared care plan, and how do we sort of begin to get that information, I think, as you, Ann, talked about so that we can not only incorporate it in the record in a structured way, but that so you can bounce those elements off of other concepts and data elements in the EHR?

**Ann O'Malley – Center for Studying HSC – Senior Health Researcher**

I think Rich Antonelli has done a lot of work in shared care plans and sharing those at the community level. He directs community health centers and is very active in care coordination. It's probably worth talking to him. He's also published a fair amount about this to see, you know, to what extent do they have a structure for the shared care plan, how did they make it available to all the providers to share care for their patients? I'm sure there are others out there, but he's the one that first comes to mind about getting more details on that.

**Peter Basch – MedStar Health – Medical Director**

I think it's certainly technologically not that difficult to do, but I think there has to be agreement on what we want that to do and what the implications are. I'd like to make two other comments. As this group thinks more about technological enablement of care coordination, I think that you also need to think about the implications of that because I don't think that they will be equally distributed across healthcare providers in terms of workflow time and the financial implications.

The second comment on patient preference, if I may, Christine, we do track that in terms of our recommendations for, in particular, preventive care protocols, and we track and honor them. But we do, we use our health IT systems to track in such a way that they don't turn protocols off. We keep them in a separate bucket such that our patients expect. They can turn down something, or they can say, I wish to do things this way and not that way. That if it's not in keeping with what we think is good medical practice, they know that we'll be prompted to ask them again a year later rather than turn it off completely, and that's actually led to some, I think, very interesting learnings and, I think, improvement in quality metrics.

As an example, I have currently 100% of my diabetic patients have had pneumococcal vaccine, something that I thought would not have been possible three or four years ago. And the way that I was able to do that was to obviously keep track of patient preference, but then go a second step, which is asking a very polite question when someone says no. May I ask why you didn't want to get the pneumococcal vaccination? Which I think most doctors, now first of all, they don't ask the question. Or if they do, they don't ask the follow up question. And typically the follow up was, well, you know I'm allergic to flu shots.

So it was misinformation about pneumococcal vaccine and flu shot. Another was, well, you know I don't like needles. Is it really important that I get a pneumococcal vaccination? So there wasn't really an understanding of the importance. So I think that tracking patient preference, respecting it, but then being willing to go back, using your health IT systems to go back to patients and appropriately and professionally challenge some of the preferences if we think, as health professionals, they're not in the best interest of the patient's care, but obviously always respecting them.

### **Ann O'Malley – Center for Studying HSC – Senior Health Researcher**

...on the old shared care plan issue, and I think, in order for shared care plans to work, there has to be a baseline level of agreement that the primary care team is the primary coordinated of care, and that they work closely. I'm referring to outpatient care primarily, and that they work closely with specialists, hospital providers to do that. But then I think that in order for a shared care plan to work, something that Dr. Basch has just alluded to is there has to be agreement on the part of primary care docs, specialists, hospitalists as to what each of their roles and responsibilities are. I see service agreements or care coordination agreements, whatever you want to call them, as really being very important to the success of shared care plans. I think, when you put something electronically up, and everyone has access to it, as one of our respondents said, it takes away this concept that I, as the primary care provider, or I as the oncologist own the data. We all share this data, as we care for this patient together.

Given the number of different specialists the average managed care beneficiary sees, that's critical. But I think, for shared care plans to work, not only do they have to be structured in a way where people enter data similarly and agree on the goals, not to mention the patient has to agree with these goals and sign off on them. But I think there have to be service agreements in place where everyone, you know, says when I see your patient on referral as a hematologist, and I run this test that they have an elevated PSA for some ... I did that, I'm not going to just send them over to a urologist. I'm going to send them back to you as the primary care physician. And I'm going to check in with you on the shared care plan before I start making cross referrals. So I think this stuff is all interrelated, and that there are incredible

opportunities in HIT to make share care plans and service agreements available for everyone to get on the same page about a patient.

**Christine Bechtel – National Partnership for Women & Families – VP**

...before we got to George that I completely get that just creating a structured set of standards around what this document can be and building it technically into an EHR isn't enough, and I fully expect that we will ask the RECs, for example, to begin helping providers understand how to use these, how to negotiate those agreements, and that we need to think about patients as playing a role in negotiating those agreements so that if I take my shared care plan to a new provider and say, look, you know, this is what my care team does, and you're part of the team or you're not. But if you're not willing to do this, that doesn't help me, and I'll be seeing you later, so that's good.

**Peter Basch – MedStar Health – Medical Director**

...before ... sorry, it's on the idea of care plans. I think there is something needed that we did gloss over, which won't be fixed just by technology, and that has to do with the language and the syntax that providers use when communicating with each other, and if we just enable that electronically, you might find yourself in the same position you did with Marc where you heard every fifth word. Typically medical communication between providers is written in a passive voice, and sometimes even when you read it clearly, it would be interesting if this were obtained or one thought would be to do X, and you read it over and over and over again. And you say, well, are they saying they did this? They want me to do this? It's been done, and the results are still pending?

So I think clarity and communication is something that we would seek in a care plan or communications between providers that then could be, once we achieve that level of clarity, electronically enabled by ... communication between doctors. Here's what I think. Here's what I did, results attached. Here's what I did, results pending. Here is what I recommend you do because then you would be able to do what Marc mentioned in his comments about one of his researchers being able to show that they were able to pull recommendations for orders out of a consult letter and that they were actually acted upon instead of ignored. Sorry George.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

So our main lever is meaningful use objectives and measures, and so something like we need to sort the problem lists logically is a good thing to do, and that's actually part of my second question, but that's not, that's too granular for an objective. But just saying the patient should be healthier is probably not enough steering to get us there. And so the question is, what are our logical, what are reasonable objectives to achieve care coordination of the kind that would fit into our meaningful use objective?

You know, something like we'll make sure that you're working in teams. Well, it has to cover all eligible providers. What about ones who don't work in teams? Is there such a thing as an eligible provider who doesn't work in any team at all? And so what would be a reasonable set of objectives that would go beyond HIE, to take Peter's example?

**Peter Basch – MedStar Health – Medical Director**

Are you directing that at me, George?

**George Hripcsak - Dept. of Biomedical Informatics Columbia University – Chair**

No, to the whole panel, but I'm using your example, the HIE is not enough to cover care coordination.

**Rushika Fernandopulle – Renaissance Health – Cofounder**

To start with, we've mentioned this several times. I think being able to, in a system, track who is on an individual patient's care team, which doesn't exist right now, so that this person has this person for mental health, and this person is a cardiologist, and this is the health coach your seeing, and this is their— So to be able to even have ... to know who it is, right?

Number two is then to be able to aggregate data and send it to those people in a sort of meaningful way, I think, and that they all have access to it. Now again, the tricky part, this is already done a little bit in integrated systems like partners where everyone works for the same place and signs into the same system. I think the incredibly tricky thing is a place like Atlantic City where it's onzie, twozie doctors scattered all over town, largely on paper, some on random EMRs, and trying to accomplish this in that setting, I think, would be a lot tougher.

**Ann O'Malley – Center for Studying HSC – Senior Health Researcher**

I think an easy starting play is what Dr. Overhage alluded to earlier. Continuity of care is a prerequisite, a structural prerequisite for coordination. If there isn't a continuous relationship between the patient and that patient's primary care team over time, coordination is very difficult to occur, particularly in the outpatient setting and for care transition. So I think one of the easy things to do that most medical records do already is they have a banner at the top of every screen that says who is this patient's primary care doc.

And, in a lot of cases, practices, you know, they're very diligent about keeping that up to date. They color code the chart so that they know every time you come, you're on the orange team, and Dr. Smith is your continuity doc. But in some practices, they lose the energy or whatever it is to make the EMR do that for them or to keep it up. It's little care processes like that, I think, that can go a long way in beginning to identify who the team is.

And then the next step is, as was referred to, identifying who are all the members on your team, clarifying that with a patient, and educating the patient. That's where I think patient centered medical homes are critical to this endeavor because that is one of the goals of the patient centered medical home is to work in collaboration with the patient to really make things happen in a way that meets the patient needs, to educate provider and patient that you are a dual group, a diad, and these are your various responsibilities. And to the extent that HIT can reinforce that, I think it will help with team care.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

So the team, knowing who is the head of the team, who's the primary care provider and who else is on the team is a very concrete one that we could do.

**Ann O'Malley – Center for Studying HSC – Senior Health Researcher**

Absolutely.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Medical home, I don't know what I'm going to measure or have them send in yet. You know, like if I understand the goal, and I understand there are many pieces to get there, and it's not nebulous, but it's complex. But what would be, like the ability to have a care plan in the system that's interactive could be one that we mentioned. Going through Peter's information should arrive, so that's back to HIE, which is an essential component, just not the only component.

All right. It's just that we need to frame it in a way that we can divide it into a set of objectives that are achievable, measurable, and bring us forward. Now getting to the granular part and, you know, vendors are in a different place today than they were five years ago. I think it is possible to, at least for large

organizations, it's possible to work with vendors, and so I think the days of simply saying, well, the vendor doesn't do X.

For an individual doc, that's still true. But for a larger organization, you can— Do you want to make some comments? My belief is, and let me see if that's true, that the vendors are in a slightly different place. They are listening a little bit more. They are more malleable. The systems are configurable, so what we do is we just, if they can't do it, if they don't do it, we just do it ourselves and give it back to them, which sounds like, Peter, you have a similar experience. Do you want to comment on that?

**Peter Basch – MedStar Health – Medical Director**

Yes. I would validate that, George. And I think, one thing that I would add, and I want to congratulate not just this workgroup, but the entire idea of meaningful use, as I think it's already had a dramatic impact on the marketplace. The idea that, going forward, EHRs will be documentation tools that support coding is dead. Basically, vendors now know, most vendors anyway who want to stay in business, they have to climb on the meaningful use escalator, as Dr. Blumenthal would say, to stay in business. That's a good thing. I think that as more of these ideas come forward, all vendors will make this available, I think, to anyone.

Now to your point specifically, George, larger systems can leverage vendors, you know, with threats of moving their business elsewhere, or the system is malleable, and like we did with our system, if you can't build it for us, or this is something that you think it's going to take ten years to do, thank you very much. We'll just do it ourselves, which is what we did for some aspects of it. I think that that's outside the reach of most small providers, but the kinds of things we're talking about and the tools that a lot of early adopter systems have built, I think, will be a commonplace in toolkits such that even solo practitioners would be able to utilize them. I'm talking about patient attribution tools, communication tools, dashboards. You know, you're not going to require a staff of IT professionals to be able to do that.

One other comment I'd like to make as someone who is in a patient centered medical home pilot now is, I want to be careful, as you guys are thinking about writing objectives, that you don't necessarily codify team based care as essential. One of the things that we found is stratification of effort in caring for people is important, and there are some people who need a lot of handholding, and they need an external, specially trained, designated care coordinator. Did you take your pills today? How are you feeling? What was your weight?

There are other people who are primarily healthy and intelligent and, frankly, interested in self-monitoring their care. And for us to put that same model of you must have a team caring for you or else feels kind of funny. I think it adds costs where they shouldn't be. So I think an IT system that supports multi-provider care and allows us to use teams where appropriate or to use enhanced self-care where appropriate is really what we want to strive toward.

**Marc Overhage – Regenstrief – Director**

This is Marc, if I may try again. Hopefully you can hear me more clearly this time. Are you getting more than every other word?

**Christine Bechtel – National Partnership for Women & Families – VP**

Yes. Yes, we are, Marc. Thank you.

**Marc Overhage – Regenstrief – Director**

This is a little bit theoretical, perhaps, but I think, in the spirit of trying to find things that are baby steps and might advance this, I think one of the things that we tend to do is we separate the ordering process

and the documentation process today so much, and there are a variety of reasons for that, including that's how we get paid is by having the documentation to submit along with the bill. But if we simply, and I'll put that in quotation marks because I know it's not simple, captured for each action that we took, and those are mainly in the form of orders or plans, for example, for a surgical procedure or for a medication. If for each action that we took we documented why we took it, and for those actions, and this is along the lines that Dr. Basch was describing of things that looks like we should have done.

It looks like this patient should have had aggressive control of their LDL. Should document why not. That would go a long way toward helping describe our goal, our individual intent in that patient's care plan. It might be a way to take a baby step forward in terms of capturing that information that then needs to evolve in the direction that the group was talking about of structuring that into shared care plans and so on. But that might be the kind of thing that could be accomplished in a two-year timeframe.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Could I just ask you one question, which is, Peter alluded to this too, but you mentioned the research that showed that integrating consultant suggestions in a primary care workflow improved things. Could you just describe a little bit about how that worked?

**Marc Overhage – Regenstrief – Director**

The work that Dr. Weary did with Dr. Weiner was essentially the consultative group, the individual or the team, would evaluate the patient, generate the recommendation, write their usual recommendation letter or note, but in addition, they would express their recommendations in the form of fully structured, complete orders for the patient. And those orders were then available to the primary care team to either implement or not, and this addresses, as Dr. Basch described, here are the things I think you should do.

Here are the things that I have done and are in progress, were clearly available to the primary care team, and that's the intervention so that when the primary care team would approach thinking about the patient, essentially they would have a menu of orders that the cardiologist suggested that, and you say, yes, that sound good, or yes, that sounds good, but I think a lower dose might be more appropriate. And the cardiologist also got an echo ordered that evidently isn't done yet, but I see here that it was ordered. So it was communicating explicitly at the level of orders that were structured and implementable that reduced some of the issues that Dr. Basch talked about of lack of clarity about what you want done exactly and, in particular, when you're dealing with very complicated patients, the nuances of some of the interventions and so on could be carefully crafted by the specialists in a way that they could be implemented correctly by the primary care team.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

It sounds like it addressed the issues of clarity that Dr. Basch was talking about. Did it also bring it to the attention of the primary care provider? Because one of the other issues is, the way things show up now is often it just shows up as a note, as Dr. Fernandopulle was describing. And unless you know to go look for that, which you might or might not, then you're unlikely to see it.

**Marc Overhage – Regenstrief – Director**

In this particular intervention, I believe, and it showed up as an item on the provider's to do list that said you have recommendations from the specialist or others to act on, so it would at least bring it to their attention that there was something to review.

**Charlene Underwood – Siemens Medical – Director, Gov. & Industry Affairs**

Marc, I wanted to drill down a little bit. Again, one of the means— Actually, I have two questions on separate dimensions. But just to follow on again, it's the ability to be able to share orders is a precursor

to care plans, if you will. I should know this, but what's the current state of standardizing that order transaction? I know that we've done a lot of work in labs, but where do we stand in the ability to be able to standardize that order transaction, especially exchange in terms of ambulatory care settings?

**Marc Overhage – Regenstrief – Director**

That's a great question, Charlene. I think the answer is that it's not well described where we stand. I don't think there's any systematic data that I know about that we could turn to. I think that in the ambulatory setting, the work that has been done in e-prescribing has certainly solved many of the issues and have answered many of the questions about how to clearly and concisely communicate medication orders. But even there, which is sort of the best of cases, for example, refill requests still have some real issues to work out. I don't think they're insurmountable issues, but there's some effort required yet to get even that relatively simple transaction clear. I think that the readiness to exchange those is nascent at best, but given the work that e-prescribing has done, I expect that some hope that at least that important intervention might be achievable.

**Charlene Underwood – Siemens Medical – Director, Gov. & Industry Affairs**

Yes, because, as I recall, we had more work to do in this space. And if it's linked to the ability to be able to communicate a care plan, we need to get some standards around that. The other question I had was a little bit, as I listen to the challenge of the need for coordination, which is totally support and understand, and actually cheer for. On the other hand, from a systems perspective, there are a lot of issues that you face once you're starting to bring together information. So the vendors have been doing a lot of work via meaningful use on medication reconciliation now. But you talked about problem lists, reconciliation. There are other kinds of data. If you have a care plan, you're going to have to do reconciliation, so sometimes in the systems world, you have undo consequences of what you're trying to build and put together.

At a higher level, as you start to think about even if we would say, okay, like a measure might be the effective and timely communication of data to support care coordination, whatever that is. But on the other side of that, unless we have the ability to be able to reconcile that within our systems, that may not help you. So I'm, you know, it's pretty clear that problem lists may be one of the spaces that we need to be thinking about that in, but I would think that we would want to balance those two things, as we move forward. Can you just comment generally on that thought process or suggest your views on that?

**Marc Overhage – Regenstrief – Director**

If you were directing that to me, I can—

**Charlene Underwood – Siemens Medical – Director, Gov. & Industry Affairs**

Or the panel, yes.

**Marc Overhage – Regenstrief – Director**

I can take a crack at it. Let me start by adding one other observation, which is that it seems in our experience that no matter how we think those things should be reconciled, presented, and organized, that precisely 50% of the physicians will think it should be approached with A and the other 50% with B, and that those approaches are diametrically opposed. So a good example of that are something as simple as medication lists where, in some primary care, very thoughtful groups, they will say, I don't want to see any medications displayed without some special permissions on gymnastics that we didn't order in our practice because we don't want our staff inadvertently refilling or taking action on a medication that we don't own, if you will. And then the other group, of course, saying heavens, we have to see every medication because there's no way that we can think and act appropriately on those. And they both are very strongly held beliefs.

I think that this integration and reconciliation is going to require a fair amount of flexibility in how far we try to push how quickly, and rather rely on the – rather than the IT being the solution that he probably has to offer multiple options for how that information will be integrated and viewed. And then the need to use that information in those different modalities based on financial incentives and the culture and practice that evolves will probably be the things that will lead us to do that more consistently. I'm not sure that exactly addresses your question, but I think it is a very challenging aspect of beginning to get providers to actually work together as opposed to work side-by-side.

**Peter Basch – MedStar Health – Medical Director**

If I could dovetail onto that, Marc raised some terrific points. Charlene, I think you anticipated those by the way you framed your question. I think that the way I look at this, the more we talk about things that we think are simple, like a problem list, a medication and allergy list, the more we realize that there really is not a consistent interpretation of what it means and the implication of what it means. I think that the approach of let's begin to enable sharing of structured information should go forth anyway, but it should go forth with the understanding that health IT is shining a bright light in a snake pit. The snake pit is current state of affairs.

For example, let's look at medication. I understand Marc's point, and there are a whole host of reasons why let's say a pain specialist who is managing someone with OxyContin, something I never prescribe. I want it on my med list because I want to know what the patient is on, and that would certainly influence my use of pain meds or other meds that the patient might be allergic to. But it is something that I understand has a medi-tag only to be renewed at regular intervals by the pain specialist because they're the ones with the expertise, and they're the ones who are going to make sure the patient doesn't get too much. And it's just one example of that.

You don't want to say let's not move med lists forward so that people can share them because there will be a problem with some people saying, I don't want to have to be responsible for that, so it's going to suggest that we have medi-tags of who ordered it, who is allowed to refill it. But it should never be who says, you know, I want to stick my head in the sand and not be aware of it because I don't want to face those issues. That's not what we should do.

If I could add one further comment about communications between docs, I realize that you're a primary care doc as well. You know we have a tendency to pick on specialists sometimes and, I think, in fairness to our specialist colleagues, the tower of battle is bidirectional. One of the things that we think about as we're talking about care coordination is clarity and communication and perhaps use of structured fields both ways.

For example, one of the things I hear from my colleagues who are specialists is the patient shows up with a referral, a managed care referral, and my name is right, and my provider number is right, so I'll get paid for it, but I don't have a clue as to what is expected of me. They just show up with-I'm here. Sometimes in the wrong office and sometimes in the wrong specialty, but they're there. So the idea of communicating, one, why is the referral being done? Two, what has been done previously that might be relevant to that specialist so the specialist doesn't have to say, I give up. Let me just order everything and do everything in the hopes that maybe, you know, one of my darts will hit the dartboard.

The other thing that could be communicated, as we begin to talk about care teams is, is the expectation I want a one-time opinion. I want to know what I should do. Or this is a complex patient. I need your continuing help with this patient, as I'm managing their diabetes and renal disease because I alone can't do that. And I think we don't do that now.

**Ann O'Malley – Center for Studying HSC – Senior Health Researcher**

If I may just add in to your point, Charlene, I completely agree that the potential for system implosion and outright rejection by providers is a reality. One thing we heard over and over again is that every practice coordinates care a little bit differently. There may be some commonalities. There may be some best practices, but people like to coordinate care in their practice in way that works for them in their geographic culture. And they like an EMR that's responsive and supportive of those activities. So I think that any efforts to be overly prescriptive with shared care plans, with teams and how they should be structured run a real risk of alienating providers and making people's lives more miserable.

So I think, to kind of echo what's been said, we need to start with the baby steps. And when we need, number one, have a measure that the shared care plan is really discussed with the patient, that the patient signs off on it, that their family and proxies buy into this because, without that, it's useless, and the self management is not going to happen. And we don't have to tell them how to do it. We just have to say, are you doing it? Or measure it in some way that you've done it.

Secondly, are you, as the referring provider, sending a referral note to a specialist? What are the contents of that note? Does it meet the basic requirements that NCQA and others are starting to identify, Jonathan Weiner being one of them? And, secondly, on the specialist side, did they get that referral note? Then, thirdly, did the specialist send that consult note back to the PCP in a reasonable amount of time, and were the followup instructions clear?

And lastly, does the PCP bring it all together for the patient, you know, all these different sources of information? I think it's very dangerous if we're overly prescriptive, and I know NCQA, in its measures of medical homes and thinking about ACOs going into the future are very careful about this, and they give practices flexibility. To the extent that some of these meaningful use measures can kind of be concordant with those and not baffle providers, you know, I'm not saying that you should follow what NCQA does. I'm just saying that we should all be on the same page and not confuse providers and, B, not overly prescriptive.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Rushika, did you have something?

**Rushika Fernandopulle – Renaissance Health – Cofounder**

Just to bring up two other points that haven't come up. If you start with the question, where does coordination fail and lead to harm or suboptimal outcome to patients, the two places I would focus on in our experience, one is in the hospital to outpatient setting. There is all sorts of badness that happens when people leave a hospital and try to go back to an outpatient setting. We all know that the readmission rates are too high, and the percentage of medications that get done right are poor, and I think if there was any sort of work done there – and again, if you're an integrated delivery system where the hospital owns your practice and is the same EMR, it's all well and good. But the vast majority of us don't practice that way, and so having a way of spreading that communication, I think, leads to a lot of things.

The second one, I think, we talk a lot about feedback loops, and I think it's one thing that feedback loop things happen, but ... feedback loop things don't happen, right? Particularly, as we spend a lot of time working on drug compliance. I think, you know, if someone has got a chronic disease, clearly if they're not taking their medication, it doesn't matter what the studies say. It won't help them.

And so we've tried to work in some loops where if we push out an order, I think what Marc had mentioned about trying to get the order and then the result. If we push out an order for a med, and we don't get a PVM feed that it hasn't been picked up in three days, that that triggers some level of action. That is very hard to do. We have to do that manually right now. But if we could automate that process, I think we could get much, much better. We've been able to get our fill rates up by doing that to 98.5%. We do great, but if we could automate that system, we could do it easier.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

We have a question from someone on the telephone I think.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

...phone.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Is there a question from someone on the telephone?

**Judy Sparrow – Office of the National Coordinator – Executive Director**

Not specifically, but you might want to check.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Michael, any questions?

**Michael Barr – American College of Physicians – Vice President, PA&I**

No, thanks for asking.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

...as well as James Figge and David Lansky.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Any questions from the three of you?

**M**

No ... thank you.

**Jim Figge – NY State DoH – Medical Director**

Yes. I'm listening to the conversation. I think it's been very interesting, and I'm wondering what would the panelists think about a structured document that is intended only to convey factual ... because I think when you talk about care coordination and data moving between primary care, specialists, and so on, I think a lot of the problem is that people don't always have all the factual information. You talk about problem lists. You've talked about medication lists. It's one thing to figure out how you want to display those lists and how you want to use them. But if you don't even have the lists to start with, you can't even go to that second level decision and determine how you want to use them.

We've talked in the past about continuity of care documents, but I'm thinking that there might be something a little bit more robust in terms of a structure document that would be able to convey all the hard factual information about the patient and to be updated in a very standardized and systematic way by all providers. It would have to be an industry standard, but it would encompass everything that you really need to know, including the problem lists, the medication, the reconciled medication lists, laboratory results, radiographic results, who are the care providers that the patient sees, recommendations, some specialists, you know, what's been ... what hasn't been, all in a very structured, electronic document.

That's what I'm kind of hearing from the conversation, so I just wanted to throw that out to see what people think.

**Peter Basch – MedStar Health – Medical Director**

Yes. I think that may be helpful, but if I can present a brief anecdote of where it could be unhelpful, if in interpret factual information, as you mention it correctly. Several years ago, as I began to play with a concept of moving information more quickly between participants to see whether it would cause good things to happen or cause explosions. I received an MRI report of a patient of mine of his neck. I knew he was a patient of mine. I didn't order the test. I didn't know what his symptoms were, but the result got to me, all factual, very quickly because I was CC'd on, made sure I was CC'd on it, and it was frightening.

I'm a pretty smart guy, but I'm not a neurosurgeon. I'm not a radiologist, but my read of the radiologist verbiage, and again, there might be an issue with how we communicate, was that my patient was headed toward an impending neurosurgical disaster and that he would be paralyzed if something wasn't done because there was a lot of reference to pressure on his cervical spinal cord. And I debated whether I should call him or have him run to the hospital or put one of those collars on that the EMTs do. It was really a frightening report.

About two days later, I got the report from his neurosurgeon, whom he had been seeing for the past four notes that gave an interpretation of his entire history, physical findings, and MRI, which essentially said his physical findings, which were tingling down the arm, had all resolved, and his MRI, which was benign in the consideration of the neurosurgeon, was consistent with bulging disks in multiple levels and nothing more need be done. My concern about messaging of just factual information without interpretation or context is that it can be very misleading and sometimes lead to inappropriate actions. If by factual information you would include interpretation of colleagues, suggestion of learned colleagues, then I would be very much in favor of that.

**Jim Figge – NY State DoH – Medical Director**

Yes. I meant the latter. By factual information, I meant the actual consult notes, the recommendations that were made, interpretations that were made because that information is usually not communicated. I'm a specialist, and when I see a patient in the office, I hardly ever know what any other specialist or even the primary care thought about that patient. And if they were in the hospital, I don't know what happened in the hospital. By factual information, I'm talking about the labs, problem lists, analyses rendered by other colleagues, their recommendations, their interpretation of the data. It all should be in a fairly structured document so that I can find any of those elements that I need when I'm seeing the patient.

Right now, you just can't get that information in any kind of coherent way without calling all over the place and having people fax you dozens of pieces of paper. So I'm talking about your second interpretation where all that information is available for you to look at in a very structured format. You would know from the document that the patient had already seen the neurosurgeon. You could flip to that neurosurgeon's analysis, and then you would know right then and there how to put the context of the MRI into perspective with what the neurosurgeon saw in the exam. That's what I'm talking about, that comprehensive view of what's been going on with the patient, but structured so that you can find any of the elements when you need them.

**Rushika Fernandopulle – Renaissance Health – Cofounder**

I'll highlight again, in the category of how might the EHRs make care work and better is that most EHRs, because it's so geared to this point and click structured notes is there's no good place, and people tend not to document their thought process. And so if you look, flip through your partner's EMR note that's

three pages long when they used to be a paragraph long, there's a huge review of systems that no one ever did. There's a huge physical exam that no one ever did. There's a good, nicely coded diagnosis, all the meds, but there isn't the thing that you really care about, which is, this is what I thought. This is what I think it is, and this is what I want to do next. That's evaporated. And so you've got this huge, bulging chart, and the thing that you really want the primary care doctor trying to manage a patient ... disappears. I think we've got to be careful in a push to structured data not to lose maybe the part that is the most important.

**Jim Figge – NY State DoH – Medical Director**

Yes, I'm not—

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

We're actually very close to time, so we're going to need to move on. Christine has one last question.

**Christine Bechtel – National Partnership for Women & Families – VP**

It's what I hope is a quick question. I think it's geared towards you, Marc, probably are best suited, but happy to take an answer from anybody. That is, so as I think about one of the key enablers being tracking who is on the patient's care team and then being able to aggregate data and communicate back to them, as I think about how to enable that, it shouldn't be that hard to put a field in an EHR. But you still need to know who is on the patient's care team. So I'm thinking that the work that ONC is doing on NHIN Direct and the discussions around creating like a provider directory and sort of a master phonebook. Would that be enough, and if not, what else would we need to better track electronically who is on the patient's care team? Marc, I'm asking you only because you've got the technical, but Peter may have an answer.

**Peter Basch – MedStar Health – Medical Director**

I'll stop if Marc speaks up, but I think that certainly would be the beginning of it because at least then you would have your universe of providers. One thing I would caution against because we've done some work and had to, in my direction, undo it of auto linking a provider attribution by billable event. In other words, you see somebody once, and that assigns someone as the responsible endocrinologist when it may have been a one-time visit with somebody who happened to be there that day. So I think, enabling that possibility, but with the ability to then check off probably with verification with the patient. Is this the regular, fill in the blank, cardiologist that you see? Yes, that would be, I think, a good thing to do.

**Rushika Fernandopulle – Renaissance Health – Cofounder**

And I'd also want to add in non-physician provider to the care team.

**Peter Basch – MedStar Health – Medical Director**

Sure.

**Rushika Fernandopulle – Renaissance Health – Cofounder**

So you'd want to not just have the docs.

**Christine Bechtel – National Partnership for Women & Families – VP**

That's actually the biggest gap I see because if I think about who is on my care team, it's my physical therapist. It's my fitness professional and my golf pro, and they're not on a provider directory.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

We're at the end of our time. This has been a terrific discussion. I think we've come up with some very solid, tangible suggestions. For example, we might consider asking for the ability to track who is on a

care team and sharing that with the patient. We might ask for the ability to share data and messages, and send it to a group, that group. We might ask to display for all patients who is the primary care provider and make that available to all. Ask for the ability to have an interactive and longitudinal care plan. That, it seems there's some consensus around to support the multiple providers on a team to write notes and document at the same time. To support the ability to sort out who ordered a medication and who is allowed to refill.

I think that's actually a fairly key functionality. And to make sure that the referral actually includes the question that is also key. We found in a study at our institution that half the referrals did not include the question, even in an integrated delivery system, so clearly opportunities for improvement. So thank you all for really a superb set of testimony.

Now we'll go onto the next panel, which will be moderated by Christine Bechtel.

**Christine Bechtel – National Partnership for Women & Families – VP**

Good morning. I'm particularly excited about this panel because transitions are something that's incredibly important to consumer organizations. And, in particular, to the consumer groups that we work with, and as evidence of that, I know that in the audience and on the Web today, we have a lot of members from both the Campaign for Better Care, and the Consumer Partnership for eHealth, specifically because they're very concerned about both care coordination broadly, but particularly transitions and with respect and particular to the vulnerable elderly who have multiple chronic conditions.

We have a great panel today, and we have asked that panel to address for us a couple of key questions. One is, what issues in deficiencies in transitions can be addressed through health IT. The second question is how can health IT expedite referrals within a team, outside a team, and across settings? And then, finally, and more broadly, how can health IT assist with care coordination and chronic disease management?

We've got a great panel today. Dr. Graf, who is chairman of the Community Practice Service Line at Geisinger in Pennsylvania and does work with the group practice improvement network (GPIN), which is focused on helping to improve performance among its members through structured networking experiences.

We have Dr. Michael LaMantia, who is the clinical instructor of medicine at the University of North Carolina School of Medicine, and is a research fellow in geriatric medicine at the UNC Center for Aging Health, and a post-doc fellow at the UNC Institute on Aging. And your research focuses on transitional care of elderly patients with a particular focus on ways to improve care for the vulnerable elderly, so we're very excited to hear from you as well.

Dr. Jeffrey Schnipper, who is the director of clinical research at Brigham and Women's Hospital, is a hospitalist, and also cochairs the committee to improve transitions of care across all five acute care hospitals in the Partners Healthcare System. Welcome.

Then Jeanie Gentry, who I actually have no bio on you for some reason. I'm so embarrassed to say we don't, so maybe you could start by introducing yourself and talking briefly about what you do.

**Jeanie Gentry – St. John's Lutheran Hospital – CIO**

I am the vice president of Allied Health Services at a very small, critical access hospital in Libby, Montana, and one of my hats is a CIO to implement all of our health IT there.

**Christine Bechtel – National Partnership for Women & Families – VP**

Thank you very much. Why don't we start with Dr. Graf?

**Thomas Graf – Geisinger – Chairman Community Practice Service Line**

I appreciate the opportunity to be here. As you know, Geisinger is an integrated delivery system, but the 200 physicians in the community practice service line work through 14 different community hospitals, as well as countless skilled nursing facilities and rehab facilities that we don't own. And so I think the challenges that we face are representative of those seen across the country.

I'm going to stray actually a little bit from my prepared testimony, having heard the discussion this morning, and really just sort of tell you about a month in the life of one of my patients. Mary is 68 years old. She has heart failure, renal failure, diabetes, coronary artery disease, and unfortunately had an interesting series of transitions in care that I think will illustrate how we levered the HIT. First of all, we'll start out on a happy note. It was Mary's birthday and, a few days prior, she had actually gotten a letter from Geisinger that said, "Happy Birthday. We're worried about your health. These are all the preventive services that you're due for this year, and we'll be contacting you to schedule those."

She received a series of automated phone calls, and when she picked up the phone, she received a live, a warm transfer for a live agent who knew who she was, why she called, what we needed to do for her, what the appropriate sequencing was, and it culminated in a physician visit. That was actually coordinated with one of her chronic care visits where she was introduced to her case management nurse, who was a new member of the team, as well as her traditional nurse, her floor nurse that we have in the office who performed a specified set of procedures, our nurse rooming tool, and was alerted to the fact that Mary in fact needed her diabetic foot exam performed today, and she did that and correctly documented it according to CMS guidelines, which is something our physicians did right about 27% of the time. Our nurses get that right 100% of the time now. An interesting prospect there and I think you'll see a theme.

At the end of the nurse rooming tool, she then turned on our ECBD program, which essentially has taken the Framingham risk calculator, placed into our EMR in an interactive sense for the patient, so she can go through on her own, and this was a challenge for Mary, but some patients do a little better, selecting various interventions. So it tells her what her current calculated tenure risk is, what her minimum risk is based on her age and demographics, and then actions she might take to improve her risk score. She works through what she's interested in, is prompted to perhaps choose some more effective measures, but she unfortunately declines, so that when the physician comes in, he knows exactly what she's interested in, and doesn't waste time on interventions that she's not interested in yet, although again might prompt to some of the more effective pieces if she's not there.

Based on her age and her advanced cardiac status, I actually adjusted her problem list to indicate that her new target hemoglobin A1c was in fact not less than seven, as was automatically set, but should be, for her, seven to eight. And her performance on that diabetes bundle, all nine measures that we feel at Geisinger are important, was adjusted to indicate that, and she was in fact at goal. She received a detailed after visit summary, which lists her medications, her goals, and some targeted information about her blood pressure because that was in fact out of goal at this time.

The endocrinologist, who is also part of her care team, sees that same note, as well as that same target. In fact, confirms it, and he's measured and metric on the same nine measures that the patient and I are also measured on. The patient's daughter is signed in as her proxy to our patient portal and can actually see her mother's performance on the same nine measures and, again, notes that her blood pressure is out of control and calls the doctor in, the case manager, to understand what should be done for that.

Unfortunately, while this is all transpiring, Mary stepped on her blue tooth scale, and because she'd been at the doctor the day prior, she hadn't taken her ... and her weight was up more than the assigned two pounds that's adjusted on a patient basis. That sends an alert to her case manager to contact her, and when she does, Mary admits to not having used her medication, and this is obviously not uncommon. A patient specific diuretic titration protocol that's been pre-approved by the physician is activated by the case management nurse, who then calls Mary back in two more days. Unfortunately, Mary's weight is still not under control, so perhaps there's something else going on here. She's brought into the office, and a more aggressive evaluation is completed.

Despite this, and adjustments of her medication, which is communicated to all the team members again through the electronic portal, her weight continues to rise, and Mary requires admission to the inpatient facility. Our case manager then proactively pushes out, and this is not an owned hospital, nor do we do our hospital work. But a third of my physicians do their own hospital work. Perhaps 50% do nursing home. But this particular facility is neither part of our network, nor do we have any employed physicians that do inpatient work that.

We pushed that information out to the inpatient team and actually monitored them through getting into the EMR of the facility, as well as contacting the inpatient case managers during that time. Knowing when she's being discharged, our case manager calls Mary within 24 hours and reviews her medications. Unfortunately, Mary required a transition to a skilled nursing facility, and so the outreach there was in fact to our embedded advanced practitioner, a certified nurse practitioner who is working eight hours a day in that nursing home. She sees her within about three hours of admission, corrects a number of the medication errors that were made during the transition, eliminates two duplicate medications that were inadvertently ordered using generic and trade names, and manages the patient for her two-week stay.

Because we know that 20% to 25% of hospital readmissions from skilled nursing facilities occur at the time of discharge to home, we're very careful in managing the handoff as well, and so our embedded nurse practitioner contacts the outpatient physician, as well as the case manager to make sure that the home visits have occurred and that home visiting nurses are prepared to go out at the time of discharge for needed IV antibiotics for a hospital acquired infection were ordered and in place when the patient arrived, as well as her ongoing physical therapy needs. Our case manager contacted the patient within 24 hours of her final discharge to home, verified the medications, which fortunately this time were correct, and insured that the home visiting nurse was there to actually look at the pill bottles at the time when that medication reconciliation occurred.

Finally, the patient was given a follow up appointment with me within three days, and we were able to reengage her in primary care. For the next 30 days, at a minimum, and in Mary's case, on an ongoing basis, she receives outbound calls from our case management staff, one per day, one per week, one per month depending on her ongoing care needs. As you can see, she's gotten home-based protocols in place, and electronic monitoring through blue tooth scales as an additional piece.

Fortunately, Mary, because of our program, did not have any further readmissions or admissions to acute care facility. Overall, in the last five years, we've been able to reduce readmissions for this vulnerable population of the Medicare age, about 25,000 patients total that we have data on, by 40% on average for readmissions, all cause acute admissions for all patients in that 25,000 by about 20%.

**Christine Bechtel – National Partnership for Women & Families – VP**

Thank you. Terrific. Dr. LaMantia?

**Michael LaMantia – UNC School of Medicine – Clinical Instructor of Medicine**

Good morning. I'd like to thank the committee for the opportunity to speak before you this morning. I'm an internist and a geriatrician who sees older patients in the community, in the hospital, and in the local nursing home, and I'll speak to you today from that perspective. I'm also a researcher and interested in the transitional care of vulnerable, elderly patients with a particular focus on how care might be better organized for older patients transferring to the emergency department.

As the members of this panel are well aware, our nation is set to see a remarkable increase in the number of older persons in the coming decades. This shift in our population will undoubtedly influence the provision of medical care in this country and require us to reorganize the way that we deliver care if we are to meet the health needs of all of our citizens, but particularly those of our elders.

Transitional care is one of this workgroup's focus this morning and rightfully so. No matter how well any one provider cares for his or her patients, we live in a world where patients are often cared for by many different providers across a variety of settings. And, inevitably, with each handoff and care, and with each transition, there are opportunities for missed communication of information and for critical parts of a patient's care plan to slip through the cracks.

As older adults account for a high percentage of transitions in care, they're highly affected by the quality of traditional care that is provided to them. Studies show that 23% of hospitalized elderly patients are transferred to another institution at hospital discharge, and that 19% of those patients transferred from a hospital to a skilled nursing facility will be transferred back to the hospital within 30 days. Frail, older patients, including those suffering from cognitive impairment, are often unable to participate in the transitions process and may consequently suffer through repeat hospitalizations, atherogenic complications, and uncoordinated care.

Health information technology offers the opportunity to coordinate patient care and facilitate the electronic transfer of patient information during transitions in this care. In a systematic review that I participated in with colleagues at the University of North Carolina, we identified five studies of interventions to improve the communication of medication lists and advanced directives for older patients transitioning between nursing homes and hospitals.

Though these studies differ in their methodology, initial evidence from them suggests that structured patient transferred records may improve the frequency and the accuracy of transferred medication lists and advanced directives when patients transfer between care settings. Future work, however, will be needed to determine the ideal amount of information to include on any patient transferred document and how to best affect its implementation. Additionally, further research will be needed to demonstrate the sustainability of these studies' results and the effectiveness of these interventions in a range of clinical settings.

Though the adoption of HIT importantly and most obviously have implications for allowing the transmission of accurate medical information. The communication of medical information alone is inadequate to insure effective transitional care. The use of HIT, however, may also potentially facilitate the accomplishment of these other actions that are necessary to provide effective transitional care.

Within my own hospital, our electronic medical record allows secure messaging that can be used to request patient appointments in our outpatient clinic, forwarding a test result to other providers within the hospital system, and sending of letters to patients with their test results. Our information technology team has also developed a system where providers outside of our medical system by invitation may receive access electronically to the medical records of their patients seen in our hospital, including diagnostic

studies, test results, discharge summaries with medication lists, and clinic notes. Ultimately, these features of our EMR may facilitate a more coherent provision of transitional care, though these functionalities have not yet been rigorously studied.

More challenging, however, in practice, has been the implementation of HIT to assist in the transfer of patients transitioning into our hospital system from unaffiliated, local nursing homes. Literature has shown the capacity of standardized patient transfer records to facilitate the communication of patient information, including via paper and electronic means for nursing home patients who are referred to emergency departments.

In 2007, our research group at UNC embarked upon the creation of a Web-based, password protected, referral page in collaboration with our hospital's information system department. For patients requiring transfer to our emergency department, nurses would complete data fields on an online referral page and, with the click of a mouse that information was made available permanently in the patient's electronic medical record at our hospital.

While emergency department providers were consistently pleased with the information that they received via the electronic referral system, the implementation and consistent use of the system in the nursing home environment was more difficult than we initially anticipated. Barriers to its use included technical issues, the lack of availability, the access to computers within the nursing home, lack of network infrastructure within the facilities, and presence of corporate firewalls, as well as outdated certificates of authenticity.

We also encountered issues that were staff specific. There was a high degree of computer illiteracy among the staff in the facilities, and when we did train staff, we encountered high turnover rates, some as high as 240% within a given year with the staff within the nursing homes that we worked with. Ultimately, we found that local leadership, who could champion the referral system's use, was critical to its success.

Given these challenges from our experience, it's clear that implementing a Web based referral system is complex, and likely involves a change in local culture, significant training of staff and referring healthcare organizations, and substantial investments in hardware and software. With this, I'd like to conclude my comments. I would like to thank the panel though for inviting me this morning to speak before you. Thank you.

**Christine Bechtel – National Partnership for Women & Families – VP**

Thank you. Dr. Schnipper?

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

I want to thank you for inviting me to speak with you today at this session. By way of introduction, as you noted, I'm a hospitalist, so I'm an internist who takes care of hospitalized medical patients at Brigham and Women's Hospital in Boston. I'm also the cochair of a committee, as you noted, to improve transitions in care, especially discharges across all five acute care hospitals in the Partners Healthcare System. Lastly, I'm a researcher who designs and studies interventions to improve patient safety during transitions, often using HIT.

First, I want to stress that I believe the meaningful use stage one requirements, once implemented widely, will greatly improve patient safety during transitions in care. In all three of my roles, I've seen firsthand how inadequate transfer of information across healthcare settings leads to avoidable injury and unnecessary healthcare utilization, including needless readmissions to the hospital. The meaningful use requirements will put in place a much needed infrastructure to at least start addressing these problems.

I'm going to limit my comments to three of the specified functionalities related to transitions: medication reconciliation, exchange of key clinical information at transition, and patient copy of health information and discharge instructions.

Medication reconciliation is an absolute requirement to help insure medication safety during transitions in care. For example, in a two-site randomized control that we conducted, we previously showed that an electronic med reconciliation application led to a 28% reduction in serious medication errors. I was glad to see that med reconciliation was included in the meaningful use stage one requirements; although a little disappointed that it's only a menu option. As it currently stands, the only requirement for med reconciliation applications in these specifications is that they enable a user to electronically compare two or more medication lists.

Based on my experience, a fully functioning med reconciliation application really has four functionalities: first, the ability to import medication data from other sources; second, display and compare different medication lists; third, ordering medications; and, fourth, documenting that information. I provide more details about this in my written testimony, but our studies have shown that most serious errors in this process are due to missing medication information. Therefore, systems need to pull data from inpatient and outpatient EHRs and also from community pharmacy prescription fill data. Comparisons should be displayed in such a way that they clearly make differences in these various data sources obvious and facilitate the construction of an accurate, preadmission medication – I'm sorry, an accurate preadmission medication list and coherent sets of orders at both admission and discharge.

The third functionality is ordering. For example, in our system, it partners. Once the preadmission medication list is constructed, the determination of what to do with each of those medications creates an admission order set. That improvement alone led to a further 69% reduction in serious medication errors in our studies.

Lastly, the application needs to document the preadmission medication list and the discharge medication list, and clearly display to both the patient and his or her providers exactly how those two lists are different from each other. Otherwise we know that even three days after discharge, 30% of our patients are confused about what medications they're supposed to be taking. I hope that in stage two when med reconciliation becomes a core requirement that some or all of these four functions be required for meaningful use or possibly for EHR certification.

Regarding exchange of clinical information, again, this is absolutely essential. We know from prior research that discharge documentation is often inadequate. Direct access to clinical information would greatly improve that situation. From our work at Partners, we know that up to 20% of cases, post acute care facilities like rehabilitation hospitals, do not receive in a timely manner the paperwork we send them by other means like mail and fax.

I have two specific recommendations for stage two. The first is that more guidance be given for what should be included in a discharge summary and in discharge instructions. We know from our work at partners that HIT can maximize that certain information be included in discharge summaries and discharge instructions either by importing that information directly from other data sources or by actively soliciting the information from the provider writing the orders.

For example, at Brigham and Women's Hospital, such modifications to our HIT system increase the defect free rate of our discharge documentation from 53% to 82% essentially overnight. The specifications of what to include in the discharge summaries and discharge instructions could come from the care transition's performance measurement set, a consensus guideline from the American Board of

International Medicine Foundation, American College of Physicians, the Society of Hospital Medicine, and the Physician Consortium for Process Improvement.

The second recommendation is that for stage two measures, we not only look at the ability of a hospital to provide a summary of care in most cases, but actually confirm the receipt of that information by the next provider of care.

Lastly, while I agree that transmission of coded patient information is a great first step, to really improve transitions in care, at least informational transitions and continuity that Dr. Overhage talked about, what we really need is a single source of truth. That is one medical record accessible to providers with permission and owned by the patient. Otherwise we perpetuate electronically what we currently have on paper, multiple medical records, each one providing only part of the story.

Electronic transfer, in theory, allows any one provider to try to fill in the gaps, but this effort is only as good as the diligence of that provider, his or her knowledge of what other data sources are actually available, and the ability to reconcile all that information. Much safer is a single medical record that is iteratively refined and updated over time. Any provider would be able to download the current version to their EHR, update it, and essentially synch it at the end of the episode of care.

This also solves the problem of giving patients an electronic copy of their health information, a third meaningful use requirement related to transitions. Patients can always have access to their information and update it with the help of a provider. Again, research by our group has shown that allowing patients to access and update their medication list with changes vetted by their provider decreased the proportion of errors in that list with potential for severe harm from 8% to 3%.

In some countries in the developing world, patients bring their charts to every office visit. While at first this may sound arcane, it actually solves several problems we have yet to solve. There's one source of truth. There is health information exchange. And it's also clear that patients own and are responsible for their medical information. We should do at least as well. Again, thank you for your attention and allowing me to speak with you today. This work has great potential to improve patient safety during transitions in care.

**Christine Bechtel – National Partnership for Women & Families – VP**

Ms. Gentry?

**Jeanie Gentry – St. John's Lutheran Hospital – CIO**

I'm a little soft spoken, so I'm here, I gather, to represent maybe an actual rural facility. In fact, in Montana, most of our facilities are not just rural; they are frontier by federal standards. Libby, Montana, we have a service area of about 12,000 people, and we cover an area roughly 3,500 square miles, and we're 90 miles away from the next facility, which is Kalispell, a great big facility there. It's 170 beds.

St. John's is a critical access, 25-bed hospital, and we are also part of a health information exchange. It's called the Health Information Exchange of Montana. We were really creative, or HIEM. In the HIEM, we have the big hospital in Kalispell, and we have 10 other critical access hospitals, everywhere from 7-bed facilities up to us big guys at 25. We also have two FQHA facilities as part of our network and a large variety of small to smaller physician clinics.

I just want to share with you, in my written statement, I shared some of my personal experiences and observations with health information exchange. I did exactly that with my son and now my husband who

has cancer. I have a three-ring notebook, and that became their ongoing medical record because I found so many duplicate tests being given to both of them because the information wasn't accessible.

In St. John's, we do have an EMR system where we do our clinical documentation. It's Medi-Tech, and our physicians in town, most of them are on eClinicalWorks now or soon to come live with that. But even within our small, local community, we're not able to communicate to each other effectively without going up to a regional health information exchange, so the HIEM has helped us be able to do that. And here we take many disparate systems, aggregate it up into a single patient record. It is patient centric, but it can be sorted by types of visits, chronically across all the different providers, and we have a special focus integrating our ER docs and trying to help that transition back to primary care or specialty providers between the ER and the facility there.

Our integrated record at the HIEM level, it was patterned after Vanderbilt University. So we took their technology and made it into our own, and so we have work baskets and teams that can be assigned as caregivers. And I believe we're doing a good job at many of the standards that the people before me have talked about today.

Where we believe we are going is health information exchange on that regional basis is what it takes for HIT to be not just a tool, but to lead to better care and to meaningful use. We believe, at St. John's, we will be able to meet those standards next year, 2011. We are an anomaly though, and I have to tell you that in Montana, there are only 7 hospitals that aren't critical access of our 48 hospitals. And most of the hospitals that I talk with are telling me, you know, we'll just take the penalty, honestly. It's cheaper and more affordable for us to just be penalized when it comes to that than to implement this because we don't have the people resources, both IT and clinical resources. We don't have the money upfront to invest in this. We're trying to make payroll every other week, and we just simply can't get the funding for that.

Also, the connectivity issues are very real in some of our communities. I pay about \$1,800 a month for a meg and a half of bandwidth to Kalispell, and it's cost prohibitive for many of them to increase that enough to make it work.

Finally, there is no funding for the HIEM level, which is the level that makes all of this work. There's funding at the individual level incentives, but we then are responsible to pay for the HIEM level type of information exchange. The HIEM doesn't bill anybody, so it's not going to get any incentive compensation.

So those are some of the constraints that we face to make these a reality out in the real world where I come from. So I appreciate very much you listening to my perspective, and I'm honored to be here amongst all of you doctors. Thank you.

**Christine Bechtel – National Partnership for Women & Families – VP**

Thank you very much, Ms. Gentry. I say this not being a physician. Let me start with the first question, which I'm going to take from George's playbook because I think it was a very helpful one, and then we'll open it, which is, as you think about the objectives and particularly the kind of key enablers for how information technology can improve patient care, what are the most important ones for us to prioritize in stage two of meaningful use? We've heard more robust medication reconciliation. I would say much more robust information exchange for sure. What else? As we think about the last panel, we sort of heard like figure out who is on the care team. What else in those kinds of objectives should we really be thinking about for transitions specifically?

**Thomas Graf – Geisinger – Chairman Community Practice Service Line**

I think the primary issue is the ability of various electronic systems to communicate with one another, so standards around what that communication should look like and specifics about what information is truly critical in the handoff. Obviously medication reconciliation is important. Pending tests that have not yet been completed or reviewed is an important piece. Then the timing and attribution of who is in charge of the patient at any particular time, I think, is a critical piece.

One of the biggest issues we've seen with the transitions and failed transitions, the patient is obviously transitioned physically, but the information and reasonability for that patient may not have been transitioned in terms of who is in charge. And so, there is that gray period from when they leave the hospital, thrown over the wall, as our hospitalists describe it, and returned to the primary care arena, and we've done that in a number of ways.

We physically inserted a person because we found, despite whiz bang electronics, the true necessary content is often not transmitted unless there's a person in the middle to get it from one place and take it to another in a communication sense, and then we've shortened the timeline by driving that physical visit with the primary care physician to within that first three to five days, which I think has done a lot to do that. So finding ways to bridge that gap is probably the most important thing, both physically and electronically.

#### **Christine Bechtel – National Partnership for Women & Families – VP**

Dr. LaMantia, you talked specifically, I think, in a related vein too, the need for structured patient transfer records and secure messaging so that you can do ... appointment within three to five days. What have been the key, most successful elements of those records?

#### **Michael LaMantia – UNC School of Medicine – Clinical Instructor of Medicine**

There were a variety of things in talking with my colleagues in emergency medicine that they liked to see in the structured patient transfer records. There have been anywhere from 9 to 11 elements that have been identified in a variety of these records in the literature. But they encompass common information that I think seems very logical to put in place when you're taking care of vulnerable, elderly patients who are coming from nursing homes.

These include things like what is the patient there for? What is the patient's baseline mental status? What medicines are they on? Have there been any recent changes in those medicines? These are fairly simple pieces of information to provide, but ones that when you speak with emergency department providers who are on the front line, they find very challenging to get a hold of if it's 11:00 p.m. on a Friday and shift change has occurred already in the nursing home the patient has transferred from one place to another. But those are a brief sort of thumbnail sketch of what those pieces of information that providers prefer to have. Those pieces of information are sometimes provided well, and sometimes they're not provided so well. We have firmly the sense that when that information is provided more completely that the emergency department providers are more satisfied with the care that they're able to provide those patients.

#### **Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

A couple of comments and some of them relate back to things that were said at the first session. In the first session, I think comments came up that providers need to make it more transparent why they took action or why they decided not to take action. And the biggest complaint that we got from all of our rehabilitation and skilled nursing facilities is that we would make changes to their medication regimens, and they would have no idea why we made those changes, to the point that they weren't even sure if we had made those changes on purpose or not. And the fact of the matter is that we probably didn't always make those changes on purpose. We know what the rate of discrepancies are that really are for no reason, so I think making that piece really transparent.

I think another one that we've heard a lot is what was the state of the patient when they left, and this is not stable, unstable. It's detailed physical exam. This is their mental status. This is our cardiopulmonary status, depending on what the patient's chief complaint was because, when they arrive from the ambulance, from the hospital to the skilled nursing facility, they have no idea if that patient now has deteriorated compared to when they were in the hospital. And often they're stable, but they don't know that, and that could very easily lead to a hospital readmission.

I think another one is simply just the contact information. We added, so we used to have a list of seven elements that had to be present in every discharge summary when patients left our hospitals. We started doing well in about four of them, so we retired four of them, and then we added a bunch, mainly from this care transitions measured set. The ones that we added were 24/7 contact information. Who do you call with questions when you don't know what's going on? We're failing miserably at it.

Another one that we added was the pending tests at discharge, so what tests the results are still not back or still not finalized, and how are you going to get those results? And the last one that was added to the list was medication instructions for the patient. This is exactly how your list is different than what you came in on. These are your new meds. These are the meds you're going to continue as they were. These are the meds that have a change in their dose or frequency. Stop taking the following meds that you used to be on that you're no longer on, and making that very, very clear in the documentation. Those are the challenges that we're working on right now. I'll stop there.

#### **Jeanie Gentry – St. John's Lutheran Hospital – CIO**

I would just add that some of the things our ER docs will say that are left out, in addition to these things, of the record that we find are important are notes from home health because often the patients that come in for readmission or I need help in the middle of the night are under the care of home health, and we tend to think about physician notes. But those are important as well, and then mental health records. We are really trying to get them to participate in our health information exchange because a lot of the patients that present at the ER are mental health patients.

#### **Thomas Graf – Geisinger – Chairman Community Practice Service Line**

I need to speak about a comment that Dr. Schnipper made here. You were talking about the necessity of having contact information for patients when they're seen, when transfers occur across settings. That's incredibly important for vulnerable or elderly patients. Having some sense of who that contact person is or a sense of what is the care of plan for this patient, as they transfer from one place to another, it might be completely appropriate for some patients to be placed on IV pressor medications and sent to an ICU in one situation. But in a different clinical situation, that may not be what is in line with the patient's wishes or the family's previously expressed wishes. And it's challenging for emergency department providers who have to make these decisions, sometimes at the drop of a hat.

In North Carolina, the way that we've tried to address some of this, so there hasn't been complete uptake of it, other states have used this paradigm also has been to use the medical orders for the scope of treatment. This is a form modeled on Oregon's Pulsed forms, which described what is the patient's plan of care, what therapies should be initiated for the patient, and then answer what sometimes are the critical, but often times where some physicians stop, the question of what's the code status of the patient. These forms are designed to be much more than just what the code status is for the patient, but really outline what the plan of care is. And those are critical things to have when transitions happen outside the normal 9:00 to 5:00 working hours.

#### **Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

I totally agree. In the last session, again, we sort of talked about collaborative plans of care. I think nowhere is that probably more important than these issues of scope of care. What we're working on at Partners is an advanced care-planning document, but really it's almost like a wiki. It's like a living document that evolves and changes over time as the patient is out of the hospital, in the hospital, out of the hospital again, and hopefully does go beyond just code status, as you said, and really gets to what are the patient's values, you know, what are their general opinions about the kinds of interventions they would want to have done. And not really just a menu pick list of I want pressors, but not intubation, you know, those kinds of things, but really more of an issue of are your goals of care symptom relief. Is it ... of functional status is a quantity of life at all costs, you know, those kinds of issues that are much more helpful and can be tailored to a given patient situation.

**Christine Bechtel – National Partnership for Women & Families – VP**

Questions from ... David?

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

One of the issues in trying to figure out what should be exchanged at transfer has been that there are so many things that you might want to know about. At Partners we actually found it was very useful to be able to utilize branching algorithms, so if somebody is on warfarin, for example, at discharge, then there are five things about the warfarin that you want to know: who is managing the warfarin, what their last INR is? But that gets complicated. Do any of the available things like the care transitions performance that kind of get into that level of detail, is there something that we could point to as a committee that would be helpful around that?

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

My knowledge of the care transition side is it does not. When Terry O'Malley on the cochair on the transitions team, first went to all of the skilled nursing facilities and asked them what information they would have wanted, he basically came back with 300 data elements with branching logic depending on what the condition has. And the impossible stories that he went to the president of Partners who whittled it down to seven. But we still have that document for posterity of these are all the things you need to know depending on what condition you have.

I have not seen anything a higher level than that that has sort of codified that in any meaningful way. But, at the end of the day, you're right. I mean, this is the kind of thing that HIT should be really good at doing. Patient has X. You need to include data elements Y and Z. And I haven't seen that really flushed out, you know, beyond what we've been doing, but there may be other stuff.

**Michael LaMantia – UNC School of Medicine – Clinical Instructor of Medicine**

I can provide you a codified list of how to accomplish that task of how to provide, get to providing all of the information that you, for example, need to have to monitor Coumadin use, if you get a patient transferring back to the facility or any other number of conditions. I don't know that that list exists. I know that in my practical experience, the one way that we've been able to get around that is by having a functionality in our EMR where we allow providers who are receiving the patient to have access back to the hospital systems records. We do practice in an area where we are the major hospital in town. There's another major university medical center eight miles down the road from us. But it at least enables us to control fairly well the flow of information coming out of the hospital system.

I think, for our community providers, there's not as much confusion as to the information that's coming from four, five, six different hospitals in the area. And so that's been a practical solution for me as a nursing home doc when I get a patient back into my facility, and I have particular— So we take it from Coumadin to talking about congestive heart failure. I'm able to say, well, what was the patient's weight

two days ago, and I'm able to go back into the record and see what the patient's weight was like at that point. I'm able to read through the notes and see, well, what was the patient's baseline lung exam like? How bad was their lower extremity edema at that point? That becomes, of course, more difficult when you're dealing with a more urban setting where you potentially have more hospitals to receive from.

**Thomas Graf – Geisinger – Chairman Community Practice Service Line**

So I was sort of thinking about it in a slightly different manner. If we borrow a page from the previous group, assuming we've got a functional care plan that's diagnosis and treatment based, that information obviously is critical. That's your 300-point algorithm. The issues that are critical for transition in particular, different from the ongoing care, would be who is responsible, what's still up in the air, and what do we need to do to get the patient securely in their next phase of care, whether that's home, nursing home. That's the real difference, and I think those are probably the elements that we should think about in that regard.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

...add to that list, and it's really the same thing, but it's what information is coming in, and what's going to need to be done about it, and then what could go wrong with the patient, and what to do about it. We talked about incoming tests, incoming results, incoming consultations, and then contingency planning. Usually a code status is linked to that. But no, I think that's spot on.

One other point I wanted to make is that it's very possible to have a discharge summary, for example, that has all the correct data elements and still be a lousy communication tool. A colleague of mine refers to it as the English Lit component of the discharge summary, almost being more important. And when I'm on the wards of my residents, we go through a little discharge timeout.

And what I mainly try to get them to do is give the story, the narrative. Who is this patient? How did they present? What did you find? Therefore, how did you diagnosis them? How did you treat them? How did they respond to that treatment? How are they now? Therefore, what's the plan? How are they going to care for themselves? And what could go wrong with this patient, and how do we make the transition to the next site of care? If they can get that across on a problem-by-problem basis, it's going to be a really well written discharge summary. And if they don't have that, it could have all the data elements in the world and still going to be impossible to read. That's harder to fix with IT.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Part of the theme of the panel is putting these things into practice. You look at the contrast between, say, Jeff's testimony and Jeanie's, you know, you can see that there may be a range here. Let me take med reconciliation as an example.

Joint commission pushed hard on med rec. I'm not sure that they improved the health of the nation that much through those requirements. I've seen those requirements fulfilled 100% with probably a loss of, you know, a drop in patient safety in the process rather than a gain. And I wonder, when we create these systems, if they're just a marker for an organization. When the system works, is it a marker for an organization that cares about a change in culture, and that's why we improve patient safety, or is it because the system is actually working? Then how do we get it working in a 25-bed hospital? If you could comment on putting these things into practice.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

Talk about a spotlight on the snake pit, I think med reconciliation was a perfect one. It was a disaster before. It's still a disaster now. I do think that some of the joint commission requirements were a little

counterproductive. My recommendation to them for this new set of requirements for 2011 were that you have to have some metric of the actual quality of the process.

Anyone can check a box and say I reconciled all the meds. The question is, was the history accurate at the end of the day, and did you use that list to create accurate orders at admission and transfer and discharge? That's what you need to do. And if that takes a pharmacist to do one case per day surveillance and spend an hour to figure out if the team did it correctly, maybe that's what it takes. But let's get away from sort of pro forma requirements that actually could make care worse and sort of focus on those things.

And then, yes, I mean, it's a lot of work, and I think HIT can help bring in data sources. It can compare sources. It can make ordering easier. It can make documentation easier. At the end of the day, there's a lot of work that needs to be done to get it right that wasn't being done. And that kind of stuff, I'm unapologetic about. We need to divvy up the work correctly and make sure the right people are doing the right parts of it, and it's clear who is responsible for those different components.

I do feel like maybe we've gotten a little bit away from some of that. But the problem was always there. We didn't know what patients were on before they came into the hospital, and we send them home on the wrong stuff when they leave. If that's what the focus is, then I think we'll get to the right place, but there's a lot of work that needs to be done, both culturally and from HIT. And now you can give me the reality check.

#### **Jeanie Gentry – St. John's Lutheran Hospital – CIO**

No. No, it is very difficult, and we are not joint commission, and none of the facilities in our network are. But we all are working towards those kinds of standards where it makes sense for the patient care. I don't know whose statement it was in, but somebody suggested that we shouldn't have CPOE, but talk more about COE because it's not all the physicians' orders that need to be reconciled with in the pharmacy. We need to look at the whole process and improve the whole process. And I do think that having the availability of information from all these different sources helps in that, but you're right that medication reconciliation is tough, and we're still struggling with that.

#### **David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

We, as a committee, are vulnerable to that kind of ... going down the same path as joint commission. That's what we've got to watch out for, and that's what we need help not to do.

#### **Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

We've also got the issue of could there be one patient medication list that's iteratively refined over time. Everyone knows where to go. It's there. We communicate about why changes were made. We document non-adherence, which is a huge issue related to this, rather than everyone sort of looking at part of the elephant.

#### **Christine Bechtel – National Partnership for Women & Families – VP**

What are the enablers for better medication reconciliation then? How much of it is SureScripts data getting into the system, and what are the kind of things that we need as a committee to keep an eye on to really drive some major improvements so that the requirements in stage two aren't just compare two or more, but really are much more robust, Jeff, as you pointed out.

#### **Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

...let the other panelists go. I do think, in the short term, in the intermediate term, it is better access to data sources, so it is things like access to SureScripts. And we know that 60% of our errors are errors of

omission, so if you know what someone is actually filling, that's really, really helpful. It's being able to draw in information from there, from other electronic medical records, you know, and make it really explicit that you've got to hash out this mess and figure out what the patient was really taking.

Long term, like I said, I think there really just needs to be a single source of truth. This is a med list, and everyone is iteratively refining it and updating it and commenting on it. I don't know how feasible that is, sort of, with our systems the way they are, our culture, our government, our country the way they are, but maybe they are.

#### **Thomas Graf – Geisinger – Chairman Community Practice Service Line**

You know, it goes beyond just having a single source of truth because we largely have that, at least for the subset that get all of their care in our system. I think some of it is focus and team roles. Physicians are not good at routine, tedious tasks like medication reconciliation. To your point, every physician allegedly reconciles every patient's medications at Geisinger because you can't close the chart until you say that you did. Yes, anyone can check a box.

Our case management nurses spend about an hour and a half doing medication reconciliation, and their mantra is, if it's not painful, you're not doing it correctly. And despite that, we still had the patient who literally took every pill bottle they got from the pharmacy, dumped into a large mason jar on the kitchen table, and randomly took pills at different times, and so we've gotten now to the point where we physically send the homecare nurse in so she can look at the pill bottles at the time when our case management nurse in the office is looking at the med list and trying to get some verification.

You know, the other piece though that we don't yet have, although we're struggling mightily to get is the fill rate data. Yes, you can prescribe a medication. They may even pick up the prescription once. What they actually do with it after that is very important, so I think, focusing the appropriate resources on the needy patients.

The other question is, we have a rule that says you reconcile medications on every patient. Well, if you're 27, and you're taking one medicine, how critical is it that you reconcile that patient? Wouldn't it be better to spend that time doing somebody who really needs it that might actually benefit from it?

#### **Charlene Underwood - Siemens Medical - Director, Gov. & Industry Affairs**

I'm actually going to ... get to one of your guy's questions. I wanted to talk a little bit about measures. You've been using some of the care coordination measures, NQF, and could you comment on those? Again, one of the things that we can use as a lever are measures. But coming back to kind of your point. Should there be more patient centric measures like do you give patients a grade for how well they comply, and could you do that? Somehow we need to move to accountability, so can you talk a little bit about your thought process on the kind of range of measures we could be considering as levers to move the process forward? Jeff, do you want to start?

#### **Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

I'm sure everyone is familiar with the CTM3, so the three questions that the patients are asked after they've transitioned. That's a good place to start. They're NQF endorsed. I don't think they're universally used. We don't actually use them Brigham, although we probably should. And I know that the care transitions, performance measurement set has been talking about developing a new set of patient centric measures about the quality of transitions, and it gets at issues like health literacy and how well they really understood what they needed to do to take care of themselves, what could go wrong, how their meds have changed, for example, those kinds of things.

I agree, they need to complement other kinds of measures that are more explicitly looking at structure, process, and outcome. It's definitely a big piece of the pie. In the end, it's the patient and the caregivers that need to know what the plan is. They're talking care of themselves, so I agree.

**Michael LaMantia – UNC School of Medicine – Clinical Instructor of Medicine**

I think that there's a potential for measurement to be inserted into the process of patients transferring from nursing homes into emergency departments. There are reconciliation of medication lists is obviously a very difficult and time-consuming process. But it's essential, and having a good medication list is essential to providing good quality care to vulnerable patients who present to the emergency department. And that's one simple box that could be required. One simple measurement that you could require when transfers are happening of this population of patients require that MARs, the Medication Administration Records, transfer with the patient, that that be required, and that the facilities who are sending the patients are accountable for that in some way.

Currently, depending on the facility, sometimes you get it. Sometimes you get part of the document with a photocopy piece of paper over another part of it. This happens all haphazardly, and there's nothing to hold you accountable other than you calling up the phone and saying, really, I really need this information. Beg and plead. Can I get it? And then you're left with maybe you get it, and maybe you don't.

I think that there are a variety of things, a variety of pieces of information that you could mandate happen in a transition of patients from skilled facilities, which are already one of the most regulated places in the healthcare system, to hospitals. And that might be one way of assuring sort of a basement level for what we're going to accept as a common standard for communication knowing that that communication of information is not alone what needs to happen, but it at least insures that we have a basement common understanding.

**Thomas Graf – Geisinger – Chairman Community Practice Service Line**

And I guess I would sort of look at it in probably four areas. The first would be, is there a documented plan for each problem? Does the team, the primary team know what that plan is? Do they have access to it? Is there access for any potential team member, so other providers, other referral sources, other care team members, homecare, etc.? Then finally, does the patient and family know what their role in that plan is? They have to take the medication. They have to go to therapy. They have to show up for their appointments. If they don't know, if the other providers don't know, if the primary care team doesn't know, or if that care plan was never developed, we haven't successfully transitioned that patient. I think that would fit for any point-to-point transfer and any type of patient.

**Christine Bechtel – National Partnership for Women & Families – VP**

Dr. Graf, you talked about, and as you described Mary's situation, you talked about pushing information about her out to the care team at the hospital, even though it wasn't a Geisinger hospital. How did you do that? How did it work? And I'm trying to figure out, how do we generalize that to the rest of the population?

**Thomas Graf – Geisinger – Chairman Community Practice Service Line**

Yes. It's an interesting challenge. When we first were trying to identify patients, this does not exactly answer your question. I'll get back to it. When we were first trying to identify patients that were admitted to the facility, we used really elegant and high tech solutions like physically having someone go through ER facts to notes to find x-ray reports on patients over 65 and then calling up to see if they had actually been admitted. So you start with low-tech solutions, and you build toward it.

Physically how we manage that currently is a two-pronged approach. Our case manager will fax to the physician and the facility the clinical summary data of their outpatient, so the last couple of notes, their medication lists, their problem lists, their allergies, their advanced directives, this predefined packet that we have. They then call the inpatient care manager or floor nurse and have a conversation with them. It is amazingly difficult to push information to providers. You would think they would be very receptive. And again, it's coming in asynchronously. They don't need the information when we're trying to give it to them. We're either too soon or too late, and so figuring out how to get that timing right is critical.

Again, we had the same issue on outpatient. Our dedicated hospitalists at our own facilities, actually our dedicated hospitals or non-owned facilities as well—we have a couple of those situations—will try very hard to contact my primary care docs, who again are too busy to talk to them because, at the time when the call is coming, they don't need the information. They need it two days later when the patient is physically in the office.

So figuring out how to fix that piece, I think, would be a huge advantage. And I don't know what the answer is. Electronic is a great, a shared electronic portal is a great means because it allows someone to put the information in at point A, and someone to take the information out at point, B, assuming they know it's there, and assuming it's the right information.

#### **Michael LaMantia – UNC School of Medicine – Clinical Instructor of Medicine**

I think that electronic means are very attractive in that sense. One of the stories that I've read about in the literature is great resistance to using electronic transfer record just because it goes against what the sort of standard of what you did before was for staff. The previous paradigm in some facilities would be copying the whole entire record and just sort of sending that over, which leaves emergency department providers and hospital providers for that matter, the internists, the family medicine doctor who comes downstairs to admit the patient have to wade through 40 pages of documents in order to find the three pieces of information, which are critical to providing care to that patient at that moment.

Providing a structured list of questions that need to be answered at the time that that patient is transferred, and then providing the backup of that information, you know, the 40-page document as reference materials should you so be interested in looking into what was going on with their diabetes last week, that's not immediately critical to their care, has a way of, I think, making that information much more usable, meaningfully usable to doctors who are going to be seeing the patient for a short period of time. But, in that period of time, needing to make critical decisions.

#### **Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

Yes, I wonder if they were talking a little bit before about the referrals who don't have the question. Essentially, an admission to the hospital from a primary care office is a referral, and so the patient is being admitted for X, you know, and for heart failure. Their weight is up 12 pounds. They're hypoxic. These are the findings that lead me to X, and then these are their other problems, which are relatively stable. Yes, they have chronic renal disease or ... is elevated. It's always elevated. That's not an issue because, again, I think a lot of times we take action in the hospital because we don't know if something is stable or not, and then create unintended consequences.

#### **Christine Bechtel – National Partnership for Women & Families – VP**

More questions, and also we have folks on the phone too. I want to give them a chance, but anybody in the room first? Okay. For our committee and workgroup members who are on the phone, do you guys have some questions that you'd like to ask?

#### **Jim Figge – NY State DoH – Medical Director**

I was very interested in the comments about accuracy of the reconciled medication list and there have been some pilot projects done using pharmacists in an MTM model so that, for example, the inpatient pharmacist would hand off information to the ambulatory pharmacist or a pharmacist in a long-term care setting, and they would work collaboratively to come up with the accurate, detailed version of the reconciled medication list. It seems that having pharmacists involved ultimately will give the clinicians who are seeing the patients, you know, a better quality product. I'm just wondering what the panel thinks about incorporating an MTM like model with pharmacists into the whole process of reconciling the med list.

**Jeanie Gentry – St. John's Lutheran Hospital – CIO**

In our facility, our pharmacist does that. But she's dealing with just a very small handful of the other pharmacists in town at the retail stores, which there are three. So it's pretty easy for our one pharmacist to be able to do that. But I can't imagine the complexity of that in other settings.

**Thomas Graf – Geisinger – Chairman Community Practice Service Line**

I would wholeheartedly support the notion involving pharmacists as members of the team in the medication reconciliation process. The literature has shown that this can help reduce adverse drug events and result in more appropriate use of medications for patients who are transferring across systems of care. One intervention that we cited in our systematic review looked particularly at doing this in Southern Australia, but showed that there was a statistically significant difference in the medication appropriate index, which is a tool, which is used to look at the appropriateness of drug use for patients who are transferring from hospitals to nursing homes after a pharmacist performed an evaluation, a review of the medications after the patient transferred from both settings.

**Michael LaMantia – UNC School of Medicine – Clinical Instructor of Medicine**

So I guess I'm going to stand out a little bit and sort of sound a note of caution. I think we have to be very careful about looking at the effect of a study and a research project on this. I think a lot of the improvement that you see in medication reconciliation, regardless of the discipline of the person doing it, is the fact that when you conduct a research study, you are very focused on what it is that you're doing. And so I think anyone that focuses on medication reconciliation and spends the time will get it right. It doesn't matter if you're a pharmacist, a nurse, or a physician. You can do it correctly if you want to. It's just difficult, and so what happens in natural practice will be very much diluted.

The other piece that I would say is, I think, to your point, the role of the different team members may be very different. I would not want to waste a pharmacist's time doing true medication reconciliation. Is this the pill that you're talking? How many times a day? Is this the dose? That's a clerical function.

Medication appropriateness and optimization of the medication regimen is very much a pharmacy role, and so I would focus the pharmacist on those subset of patients that have complex medication regimens, those patients that have failure to reach goal. I mean, I think there's a targeted set of people that I would focus pharmacy resources on. I would focus more clinically informed, clerical type resources on the physical application of doing the mechanical medication reconciliation.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

A few other comments, and I agree with what everyone has said. I agree, in the literature, the data are the strongest for the benefits when pharmacists are the most involved in the process. We've been looking at the literature recently. Basically three categories of studies of med reconciliation, those that are very much pharmacist led, those that are studies of HIT mostly, and those of multidisciplinary med reconciliation errors. The best data are the pharmacist ones. It doesn't mean the other two don't have

benefit, but that is where the data are the strongest. Having said that, we can't have pharmacists do the entire process on every patient. It's simply not practical, and it probably isn't needed.

And so I think the solutions are what Tom was saying, which is, you have pharmacists focus on the highest risk patients. Those are the most complicated. I think another possibility, Novant Health in North Carolina has done pharmacy techs in the emergency department. Take the histories and they apparently can be trained to do fairly good histories, and that may be more cost effective. But they can always triage to a pharmacist if they sort of run into a wall as well.

I think the pharmacists should be dealing with the most complex issues related to appropriateness, adherence when it's very clear that no one knows what the regimen is and sort of like extra detective work is going to be needed. I think sometimes you do need them to be involved in the process. As long as it's very clear who is doing what, and there's someone who is responsible for each step of the process, and there's someone responsible for the overall output at the end, which would probably the ordering provider, I think those are the kinds of things that need to be part of this.

I agree, if you're going to make it a research study, and you're going to focus all your time and attention and energy on it, you're going to get different results than in the real world. I think the real world has not had great success with med rec to date. Hopefully that will change over time. We do have a study now that's been funded to look at six sites, very different hospitals from each other, to do it more as a QI project and in hopefully more real world, and sort of see what our results are going to be like.

#### **Jim Figge – NY State DoH – Medical Director**

I think one of the critical transition points where we, over and over again, see errors with continuity of medications is in the hospital discharge process when the patient is either going back to the long-term care setting or to community ambulatory setting. I agree that you can't use a pharmacist for every patient every time, but maybe in the hospital discharge process, there might be an appropriate role for a dedicated set of pharmacists to be engaged in helping to bridge the continuity of care when the patient goes back out into another setting. That might be a reasonable use of pharmacist skills and resources in that particular instance.

#### **Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

It's been a very healthy discussion, and just to recap a little bit from the most recent discussion, in a sense, there's a lot of people who can actually do the job right if they're given a few things. One is the time. Two is the focus. And three is the payment. Unfortunately, all of those things are almost out of our control in the sense of particularly for primary care. And so what is it that we can do with the HIT policy levers to help with those?

Well, I think, actually Jeff said a lot of it in his discussion of, let's say, med rec. Well, one of the things, even if you have the system, and it were magically connected to everybody, you still can't see what you need to see very quickly. So you said display and compare. I mean, that's a simple function. I don't think that exists today, so the display and compare. The study that you sited about, well, gosh, if just the orders that were – if you just at the ordering – so it's display and compare, but then at the right time. That, one, helps me figure out what's going on and, two, do it at the right time. I mean, we know this. It's not really manifest in our current systems, and so those are things that can be improved potentially with our HIT incentives and the certification process to get it into the system.

#### **Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

What we're working on at Partners is we have a medication source list right now, and it's sorted by generic name, so you'll see atenolol listed three different times from three different sources. What you

really want is one row of atenolol, and it says, all right, it's in this EMR, and it's in this EMR, and it was filled at the pharmacy, and compare and contrast the doses and frequencies across those three. By the way, the medication possession ratio is 60%, and here's the last time they filled it. Serve that all up to you in one line, really easy to read, I mean, that's the kind of challenges that we're sort of dealing with right now.

At the time of discharge what you want is, here's what they came in on. This is what they're currently on. What do you want to send them on? Sorted by class, identical meds lined up, all the differences highlighted to make it really, really transparent. Okay. This is what we're going to order at discharge, and then one step we're going to introduce in addition to that is when you're done is you're going to look at a screen that basically says, okay, this is what you've done to the discharge meds compared to what they came in on. These meds are new. These have changed. These are discontinued. These are the same. Is this what you meant to do? That's the box you check.

You can't make people look at it. You can't make people think. But at least you've gone part of the way to sort of saying, okay. I really understand what I've done to this patient's medications before they leave the hospital, and then you're going to make that really clear to the patient. You're going to make it clear to the next provider of care. Ideally, in the end, you would have reasons for all those changes also in there required, so I think there are some things that HIT can do to facilitate this process. You can't make people care, and you can't make people spend time. That is things that are a little bit beyond our control. Financial incentives would help, but I think there's some stuff IT can do.

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

So somehow we have to find a way of citing the objective and potentially the measure that can be turned into certification criteria for the system because I think just pulling information together isn't going to it. So that's a challenge for us, but I think you clearly articulated it.

The other thing you said was the exchange of clinical summaries. We said that, but I don't think that's all there is to say about it, and I'm not sure it brings it together the way you said about these seven elements. We need to go back and find those, if it's specified somewhere. And I think you said it was....

**M**

The medication....

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

The measurement....

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

...best place I found, and I had a lot of really smart people on that committee. I wasn't one of them.

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

...something we can point to, and all of a sudden it says, why are we pointing to that? What's the behavior that happens when you do this? And then you translate it into HIT functions. I think that's been the most useful piece of how we can work and influence things.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

And if you do have the ability of a receiving provider to go back into the medical record, as you said, and find what they need to find, that decreases the amount of information you need in that discharge summary much more to synthesis, but I think it's what we've all been talking about today. What were you

thinking? Why did you do this action? That's the kind of stuff you can't get from other data sources that really needs to be the emphasis.

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

While you're talking, your third point though does give us a bit of a problem. You said the one source of truth, that's called a big database in the sky, which is a real problem for us, both architecturally, and since Deven didn't say it, I know I would bring it up. I mean, it is a problem, and I wonder if you would comment on that. I understand the concepts, or course, but we do have the other practical considerations.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

I'd like to give the other panelists ... throw it out the window.

**Michael LaMantia – UNC School of Medicine – Clinical Instructor of Medicine**

I think this one source of truth, I mean, is obviously difficult to get at. I mean, you picked up on a theme here, which is, as long as we have that the medical record systems belong sort of proprietarily to the healthcare system where you seek your care, then it makes it very hard to port from one place to another. I mean, I think that the dream going forward would be to put into action what you talked about happening and occurring in some developing countries, which is where patients walk with their records from place-to-place.

The question is, in the future, could we move as a nation towards a method where people walk around with cards with their information sort of inserted onto it, and we enforce that our healthcare systems are going to talk to each other in a language such that what you do at the University of North Carolina, when I type it in on the computer system, you pull it out of the card. Then it makes sense, if you happen to be up in Pennsylvania at the Geisinger health system, or you happen to be up in Boston and you get seen up there, or you happen to be on vacation in Montana, and you happen to be seen over there. And you have an exacerbation of your congestive heart failure. I mean, that's the dream in the long run.

Obviously it's difficult to get there, but I think that from some of the other testimony that I've heard and read about being given before this committee before, some of that is insuring that you have a common computer language. You have a sort of common platform that you're working off of, or at least insure that there's going to be interoperability of those computer languages, even if you work off a different platform.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

As Dr. Overhage said in his first set of comments, he said if you're the receiver, you don't know what exists out there that you need to receive. And if you're the pusher of the information, you don't know who the other care team members are that you need to push to, and you don't know where the patient is going to be on vacation next week. I think, without it, you're always going to run the risk of information being missing because you don't know what you don't know.

**Michael LaMantia – UNC School of Medicine – Clinical Instructor of Medicine**

That ability for interoperability and the ability to access that information in some way, whether it's through a dedicated portal that authorized users can get into each of our EMRs to understand what we have and then have some way to extract it out, or having the patient, which is probably the better way, having the patient have it with them, although you'd always get into the situation where the patient and their information are separated.

**Jeanie Gentry – St. John's Lutheran Hospital – CIO**

I tend to think, if we're a healthcare system, I don't have to have all my information on my bankcard and it works. You know, we should function as a system more. But we are doing these little regional pods right

now, and I think that we all are waiting to find out what is the way that we all connect into this national Holy Grail of EHRs that we're all shooting for because it's not clear, and I don't know if anybody quite has that figured out yet. But all I know is, 80%-plus of my patients, if they don't go right there in town, they're going to go over to Kalispell, so that's the right place to start with the Praedo Principle and get that fixed, and then we'll look at the next layer of the onion for them.

**Deven McGraw – Center for Democracy & Technology – Director**

I think, well, I gave you guys the big thumbs down on the database idea. I understand what drives people looking for sort of a single source of the truth. Essentially what you want is for the records to be true and accurate wherever patients are. Ideally, each record would build to be the source of accurate information on the patient. And so, of course, if you're in one facility, and it's been a little while since the patient has been there, and there's been, nevertheless, some activity at the ambulatory level or in a nursing facility, any time the patient presents at this hospital where they haven't been for a while, that record isn't the source of the truth anymore, right? There are other sources where it needs to be gathered.

But to the extent that we are actively improving on information sharing and adequate information capture, I mean, I think the ideal is more that there are multiple sources of truth versus one, ideally. But I'm not opposed. I mean, I think, essentially, communities are evolving solutions that are going to work most of the time because while people do travel, still most people seek and get their care in a much more confined universe of providers. And so to the extent that the sharing of information and the care team approach improves the level of information accuracy and information sharing within that community in a kind of layered way, you can get to making sure that information is available and accurate.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

...political, logistical....

**Deven McGraw – Center for Democracy & Technology – Director**

I'm a privacy advocate.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

Okay.

**Deven McGraw – Center for Democracy & Technology – Director**

So, essentially, whenever you are talking about solutions that require the ongoing creation of a duplicate set of data that otherwise should exist ideally in each person's record, that to me seems like, you know, just magnifies the risk of problem because ideally each entity's record should—again, again, in an ideal world. I recognize that we're not there yet—be accurate because the records that the entity uses and keeps are the records that the entity should use and keep versus needing to have a separate duplicate record that then....

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

...there's one source of truth, and you're just reading it, and then you are synching it.

**Deven McGraw – Center for Democracy & Technology – Director**

But where is it?

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

In the cloud, and the only way you can access to it is if you....

**Deven McGraw – Center for Democracy & Technology – Director**

Well, but then that's still a duplicate.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

...security.

**Deven McGraw – Center for Democracy & Technology – Director**

It's not a form. It's still an it somewhere, whether it's in the cloud or it's on somebody's server. This is what I don't understand. We need a single source of the truth that we can go to suggests to me that there's some amalgamation of a duplicate record that you look to as opposed to what is your own record.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

But I think the difference is, currently we all have 80% of all of the information, and we store it in four different places. And what we're suggesting is that there's one place or even so these same four places exist, but the ability to share that information from one to the next is there. So I don't know that there are any more copies of the information available. It's just the ability to access it so that everybody has 100% of these things, not 80%, their own 80% that's different from site-to-site.

**Deven McGraw – Center for Democracy & Technology – Director**

Right.

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

...at least Jeff is, is you just want to go to one place. What now, if we knew all the places to query in the future world, we could go get it. And I think they're arguing for, we actually just want to go to one address and find all of it. Is that...?

**M**

As a physician who has not worked in the VA health system, but talked with other colleagues who have, I mean, the idea that I hear from speaking with those other physicians is you can see a physician in Atlanta, and they could be seen out at the VA out in San Francisco, and you're able within a few moments to gain access to that information from all of the clinic visits in San Francisco.

**Deven McGraw – Center for Democracy & Technology – Director**

But it's not just one VA record. It's that they have a system where they can locate where the records are and get them, right?

**M**

That's, I think, when I talk about there being one source of information here, that that's the type of interoperability that would be ideal to have down the road. You could call that one record or several records. But I think it's that access, having the ability to access those records.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

I don't see the system as being any less secure. People can always hack into systems, and they can go into my back account and do that, and yet we all walk around with our bankcards and draw money out that way. The issue of access is very, very important, and a patient needs to be able to give permission for that access, and a provider needs to— There needs like a provider piece and a patient piece. And you need to have contingencies from when a patient is incapacitated for a provider to get it without patient permission, but to have an audit trail that it was done, so you know who has done it. Those are all sort of solvable problems. Right now, we've got confidential information being faxed to random offices all the time. Our situations right now are incredibly insecure, and I don't see any of these situations, whether or not you've got cloud computing or not, you know, being the problem, honestly.

**Deven McGraw – Center for Democracy & Technology – Director**

Yes. I wasn't suggesting the cloud. I actually don't want to belabor the point because I actually think we are on the same page. It's just that the use of the term single source of the truth gets people thinking that you're talking about something else, and maybe it's possible you are, but I think an interoperability solution is in fact what we're looking for, and it's not as though I don't recognize that there are security issues that we're not resolving today, so I think they're all fixable.

**Art Davidson – Public Health Informatics at Denver Public Health – Director**

Some countries, notably Taiwan and Australia, do have databases that include medication lists for everyone in the country, and I think that would probably not be politically possible in this country today given the discussions that I've been a part of over the last few years. I don't think this is a problem that we'll solve today, and I do think we can get very far toward where we want to go without solving this particular issue.

I actually wanted to ask Tom a different question, which is, you've obviously achieved tremendous success with respect to reducing the frequency of readmissions. You mention a number of things on the HIT front that you've done. What I'm interested in is what do you think were the particular keys to success? Some of the things you mentioned were automated notification of admissions, transmission of med lists, test results pending, needed procedures, and followup appointments, and I agree with all those things. Is that list sort of what you see as the core? It seems to me like some of the things that you mention went well beyond that.

**Thomas Graf – Geisinger – Chairman Community Practice Service Line**

In terms of reducing admissions, the most effective things that we found are the ability of the primary care team to know when the patient is making the transition in and making the transition out. We worked very hard to develop people, and then automated systems to insure those things occur because without that knowledge, none of the other things that we want or trying to can occur, or at least occur in a timely fashion.

I think, from an HIT standpoint, notifying that is important, but the other piece is not only do we reduce the readmissions, but we reduce primary admissions, so having advanced notification of emerging exacerbations of chronic diseases, which are completely predictable, and then having IT enabled solutions that can be activated by the patient, by the case management nurse, and not necessarily involving the physician in every decision in that tree, reduces the cycle time and improves the likelihood of improvement. And so we estimate. Obviously there's no way to know.

We estimate about 70% to 80% of the time our preapproval protocols are effective in preventing that primary admission because we're catching it upstream enough, so using HIT in terms of technology deployed into the home to monitor that frail elderly, in this case the blue tooth scale, is very helpful. So I would look at it both ways. Do we know what's happening to the patient, either in the facilities or at home? And that's where I think HIT has a tremendous role in being effective.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

So I guess one thing we could ask for is that organizations at least have the ability to receive that information.

**Thomas Graf – Geisinger – Chairman Community Practice Service Line**

Yes, to transmit and receive.

**David Bates – Brigham and Women’s Hospital – Chief, Div. Internal Medicine**

Yes

**Thomas Graf – Geisinger – Chairman Community Practice Service Line**

Somebody has to be responsible for sending it, and somebody has to be able to act on it when they get it.

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

From a meaningful use point of view, it would be the percent of admissions whose PCP.... In Jeff’s case, it’s a third of the times you didn’t even have the contact information, right?

**Jeffrey Schnipper – Brigham & Women’s Hospital – Director Clinical Research**

Right.

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

So there is no data there, but we would know that at least.

**Deven McGraw – Center for Democracy & Technology – Director**

I think we need the provider directory just a little bit, but I’m also thinking along the same lines about clinicians who are not meaningful users of information technology, and so if the locus of payment and, therefore, the lever is a physician or hospital who is doing meaningful use, then certainly we can ask them to send. But if they’re sending to a non-meaningful user then, A, can they send electronically, B, is it by fax? I think this is the perennial problem in like everything that we do, and it’s a particular problem for transitions in care coordination because of the bidirectional nature of the communication that needs to happen. I think any thinking that you can provide either now or follow on to the sort of the ways that we can manage those situations where we want to try to drive communication, but it may be the case that one party is not actually either online or a meaningful user would be very helpful.

**Thomas Graf – Geisinger – Chairman Community Practice Service Line**

So ... communicate with, you know, several thousand non-Geisinger physicians on a regular basis in the mode that they want to be communicated with. So our sophisticated enough to know, do we send them an electronic copy of the chart? Do we send them a faxed copy of the chart? Or do we mail them a letter with that copy enclosed in it? That happens at midnight every night to every referring physician based on their preselected way that they want to be communicated, so that part is....

Now to your other point, how do we get the information from them? Again, we can query them for the information, whatever format they wish, so electronic and fax might actually be effective, U.S. mail is going to be moderately ineffective. But it’ll be a challenge, I think, to this other piece. When they respond, how do we get that information into the hands of the people that need it in a useable fashion in a time when it’s helpful?

**Art Davidson – Public Health Informatics at Denver Public Health – Director**

I just wanted to return a little bit to this concept of a single source of truth and that may be one of the things that the workgroup could think about is incremental steps towards that. I think it was Dr. Schnipper from Partners who mentioned this idea about various formulations of atenolol all coming out on some sheet and not knowing exactly how to deal with all that information all at once, and it’d be nice to have that all on a single line with an adherence measure as well. Am I correct about who said that? I just wanted to maybe return to that as this incremental step.

We can’t solve all these problems about problem lists and medications, but maybe we should start to indicate where we’re headed about this single source of truth that the EHRs need to be able to receive,

aggregate, and interoperate in a way that we begin to see a path toward that sense of truth for the patient who is sitting in front of an individual provider. And I just wondered if maybe the workgroup should consider this more in an incremental step rather than thinking it's just enormous and we're not going to really get very far down this path, and starting with drugs, which is relatively standardized and could have a standard vocabulary or some code set might be a place for us to think about making that little incremental progress.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

...thinking about is we have these lists that we assume are correct, but we've made a tremendous amount of progress on e-prescribing. And the pharmacies obviously have as close to the source of truth as we're going to get. They know what the patient has actually filled, and so if we had the ability to feed into all of the systems that pharmacy data, that would get us as close as we're going to, to the actual real truth and might be a simple step that would do that if we could get that information pushed into every EMR. That would probably be the most important single thing we could do.

**Jim Figge – NY State DoH – Medical Director**

I have to disagree with the statement that was just made. We've been working on e-prescribing in the Medicaid program for two years, and what we've learned is that the pharmacy databases only show what the pharmacy has submitted as a claim, and claims are usually submitted immediately when they fill the prescription, regardless of whether the patient ever comes in to pick it up. So we've been educating our providers that the pharmacy data is only claims data.

Claims usually go out the door immediately when the pharmacy fills the bottle with the medication, but it doesn't mean that the patient has ever come in to pick it up or that they're taking it. So there is a huge disconnect between the actual pharmacy claims data and what's really going on, which is why I brought up the point about pharmacists working to try to reconcile the list because you can't really do the job correctly just electronically. You have to complete the whole loop back with the patient to figure out what's really going on.

**Jeffrey Schnipper – Brigham & Women's Hospital – Director Clinical Research**

...points there. I do agree. In the end, it's very hard to know what the patient is actually ingesting. I like the idea of doing more interaction between inpatient pharmacists and outpatient pharmacists. Some of our primary care clinics have embedded pharmacists that do a lot of work on adherence, and I think they're great.

Then there's also obviously the community pharmacists at the pharmacies, and I'm not sure what the best solution is there, but I do agree that better communication across that divide might be another lever to pull to help with this issue. But no, I agree. Pharmacy fill information is one piece, and it certainly is not the most – there's no source of adherence information that's 100% accurate unless you want to RFID every pill. People have talked about that.

There is one private. I don't want to endorse it, but it's your weekly pill box, but it knows when you've opened every single window of that pill box, if it's four times a day, seven days a week, and send you as the primary care physician a report of how often they're opening those pill boxes. But again, you can still flush those pills down the toilet after you open them, so there's never. You never know with 100%, but I'd love that source of information, for example, being put into the medical record, so as much as we can get.

**Christine Bechtel – National Partnership for Women & Families – VP**

Other questions or comments from folks on the phone? Any others from the committee members?

**David Bates – Brigham and Women’s Hospital – Chief, Div. Internal Medicine**

Jeanie, the intent really is for the rising tide to raise all of the boats here, and are there things that we could be doing that would be attractive to some of those other institutions in terms of getting them onboard? Are there particular things that have been a challenge with respect to meaningful use? If that’s true, I want to ask specifically about care coordination, but also more broadly.

**Jeanie Gentry – St. John’s Lutheran Hospital – CIO**

Again, I know that there are technical resource centers that are out there. But to have some staff that can go and devote a period of time to a small facility that has no IS staff, I know many CEOs that that’s their only IT person too. And that would be very helpful to them. I’m really an advocate of the networks, the larger hospitals reaching out to the small hospitals, so maybe looking at some way that the incentives can be built together in a network kind of fashion would be helpful to the smaller hospitals because none of them can do it on their own. I can’t, and I’m one of the larger ones.

**David Bates – Brigham and Women’s Hospital – Chief, Div. Internal Medicine**

Yes, and what enabled you to do it?

**Jeanie Gentry – St. John’s Lutheran Hospital – CIO**

Well, we’ve been working as a network for almost ten years, and we’ve invested a lot of our own money, but Kalispell Hospital has invested a lot in us, and we couldn’t do it without them. And what’s in it for them is a referral stream, so sometimes the little hospitals feel like we’re in a battleground about people wanting to pull us two different directions. But for the most part, we’re kind of all aligned with a larger hospital. There just needs to be funding at that kind of level. So I don’t know all the political ins and outs of how to make that work, but I know that it takes some teamwork to make some of these solutions happen at the small levels.

**Jeffrey Schnipper – Brigham & Women’s Hospital – Director Clinical Research**

Yes. David, if I might comment, we’ve been trying to build a regional health information network in Central Pennsylvania and have been moderately successful. But one of the issues we’ve come across is exactly that. We can build the network all the way up to the door of the small hospital, but the two IT people that they have available are needed 99.9% of the time to make the wheels turn in the hospital, and they cannot physically connect, even though we’ve done everything else. And so either regulatory relief that would allow us to go in there and do it for them, or financial support that would give them the temporary help to get that work done might be a way to move that forward.

**Christine Bechtel – National Partnership for Women & Families – VP**

Any other questions or comments from the committee? Anything else that the panelists would like to add? Terrific. Thank you very much. It’s a terrific panel.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

Do you want to just take a 45-minute lunch, which would be 12:15, and save 15 minutes on the agenda this afternoon?

**David Bates – Brigham and Women’s Hospital – Chief, Div. Internal Medicine**

Sounds good. We’ll reconvene here.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

At 12:15.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

At 12:15.

**Paul Tang – Palo Alto Medical Foundation – Internist, VP & CMIO**

Are the panelists going to be here though?

**Judy Sparrow – Office of the National Coordinator – Executive Director**

I think all the panelists are here, aren't they? Let's see.

**Deven McGraw – Center for Democracy & Technology – Director**

...early birds.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Dr. Sinsky is definitely here.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

Yes, and Gordon, Dr. Schectman is here. Rajeev was here. I think—

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Yes. Let's reconvene at 12:15.

(Break for Lunch)

**Judy Sparrow – Office of the National Coordinator – Executive Director**

I'll turn it over to Dr. Bates.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

In the next panel, we'll focus on care coordination in the ambulatory environment. The moderator will be George Hripcsak. He's out for just a second, but he'll be back very shortly. First, we're going to hear from Dr. Rajeev Chaudhry from Mayo. Thank you.

**Rajeev Chaudhry – Mayo – Assistant Professor of Medicine**

Good afternoon. I'm Rajeev Chaudhry, a practicing internist at Mayo Clinic, Rochester, and I also lead the development and implementation of point of care, population management, and reporting systems for our primary care practices to fulfill the workflow needs.

In response to the first question regarding effective use of health IT to support care coordination, I'd like to share the experience of Mayo Clinic in this field. We are a large, multispecialty group practice, and before we came electronic, we had a paper record, which was shared amongst the outpatient practice, the inpatient practice, the specialist, and the primary care providers. And 20 years ago, when we started becoming electronic, the same electronic record is now shared between all these different parts of the healthcare delivery chain.

But as others have shared before, technology is not the only solution for providing good care. We need processes in place too. So even though we have electronic messaging system, if my patient gets to the emergency room, I get the electronic notification in my inbox that my patient is in the ER. Or if they're admitted, I get a notification. But that notification goes to my care team member too. And as soon as the patient is dismissed from the hospital, there is a visit scheduled with me within five days to continue with the coordination of care.

In addition, a nurse calls them after they are dismissed to follow up on them, to see if they are taking their medications, and can intervene early if needs arises. So as a result of that, we provide good care coordination, and the need of care coordination actually is the most in the last six months of life. And in response to where the health IT and care coordination can reduce costs, I would recommend looking at the Dartmouth Atlas on Medical Spending. We are a region, which has the lowest cost for the last six months of life, I think, predominantly because we provide good care coordination for the last six months.

In response to the second question, as others have already shared this morning, our current EHRs don't do much to support care coordination. We desperately need electronic, shared, care plan for our patients with chronic conditions. And it should track the care and status of the patient over a long time, incorporate patient's wishes, identify their caregivers at home, coordinate with community resources like home health, public health, etc., the pharmacies. Keep track of their lifestyles, proactively ... if they're at risk for complications and intervene early. And help the care team to reach out to them proactively to provide the care that they need to provide.

Over the last one year, we've developed the population system like this for our practice for diabetes, and it's fulfilling some of the tasks that have outlined in my comments. And it is demonstrating improved quality of care that we're delivering. In addition, it's improving the satisfaction of our care team members because now they have tools that can help them provide the care that they need to provide for the large number of chronic conditions that we have and large number of patients, which have more than one chronic condition.

In response to your last question, to reduce readmissions and unnecessary ER visits, again a shared electronic care plan is a must. The physician taking care of the patient in the hospital needs to know who their primary care provider is, who their care manager is so that they can reach out to them. One of my colleagues has actually set up a system that as soon as he receives the electronic notification that his patient is in the hospital, sends an e-mail to the resident and the staff taking care of the patient that I'm this patient's provider. Reach out to me whenever a question arises so that there is ongoing coordination between the inpatient and outpatient.

Lastly, I think we need intelligent systems so that when the patient is in the hospital, we can determine proactively what's the risk of readmission so that the patients who are at the highest risk for readmission, we can engage with them right when they're in the hospital to get them the additional care that they may need, whether it's care coordination or it's remote monitoring because we cannot provide all those modality of care for every patient that's admitted, but only a subset. And we need to have smart systems that can proactively identify that risk and then intervene appropriately.

So I would end my comments by sharing that I'm excited about the opportunities that health IT has, and I'm sure having an electronic care team that everyone can work together on for the patient, and the patient is also activated and informed from that so that they know what they need to do, when they need to reach out to their care team, how to reach out will help us provide better care. Thank you.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Thank you, Dr. Chaudhry. Let me introduce the balance of our panel. First, we'll have Christine Sinsky, who is general internist at Medical Associates Clinic and Health Plans in Dubuque, Iowa, and works on practice innovation, redesign, and patient centered medical home.

After Christine, we're going to hear from Mary Burke, who is chair of the Nurse Alliance of SEIU Healthcare IT Committee, graduated from Coke College with a Bachelor's in Nursing in Sociology and

Psychology, and has been practicing for over 20 years in outpatient and clinic settings, and working at the University of Iowa Hospitals and Clinics and working in nursing informatics actually.

Gordon Schectman, who is a general internist at the Medical College of Wisconsin for about as long as I've been at Columbia in 1984 and is currently Professor of Medicine at the Medical College, but a full time appointment of the Department of Veterans Affairs. In 2008, he was appointed acting chief consultant for the primary care at the VA and, in 2009, was asked to implement the patient centered medical home, very appropriate for us.

Let's start, Christine.

### **Christine Sinsky – Medical Associates Clinic & Health Plans – General Internist**

Thanks, George. It's a pleasure to be here and a pleasure to be with all of my Midwestern colleagues today. Just for further context, I am a general internist. I'm a primary care internist, and I work in a 115-physician, multispecialty practice. Just as we've heard about, Olmstead County, if you look at the data in a different way of the 300 metropolitan service areas in the country, Dubuque County has the lowest cost per beneficiary for hospital costs for the last few years of life for those who have chronic illnesses. Also, in 2008, our clinic was designed or was recognized as a level three patient centered medical home.

Our background is that in 2003, we implemented our EHR. About the same time, our hospital, at which we do the majority of our work, also implemented an EHR, although from a different vendor. Each of these EHRs have helped with care coordination in my practice in very important ways, and I would never go back. Yet, unexpectedly, the EHRs have also presented barriers to improving care coordination and patient safety. Truthfully, it's really been a bumpy ride on the frontlines of implementation.

Much of the policy discussion is focused on physician adoption, as it should, but I think there is another key issue. We don't just need more EHRs. We really need better EHRs. And I think, when usability improves, I believe physicians will flock to the technology, just as we do, and use it meaningfully, just as we do with IT and other areas of our lives. Promoting interoperable and more usable EHRs is among the most important challenges that I think are facing ONC.

My written comments to you are arranged as a series of ecological field notes, if you will, and I'd like to highlight a few of those here. First, I want to share with you some of the ways that the EHR is helping my practice and helping me coordinate care for our patients. Most important is I never have to see a patient without their record anymore. I'm never in the dark about the care that they have had, never completely in the dark about the care that they have had. In addition, when the patient calls in, my nurse can immediately pull up the record and can give them advice that's based on the information that's in the record. For each of those activities, there's no waiting for the paper record to arrive.

In addition, we're able to give patients copies of all their lab and x-ray, as well as updated medication lists and a summary of their medical history. This information sharing, I believe, helps us to partner more effectively with our patients and their families. We ask them to take that information with them, particularly when they get care outside of our system.

But despite these innovations, there have been some very serious challenges. Usability, I think, is the Achilles heel of electronic health records. Simply put, it takes longer to do the same work. I now see approximately 20% fewer patients per week than I did prior to using the EHR. If this experience is replicated across the country, it has serious implications for access and continuity, which I believe are the cornerstones of care coordination.

In addition, there are times when we are drowning in data. Just as more care isn't always better care, more information, particularly if it's disorganized, isn't better. Simply because a piece of information is housed within the electronic health record doesn't mean it will be available to the nurses or the physicians at the point of care. Important information may be buried in an inaccessible location or overlooked because of poor navigation or display. In some EHRs, there's no carry forward function for the type of personalized data that helps us connect with the patient or keep their care on track. I think what we've heard of today is that shared care plan.

In the paper chart, I used to pencil in notes that would subsequently help me connect with the patient. These might be social notes such as the patient's wife was recently diagnosed with breast cancer. That allows me to check back on that. Or it may be medical notes that allow me to know what the thinking was that summarized the evaluation that's been done and limits the likelihood that either I or one of my colleagues would unnecessarily repeat studies or go down the wrong track for that patient. If there's an important piece of information that needs to be carried forward, I'm left either reentering this information at each and every visit, or losing track of it all together. And yet, these kinds of nuggets are often the key elements that help me to coordinate the care or to guide care to be less resource intensive.

Continuity, access, and connectedness are the foundations of care coordination, and we need the information tools that will help with this broad and deep synthesis that's inherent in coordinated care. We need tools that will allow physicians to see at a glance the important aspects of the patient's medical history to be reminded of the patient's unique social situation, and to allow us to inform decision making with customized details. And we need to be able to communicate these important pieces of the puzzle to others involved in the patient's care. And I believe when our HIT tools facilitate this, then we'll meet our best intentions of delivering a very high level of coordinated care. Thank you.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Thank you, Dr. Sinsky. Mary?

**Mary Burke – Nurse Alliance of SEIU Healthcare HIT – Chair**

I am the chair of the HIT committee for the Nurse Alliance of SEIU Healthcare. The nurse alliance represents 85,000 RNs in 23 states among more than a million SEIU healthcare workers, including physicians, pharmacists, radiologists, and home health providers. I'd like to start by thanking the HIT advisory committee for allowing me this opportunity to testify about the use of HIT in ambulatory care settings to promote effective care coordination. I've had the privilege of connecting with many RNs and other healthcare users of HIT, including SEIU members and members of other unions, and nonunion healthcare professionals. I want to especially thank American Federation of Teachers Healthcare Nurses and American Federation of State County Municipal Employers Nurses for sharing their HIT insights and experience.

I'm here to testify on behalf of all frontline caregivers, presenting the issues healthcare workers see as vital to the HIT in ambulatory settings. As you're all aware, HIT has the potential, when properly implemented, to markedly improve quality of care and ultimately to save lives. We also support ONCHIT patient centered approach, quality improvements through data mining, and providing those we serve with timely access to their own medical records.

Joanne Spetz, Ph.D., University of California— I skipped a page. Sorry. I'll just go ahead. Joanne Spetz, Ph.D., University of California, San Francisco, School of Nursing and Center for Health Professions, has done extensive research on the impact of HIT on nurses. Her findings support the experiences that were on the last page of one of the nurses who had a successful go live. Specifically, she found that healthcare institutions that had a solid employee relationship and a strong leadership and

endeavor to elevate and give voice to frontline workers' concerns have smoother, more effective transitions to HIT.

She reports that the VA system that experience successful rollouts involve frontline workers in the development of HIT so that the end product mirrored the everyday experiences and needs of end users. She also found that successful VA systems were, "Very stable and fault tolerant sites that recognized there would be setbacks and intentionally pushed through them." This led to the very best experiences found.

This brings me to our recommendations. Effectively, advanced care coordination in the ambulatory care environment, including clinics connected to hospitals and standalone ambulatory settings, we recommend that ONCHIT encourage HIT adopters to include these best practices or guidelines in a written plan. Frontline worker involvement: Successful implementation must involve frontline healthcare workers as truly equal partners at those decision making tables, determining HIT readiness to evaluation and expansion. Decision making: Effective planning and implementation require that frontline end users are trained and educated so that they can serve in decision making capacities with management and make informed choices. Frontline end users should be consulted in all facets of the implementation from choosing the software and the hardware to evaluation and expansion.

Design: We cannot stress enough the importance of frontline workers' involvement in the design of HIT. Technology is intrinsic to healthcare workers' tasks and workflow. Systems must be designed to accentuate the skills, scope, and abilities of every member of the team. We heard from a lot of nurses who were not included in system design or included in name only, and avoidable problems were quite predictable. Frontline workers should be included in the preparation for the HIT rollout plan, including a schedule of training. HIT support should be made available on all shifts during and well after the go live. Effective frontline user involvement can be assured by building a training committee of frontline end users and managers to develop and monitor the training process.

The timing of training can have a significant impact on accessibility for end users. It is important to make it on work time, make it available to all shifts, and make it close enough to the implementation of the technology so that the training is still fresh. Frontline practicing providers should also be involved in training the end users. Training should place the technology in the context of all the changes taking place today, healthcare reform and quality improvement for example. And it should warn about potential negatives from the technology, side effects if you would. It's important from a quality patient care perspective to insure that the training is effective and the trainers are qualified.

HIPAA Privacy and Security: Prior to implementation, all members of the care team should be retrained on HIPAA's privacy rules and their application to EHRs in the key aspects of security of the new HIT system and how to protect patient's privacy. End users should also be trained to identify breaches in privacy and security. End users should also be guaranteed access to clearly identified, adequate, prompt, 24/7 technical support for go live and a significant period of time thereafter, and should be well versed in backup system and plans in the event that the electronic EHR systems go down.

Protocols should be developed to assure a blame-free environment and to create an atmosphere for learning. The information gathered from an electronic health record will be effectively used for quality improvement only if healthcare workers can report errors and near misses without fear of discipline and retaliation and can be done very easily.

As you can see from this testimony, the Nurse Alliance uses effective training as essential to the success of HIT implementation. ONCHIT needs ... workaround developing standardized training for end users on

HIT. We would like to continue to work with ONCHIT and HHS to insure there is dedicated funding for training frontline end users and make it available to all meaningful users.

Thank you for providing us with the opportunity to speak with you on behalf of frontline healthcare workers so that we can join together to make HIT successful. It's a top priority for the Nurse Alliance. We'd love the chance to continue this conversation and plan to submit comments for stages two and three. We're quite optimistic about ONCHIT's willingness to involve those who use the tools in building the tools. Thank you.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Thank you. Dr. Schectman?

**Gordon Schectman – Medical College of Wisconsin – General Internist**

First of all, it's a pleasure being here and being provided this opportunity. My comments really are both from the perspective of trying to organize this initiative, the patient centered medical home implementations for the VA, as well as my own comments as an end user and a clinician within the VA, and actually in the private sector for many years.

First, some background comments. The VA is a large healthcare organization consisting of about 140 hospitals and about 850 geographically distinct primary care clinics. It includes 7,000 primary care providers, some of them part-time, and cares for approximately 5 million veterans. A high percentage of our patient population is over 65 with multiple comorbidities.

The VA is a good example of how leadership at the highest level can make an important difference for the entire organization. For example, I think it's an important example. In 1994, the VA, under Secretary for Health at that time, Ken Kiser, shifted the direction of the VA towards a primary care based healthcare organization. He created the concept that primary care should be delivered through interdisciplinary teams, and actually specified rather specifically in a directive how that should work. And the teams included, in addition to a physician or midlevel provider, nurses, RNs, LPNs, medical assistants, clerical support staff. Also included were dietitians, social workers, clinical pharmacists. And the concept was that every veteran in the VA preferably had to be enrolled in primary care, and software was set up to actually manage that and manage panels of patients, and things begun to be prescribed in terms of what recommended panel sizes were for providers and what the proper ratios of support staff to the providers should be.

The primary care would then have a primary referral authority to specialty care and other VA programs. In addition to this, the Undersecretary at that time mandated construction and deployment of an electronic health record. By 2001, this electronic record was first deployed on a voluntary basis and used conjointly with the paper charts. And I still remember those days where we had a huge chart, like it was this big usually, and then we could use the CPRS. We could use the electronic medical record as an option. However, only about 10% of providers initially began to use the EMR on a voluntary basis, and so it was mandated in 2003 that everyone had to use it, and the paper charts vanished. Everybody got very nervous actually for quite some time.

The EMR, even at that time, had many capabilities that were described today already, and they included clinical reminder capabilities, transparency across the entire VA, a consult package, which could track scheduling and also automate communication between provider and specialists. It included problem lists, which allowed annotation, and also provider order entry. So by 2005, we had a reasonably sophisticated electronic medical record, which was assisting care and actually the foundation of care.

Just some comments: The electronic health record greatly enhanced the performance of the system, but required more provider time, and this kind of adds to what Christine was saying. The provider now is expected to do everything electronically without dictation. One of the consequences of this was that appointment times nationally began to increase from approximately 20 minutes to 30 minutes. And this reduced the number of available face-to-face clinic slots that were available for appointments. This 50% increase in visit duration resulted in a decrease in face-to-face clinic slot capacity and also a modest reduction in provider panel size.

Why was the extra time needed? It was needed because providers were really expected to document much more, to document performance through clinical reminder completion using structured data elements, to specify reasons for referral to specialists in all VA programs, and service agreements were templated within the consult referral package, so you knew exactly what the specialist was looking for and were expected to address that in an intelligent way, which makes good clinical sense, but does take time. There was more organized review of notes to insure proper documentation of notes for third party billing, so now everything is electronic. It's very easy to review stuff. The providers knew that their documentation now really was going to be reviewed and evaluated to insure accuracy, so performance improved, yet it took more time.

And, finally, providers began to use the electronic health record as a means of communication, realizing that this was a great way to communicate with other members of the primary care healthcare team, and specialists as well. And so, being more elaborate about what you were doing allowed everyone else to understand what was going on with the patient.

What I found of interest was that most of the primary care teams were using innovation to address this reduction in clinic visit availability because the concern was this would compromise care and reduce access of patients to the providers, but this actually did not occur because the presence of structured primary care teams that was already in place allowed the providers to begin to shift some of the patient care responsibility to others on the team, particularly the pharmacists and RN. The primary care teams began to consider new strategies to implement non-face-to-face care, particularly for patients with more complex, difficult management issues, and more of the care to occur virtually, so there were benefits from these unintended consequences.

Another unintended consequence of the EHR was that it changed the relationship between provider and patient, at least in the short-term. Providers who could touch type, did not have to watch what they were doing, they were able to document extensively while maintaining eye contact with the patient. But others couldn't do that, and began to take themselves away from the patient and patient satisfaction indices began to decline for some facilities, at least for a short time. Many providers learned that the only way they could do this was to do all their documentation when the patient wasn't there, and stayed late at night in order to accomplish that.

Several points from this example, implementing the EMR was unpopular, yet successful because leadership was insistent, providers knew it was inevitable, and third, the team and the providers believed it was the right thing. A combination of those three was really very powerful. In addition, most primary care teams have the resources to manage and modify local processes to mitigate the unintended consequences of the electronic health record implementation.

Patient care across the nation ultimately improved. Examples of this improved quality associated with the electronic health record include the recent studies, which show improved chronic disease and prevention indices within the VA, often in comparison with the private sector. This is probably due in large part to the

clinical reminders, which encouraged, in fact, insisted that important issues get addressed while the patient was there.

The VA is now undergoing its second primary care transformation under the leadership and oversight of our current Undersecretary of Health, Dr. Randy Petzel. Primary care leadership has been asked to implement the patient centered medical home over the next three to five years, building on this first transformation. This will include developing further the concept of care coordination for veterans and also insuring sufficient staff and resources to empower primary care teams to provide the necessary oversight needed for veterans, particularly those at high risk for adverse outcomes.

To this end, one of the new tasks of the electronic health record, one of the new tasks that it faces is the construction of a high risk registry to identify and help manage veterans at high risk for admissions and urgent emergent care visits. Now this is well within the technology capabilities, but constructing this in a way that's going to actually be usable is a challenge, and that's what we're working on. A clinical predictive tool built from patient's diagnoses, frequencies of visits, hospitalizations, and critical test data can then automatically generate such a list, at least preliminary, and then can be further modified by the primary care team as appropriate.

Of interest, some of the needed changes in the electronic health record, particularly regarding care coordination, are going to need to wait for the resolution of some cultural discrepancies that still exist between critical members of the interdisciplinary care team, and this cultural issue has been alluded to before, but it's a very real one. For example, a construction of a care plan is usually considered an important feature of a patient centered medical home. However, our nurses and providers still have yet to agree upon the need for this or how it's to be used. Nurses grew up with this concept of a care plan and documenting, keeping it up to date and so on as part of what they do. On the other hand, physicians generally have no clue about what a care plan is, why it would be needed, and why they should bother such a thing. Why is that a problem? It's a huge problem because if we implement the technology and develop the tab for a care plan that you can go to very easily, very accessibly and so on, everyone can use it.

If it's ignored by the physicians because they're not ready to use it, then it simply becomes a nursing tool, which ultimately will end up being divisive for our primary care teams and not integrating everybody's talents working to take care of the patient. That's an example where the culture has to work with the technology, and leadership at an organization needs to be in touch with both and bring in the patient as an important part of the decision making process, both in the process of being built, as well as obviously in care plans.

In summary, the VHA is moving forward to further improve its initial work to construct and implement an electronic health record across a large, geographically diverse healthcare organization. The patient centered medical home implementation will further transform primary care, but also encourages transformational changes, specialty care, and multiple other VA healthcare related programs.

We've very encouraged about the potential for success of this initiative for the same reasons that contributed to the success of the initial electronic health record implementation back ten years ago, and these are that we have the support and direction from top leadership, that providers now know that change is inevitable. It's part of a change culture, I think, in our organization now. And, third, that the healthcare team firmly does believe that this is the right thing to do for our patients. Thanks.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Thank you very much. Thank you, all. Thanks for coming, and thanks for your testimony. So one theme in the second panel was med reconciliation, it takes extra time. And now in this panel, we've heard a couple times of the extra time it takes. Of course, there's a question of how much, Christine, does it do to use poor usability, in which case it's bad news, except at least we can fix it, and then expect perhaps that time to go out versus the time we're just asking doctors to do more or eligible—all professionals involved. It's not just eligible professionals we're talking about today because, Mary, you're representing all the workers that are part of the care team.

Are we asking them to do more, and that has some benefits, and maybe patients have fewer visits to the doctor or something, and that's why you can afford it. But what's your feeling? Are we going to regain some of that time? Are people going to learn how to type so we regain a little bit of that time, or are we kind of at a permanent loss?

**Christine Sinsky – Medical Associates Clinic & Health Plans – General Internist**

I would love to address that, and then I'll turn it back to you because I think we are in this transition period where we've got this new technology, and we're changing the electronic infrastructure of practices, but we haven't correspondingly changed the personnel infrastructures. And I think that there will be new workers who are part of the team. And part of that function may be documentarian function because I truly believe we're wasting physician resources in a colossal way. That for the physician to be the one to go through a 6-screen, 12-click process to change a medication is really a waste of our effort. It needs to be documented why the medication was started and why it was discontinued, but the physician doesn't necessary be the only one in the room interacting with the computer.

I think we can regain some of that capacity, and we can allow our physicians and other providers to really focus on what patient's value, and that's relationship building and shared decision-making. But we have to build the personnel infrastructures, the team that allows us to do that, and that's partly why I think it's important not to call it CPOE, but to call it COE because I don't think we need to bake in that the physician is the one who does the physical entry of the orders.

And I also think we need to have tools that allow collaborative documentation. But right now, for my nurse to be signed in as her, and then move it over to me, and if we want to be going back and forth as to who does documentation of different parts of that visit, it's a 12-screen, 54-click process for her to sign out and me to sign back into the same place in the record, and so we need our tools to match our work here.

**Gordon Schectman – Medical College of Wisconsin – General Internist**

I'm feeling everyone can comment on this, so I agree very much with what Christine said. It's a question of understanding how the roles, particularly those of the provider, can be parlayed to other members of the healthcare team. And, for us, it's trying to understand who those new members should be. For example, there's one healthcare system, which has become famous for its use of kind of like a surrogate provider.

Usually I believe the health technicians are actually at a higher level perhaps than LPN trained and actually then dictates into the electronic health record while the provider is seeing the patient. The provider dictates to that person, and that person then does all the ordering and so on, probably ultimately signed by the provider, but that's an example of an innovation that can be tested. Hopefully we'll be able to do that within the VA to understand if perhaps that will enhance the efficiency of the provider, even without necessarily improving the electronic health record.

The other approach is making it much more flexible, so everybody can play an important role in the documentation, not just the provider, including entering orders, and so particularly some orders that don't need a provider necessarily to take care of. I think there are a number of issues that could be addressed simultaneously. I think the goal is to make the providers even more efficient than they were back, way back when, and not to accept a loss in provider efficiency or ability to take care of a significant number of patients. There are training issues also, I think, that are important.

I don't know, Mary, if you want to—

### **Mary Burke – Nurse Alliance of SEIU Healthcare HIT – Chair**

Yes. I do think one of the things that we heard from our IT folks when we did our go live is it's not meant to save time. It's meant to improve safety. The problem was the follow up to that wasn't demonstrating where it's improved safety, so people will go around and pick out the negatives of the CEDIS wasn't safe, and this wasn't safe, and this was harder. When they start to do the workarounds because they don't understand the whole concept, they don't have the information and the knowledge base to understand why medication reconciliation or being sure that you include all the teaching aspects in the treatment plan are important, and that's what's going to improve the safety.

I think, again, it goes back to the education. And there are a lot of end users who don't really know how to send an e-mail, so we're talking about different levels of skill and different levels of keyboard intelligence, and if those folks can be, things can be remediated so that they accept them at the level that they're at and help them build the skills that they need to use the system, that improves the efficiency. But those folks come in, being trained by IT professionals instead of the end users who understand the concepts, as they come to it, and that's what they live is IT, and they don't understand why you can't figure out how to page back or get on that page fast or whatever. Then it becomes two different worlds, and they start doing workarounds, and things go back to being dangerous and more time-consuming, both.

### **Rajeev Chaudhry – Mayo – Assistant Professor of Medicine**

You know, I think the technology should enable a care team to provide better care. Technology should not be an obstruction to provide better care. So I think that's where if the workflow is clearly understood of what it is to provide better care, and then technology is adopted for that, then we can see improved care and improved efficiencies. So in our care, we dealt with the same issue with medication reconciliation, and that was even before we had an electronic medical system for medications.

The first thing we did was just send a note to the patient when we sent them a reminder for their appointment or the appointment, or when they called for an appointment, the appointment secretary told them, bring your bag of medications with you. And when they came with that bag, we had one of the LPNs who would go over that bag with them and create the medication list. And that was much more accurate than we ever had. We need to engage the whole team, including the patient, if we have to achieve better care.

Regarding creating the orders for medication, we cannot depend upon physicians to do all the typing. We can have the care team members initiate the medication refill that a physician can assume, make sure it's the right one and complete because the technology is there that can enable that. The pharmacist can send a medication refill request, so there are ways to innovate the practice to provide the better care.

The other thing we have done is most of the benefits we have seen actually come at a population level rather than at a point of care level because if we have 8,000 diabetic patients, and like Gordon was saying, we can have smart registries. We don't need a registry of all 8,000 patients and know that these

are patients, and then someone has to go through all of them to see when someone is due. You could have a smart system so that it would be connected to your clinical systems real time. As soon as a lab is done, based on the rules, it stratifies the population into well controlled, or we call them green diabetics, in between control or yellow, or poorly controlled are red.

Then based on what the care is needed, we can have our appointment secretaries set that care for them based on the processes that we would have. So a green patient probably just needs a blood test and a nurse to call them if it is still well controlled rather than coming to see a physician because it's just a hemoglobin A1c they need, whereas a red one probably also needs an endocrinologist and a dietician and a diabetic educator. But by knowing that they're in control beforehand, we can assure that those members of the team are also there when that patient comes so that they don't have to make three trips. Technology can enable care coordination, and it should enable care coordination, but it has to be carefully designed and implemented in practices.

**Deven McGraw – Center for Democracy & Technology – Director**

There's been a lot of discussion among all the panels today that have focused on user centered design and this notion that the— And I know, Dr. Sinsky, in your testimony in particular, it was you have to click through 12 screens. It's just doesn't match workflow. But I assume that workflow in one institution isn't the same as workflow in another institution.

So I'm struggling with how we could come up with recommendations for either meaningful use criteria on care coordination and the technological capabilities to better match those that would avoid a one size fits all solution that probably isn't going to solve the problem, but gives enough direction to both providers, as well as the vendors in the marketplace about how to do this better. If you have any suggestions along those lines, I'm very interested in hearing them.

**Christine Sinsky – Medical Associates Clinic & Health Plans – General Internist**

It's a very complicated issue because I really do believe so much of it resides in the vendor, that there's this big gap between what policymakers assume is feasible and what is doable in reality. And it resides, I think, primarily in the vendor, and also in interoperability.

I was talking to a physician two days ago, a rheumatologist who said she quit her practice of taking care patients because of how much additional time was required for her to do the work. So she took an administrative position. And part of the issue was that much of her lab was reference lab, and every single lab was scanned in as a PDF document, and so to access that information, she had to open each screen up, and each screen took three seconds. And by the time you accumulate the effect of that, actually all those seconds and minutes add up.

I think, in answer to your question, are we going to regain that efficiency when I learn to type faster? It's not about my typing. I'm a really, really good typer. But when I have to read a scanned in document, say an EKG that was scanned it at 90-degrees, and I have to turn my head like this, or I'm reading a cardiac cath report that I can only see three lines of text, it just mentally takes a lot more energy, and it takes more time. And because I look at 1,000 test results in a week, each one of those seconds really matters. So I think, from a regulatory standpoint, if we can push vendors for ease of navigation and multiple vendors for interoperability of their data, that will make a big difference in the user experience.

**Rajeev Chaudhry – Mayo – Assistant Professor of Medicine**

I think the other point is, which you said so well, that each practice is different. Each practice has their own culture. Each practice has their own infrastructure. And one size, one cannot fit all. So there has to be capabilities for easy customization and adaptability of technology to fulfill the workflow needs. So

there are a lot of other technologies that we use in our everyday life, which are standardized, but still they allow you to customize it to your need.

You use iPhone. How you get an icon in the same on each iPhone, but how you have it on your screen, there is flexibility of how you would like it or which ring tones you would choose. You have the flexibility. But still, there is a finite number of things that are possible. I think, health records also have to look at, the EMRs also have to look at making them more customer friendly because even the best EMRs, when you look at their navigation, even for the place that they may have designed, leaves a lot to desire.

**Gordon Schectman – Medical College of Wisconsin – General Internist**

And just to add to that, there's always a disconnect because, from the user, even a user, so if something takes eight mouse clicks, from the designer, eight mouse clicks is nothing, and the user also feels like it's only eight mouse clicks. But the problem is, if it's for a medication reorder, if it takes eight mouse clicks to renew a medication as opposed to one, so if you do that 200 times a day. Just imagine the number of mouse clicks in the course of a week or month. Ultimately it becomes quite burdensome, just as an example.

I think there's an underestimation nationally of the work that really goes into constructing a living, breathing, electronic health record. It requires a vendor who is going to be very flexible, work with you, make changes quickly, and then let them be tested, and then modify them and so on, and that's very difficult across a large organization, and then it becomes very difficult when you try to make recommendations nationally in terms of what you expect. It's something that we wrestled with. But there needs to be, I think, some standardization to allow EHRs to talk to each other, and that's ultimately going to be absolutely necessary. At the same time, the flexibility, and so where that line is, is something I don't think has yet been defined. But I think recommendations coming forward nationally will ultimately drive the agenda at the individual facility level.

**Mary Burke – Nurse Alliance of SEIU Healthcare HIT – Chair**

One thing that I've come to understand is that most HIT systems are built around billing. When they start at billing and don't start at the patient and don't start at the interface between the patient and the provider, that becomes secondary to the billing process. Utilizing the end uses as the beginning users would be a piece of efficiency in that, and figuring out the structure between the different offices. You know, I think the VA system is one of our examples of a well run IT program. And billing isn't an issue for them, and it can be added in, instead of being the entire focus for things. Vendors at least need to be in the system that they're going to be working with so that they can understand a little bit more about what it is that the end user is needing.

**Gordon Schectman – Medical College of Wisconsin – General Internist**

I don't want to go too far from care coordination, our main topic, but just to—

**Deven McGraw – Center for Democracy & Technology – Director**

I do—

**Gordon Schectman – Medical College of Wisconsin – General Internist**

Let's go back. I mean, I'll just point out that our level is that we can ask for outcomes on patients. We try not to design the user interface. In fact, we'd probably make it worse because when we say there have to be drug/drug interactions, three of those eight you just mentioned are us telling you that you have to click off on the three interactions that you didn't care about. I'll also point out that it's the VA is building its own system, and I bet it has some usability problems, as well as the vendor systems, so I want to point out the vendors, like anyone who builds a system is subject to problems like this.

The one thing we've done, I think, positive, which was pointed out in an earlier panel, in the first panel, is that we're focusing attention on what Mary just said. We're focusing attention on the clinical objective rather than just billing. As we increase the market, more doctors start using systems, there'll be more capital in the system to build better systems that are more usable than more competition, so we may improve the usability.

We can't do it directly because we're not going to say, you know, you've got to change this screen over here to any vendor. Not this workgroup. But we can increase the number of people using it and focus people's attention on the clinical outcomes so that they start making the screens better for clinical care as opposed to better for billing. Those are the kinds of things we can do, but we should move more to care coordination as much as possible.

**Deven McGraw – Center for Democracy & Technology – Director**

Yes. Although, just on that note, the certification criteria, which drive the requirements for EHR, come from our meaningful use recommendations. So while we do not dictate technology, nor would I think I agree with you, we want to dictate what the screen looks like, we do actually have an opportunity through care coordination, meaningful use criteria, potentially to be driving some requirements with respect to how the technology needs to be able to honor that.

**Gordon Schectman – Medical College of Wisconsin – General Internist**

Certainly the interoperability part.

**Christine Sinsky – Medical Associates Clinic & Health Plans – General Internist**

Yes.

**Gordon Schectman – Medical College of Wisconsin – General Internist**

Sure.

**Christine Sinsky – Medical Associates Clinic & Health Plans – General Internist**

He just said what I was going to say because ... vendor ... software develop ... and recognizing that the tension is between being too prescriptive in terms of usability is its impact on innovation. Again, as you add more regulations, then that constrains innovation, and so I think the developer community clearly wants to be on the innovative side because, to get to what you talk about, we've got to leverage all sorts of types of innovation out there to get to the kind of user world that we can look and dream of, and for all reasons, we're not there now. That's just kind of a general comment.

Another piece too, I think it's very relevant, Mary, to the piece that you talked about was as a vendor, you talked about all these ways you wanted to do things. We built in tons of options, flexibility tools, adaptability tools, you know, to do what you want. But unless the providers on the other side use those in ways that don't impact workflow and are efficient, then they also can't, at the point of care, impact care. So it's really a handholding exercise between the provider community and the software developer community to make this work. And so, this usability thing transcends more than, if you will, I think, the software developer community. Enough. I know it's not our topic, but it's one that we're pretty passionate about.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Christine?

**Christine Bechtel – National Partnership for Women & Families – VP**

I do have one care coordination question, and one that's probably very congenitally related to care coordination, but I'm not even going to try to wing that, and that is a follow on to this discussion. What I heard Christine said, and what I think Mary said, and Gordon as well, is that to get around not just some of the usability problems, but also some of the issues around what we're asking healthcare providers to do with an EHR that they take more time, right? Gordon, you sort of listed off things like now having to document the reason for a referral and performance improvement processes. And I just have to say from a patient perspective, that all sounds like exactly what we should be asking healthcare providers to do, so I'm not going to feel bad about the added time there. But that does take me to thinking about roles.

And so, Christine, I heard you say we have to rethink the role of other care team members and direct care workers, and I completely agree with that. And so when I think about meaningful use, my question is, how do we do that in the context of meaningful use, and is that through the regional extension centers, for example? I'm particularly curious because I hear you, and I hear the acute pain that you experience in having to take a lot more time due to the usability of these systems, but I'm also wondering have you shifted some of that to your own care team, and how successful were you? And what then, drawing from that, would we need the RECs to do to make sure? I mean, to me, this comes down to making sure meaningful use is a success, so how do we deploy the right set of resources to begin to shift those roles so that we don't feel bad when we're putting on extra criteria that really, frankly, should be part of the care process today.

#### **Christine Sinsky – Medical Associates Clinic & Health Plans – General Internist**

I really appreciate your sensitivity to the fact that regulations that make sense when you're sitting around the table can either be completely impractical or just stop clinical care. And so you want to be sensitive to the number of those regulations, and be aware that paradoxically they could actually decrease care coordination by distracting all the clinical energy to the tick boxes, and I don't think that's the intention by any means.

Personally, I have a strong team where I have two nurses who work specifically with me whenever I'm in practice, and I think that's very unusual, but the reason that I do that is to have this shared responsibility among the three of us for the care of the population of our patients and to help share some of those tasks. But our IT gets in the way because we both can't be signed in and working on the same computer on the same patient, and it takes – if she's going to be documenting some, and then I'm going to be documenting some, and then she's going to be because that's the way good care coordination would happen, we have to sign in and out of the record each time, and that is not feasible.

Just another example, we had decided that it would be a great idea. We were all bought into this that we would give every patient at every visit an updated list of the medications. We think that's good. We know that if they have the list of medications, it'll make our job easier the next time. We could not do it, and we are committed to doing that, but it just threw sands in the gears of our workflow to do that. So I think it just is important to recognize that the regulations that come out of meaningful use do have the potential to distract all of our energy away from our primary tasks.

#### **Christine Bechtel – National Partnership for Women & Families – VP**

Let me ask my second question, which is for you, Gordon. You talked in your testimony about electronic links among practices from different healthcare organizations and some work that the VA is doing to interface with community practices, I guess, through VHA and specialties. I was wondering if you could describe that more. What does that look like? Is it a portal? Is it access into the VA database? How does that work and are there any lessons that we could draw for non-VA healthcare providers, as we think about communication and coordination?

**Gordon Schectman – Medical College of Wisconsin – General Internist**

It's a Web-based portal linking to different, dissimilar EHRs. I would have to. I can provide more information. I don't have that much at my fingertips right now. But it's a desire really for the VA to develop links with the community, particularly in areas where most of the veterans actually receive care elsewhere, dual care, co-managed care is a huge issue for veterans, and so it's a priority for the VA to develop those links, and it's become an IT priority, so I can get you more information about that if you wish.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Judy, is there anyone on the phone who has a question, any of our committee members?

**Judy Sparrow – Office of the National Coordinator – Executive Director**

I haven't gotten an e-mail, but you might want to check.

**George Hripcsak - Dept. of Biomedical Informatics Columbia University – Chair**

Paul is on the phone, perhaps Michael, David, Art, and Jim. Any questions there?

**M**

None from me, George.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Thanks.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

Thank you.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Mary, do you represent anyone who would be an eligible professional under HITECH or is that a separate ...?

**Mary Burke – Nurse Alliance of SEIU Healthcare HIT – Chair**

We primarily represent healthcare workers, but the tech part, I mean, there are a lots of practitioners in IT.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Now the point here being though that you're representing these members of the team that's about care coordination. They're not represented in HITECH for the most part, yet they're a critical part of medical home. You represent SEIU, the committee that would deal with the medical home, so is it plugged in with ... so what's the mechanism for you representing workers who would be plugged into the medical home initiative to that which would generate IT requirements for us?

**Mary Burke – Nurse Alliance of SEIU Healthcare HIT – Chair**

I'm not sure I'm tracking the question exactly. Can you try it again?

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Sure. There are many workers that are part of medical home, and they have different requirements for IT. We would commonly be talking to the physicians and hear their side of what's needed for medical home, but there are other workers who need it, and you're here in part to represent that. Is there a mechanism within the national, the federal kind of infrastructure for building medical home? Is SEIU part of that?

**Mary Burke – Nurse Alliance of SEIU Healthcare HIT – Chair**

I believe that we are peripherally involved in that as well. I'm not part of that division, so I'm not well versed enough to speak to that, but—

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Is there a mechanism for us to kind of see what recommendations? I mean, these are your recommendations, which is about training, but what about functional requirements for medical home, for non-eligible professionals?

**Mary Burke – Nurse Alliance of SEIU Healthcare HIT – Chair**

I would think that we'd be able to extrapolate to most any workgroup.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

So there may be a new worker, for example. What did you call it, a documentarian?

**W**

Scribe.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Scribe, thank you. Would they be in your union?

**Mary Burke – Nurse Alliance of SEIU Healthcare HIT – Chair**

Certainly somebody that would be eligible as a direct care provider, direct service provider. The ... has developed where IT is in one place, and healthcare providers are in another. And since the language is so disparate, it's like those people. And I'm actually in a medical informatics program here at Northwestern where we're trying to integrate IT folks and medical folks into one program, and we struggle sometimes with the language that we use where they'll be talking about something, and we'll say, wait a minute? What are you talking about? We'll have to stop and define the language even, the differences in language.

So it's a complex process, but there are a number of healthcare providers who married out into the IT world and find that to be a habitable niche for them. Those folks, though, tend to leave direct care ... and go into IT development and those sorts of things.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Because nursing informatics is fairly well advanced, but you represent a lot of people who are also on the team who don't have advanced informatics, and I'm wondering how we connect that to this effort so that when we build these medical home, whatever the next initiative is, that there's a voice there for what's needed on that side.

**Mary Burke – Nurse Alliance of SEIU Healthcare HIT – Chair**

I think that comes in with the development of the teams in each facility, in each place, so that we have that feedback loop complete. That's where that happens from so that those folks can be provided with information they need to be at the table, and then to be at the table and still remain at the bedside or at whatever the facility and caring for consumers.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

In connection to the vendor, when vendor try to create medical home products.

**Mary Burke – Nurse Alliance of SEIU Healthcare HIT – Chair**

Yes, so that there's an actual—

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

That's another place where we need the connection.

**Mary Burke – Nurse Alliance of SEIU Healthcare HIT – Chair**

A lot of what happens is administrative meetings happen, and nobody even knows they're happening with the developers, and just completely out of the blue, we're getting an IT system, and direct care providers feel like the whole thing is happening to them. And I think if the process, if they're brought along in the process, there are plenty of people who have lots of expertise that could certainly provide that if they were asked. If the intimidation factor of this is about computers, and I don't even like them, is addressed.

**Christine Sinsky – Medical Associates Clinic & Health Plans – General Internist**

I wanted to just offer two very concrete suggestions to your objective of finding out what might be included in the next round of regulations, and even though I sort of balk at having more regulations, let me offer two. One would be to require that the record have a list of the hospitalizations, but not just the dates, but to have a one-liner, as Jeff had talked about earlier, one-liner that has the date, the reason for admission, the main diagnoses, and the main procedures because that's what's really missing, and that's what's making me flounder, as I try to develop this longitudinal picture of the patient's care. And it leads to repetition.

In fact, I'm embarrassed to say that I had a patient in the hospital, and we were into the second or third day of the hospitalization before I recognized that this patient had been in the hospital six months ago under my care for almost identical problems. And it becomes because there isn't a longitudinal record. Currently, I now actually have, in response to that, I keep a paper summary page in a shadow record so that I can put those key elements into it. So that would be one suggestion.

And the other suggestion would be to require that meds be listed both generic and trade so that patients are not going home taking both Lasix and furosemide, which is not unheard of—

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

For patients or for the providers or for everybody, I guess?

**Christine Sinsky – Medical Associates Clinic & Health Plans – General Internist**

It's most specifically for patients, but I think, and we need to do it well, and I would do it with the hovering technology when it's the provider's view so that it's furosemide. And if you wanted to know what the common trade name would be, you could hover over it and see Lasix, but for the patient to have it go home with both until the point where we eliminate multiple names for the same medication, which would be an interval step.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Rajeev, did you have a comment?

**Rajeev Chaudhry – Mayo – Assistant Professor of Medicine**

Yes, I have a couple of comments. This is also in relation to your question about how we can reduce unnecessary emergency room visits with better care coordination. I'll share an example of where technology we found very helpful.

In our county, we have many school districts. And, as you know, schools have to maintain the list of patients who are on medication or if they have some illness. In our county, when we started working, there were several school nurses in the schools, but there were many different action plans that they

were getting because one clinic was sending one kind of action plan. One was sending another kind. And there was never a good way to get the action plans for school or to coordinate care from the school to the clinic.

One thing we worked on is, first, as all the practices, we have to go together and say what's the standardized action plan that everyone can agree upon, and how is a better way to get that action plan to the schools because a lot of the schools won't have updated action plans? Also, how can we make it easy for the physicians because, in the past, if a child in every summer when the summer is ending, you start getting all the school forms for our ... population that they have to get their immunizations, history or medication history updated from the providers to take to the schools.

We look at how can we make it electronic so that you can send it with a simple click rather than having to fill out those forms. Then how can we create better coordination between the school nurse and the practice so that she has access to the action plan of the child? If something changes in the practice, that is communicated to the school nurse. If there are increased symptoms, she has a way to communicate back to the provider so the appropriate action can be taken. I just share that example of where care coordination actually we found very helpful for both our patients and for our providers and their teams.

The other is related to older folks now. A lot of our patients who get readmitted are the ones who are frail elderly. And it might be that someone ends up in the emergency room from a nursing home because the nurse there thought the patient was declining or some reason. The physician who might be seeing that patient in the emergency room may not have any background knowledge about the patient. So if I was seeing that patient in my clinic on a given day, that patient might actually look better than they have looked in six months. But if someone was seeing them for the first time, they may look so sick that they need to be in the intensive care unit. How can we have an electronic care plan that we talked about, which also can have the status of the condition of the patient so that different people who look at it interpret it the same way.

Second is if there was someone who had advanced directives, how can those be easy to interpret or read because many times they are textual, and they're buried, and no one has time to look at that this patient should not be intubated, or this one should not have .... As soon as they go to the emergency room, because of whatever reason, the first thing they may do is to look advanced directives, resuscitate or no. That's all they may get, but not any more detail, and a lot of people get unnecessary care and not honoring the patient's wishes.

In that electronic care plan, how can we have more information, which is meaningful for overall care and have some way to know the status of the patient and also for whosoever is seeing the patient know who their other care team members might be because if there was a patient who goes to the emergency room and has a care manager assigned, they could quickly call that care manager if they know what the number was or who that person was.

I think there are opportunities for care coordination to be improved by electronic systems. And I think, if we focus on the longitudinal care needs of the patient rather than the episodic care that we have always focused on, we actually would help whosoever is caring for the patient.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Any last questions on the phone?

**Judy Sparrow – Office of the National Coordinator – Executive Director**

Any questions on the phone? No.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

All right. Thank you very much, panelists. I appreciate it. That's very helpful. That's actually— And it off to David.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Now we'll go into the summary comments stage. I have a few suggestions, but other people have comments before I make some of those? Okay.

It's been a great discussion today, and lots of things are going to come out. I think we'll need to digest this some more. A few things came out that were quite specific. Some of the key functions for an electronic record for care coordination appear to be things like reconciling medications, tracking laboratory tests, communicating across settings, mediating care plans between disciplines, as Ann O'Malley suggested, and I think all of those came through repeatedly in all the testimony.

Some of the key domains of records for enabling care coordination including medication related care. We talked about that a lot, especially medication reconciliation, but also other areas. The problem lists, I think there are some opportunities there for some specific recommendations we can make about the problem list that will be helpful. A lot of discussion about how to track the patient over time, most records of today do not really enable us to get views of what's going on with the patient over time, and as Dr. Chaudhry was pointing out, that is really important.

And in something that we didn't talk about perhaps as much as might have today, which is really central are population-oriented tools. Some specific things, which I think we did suggest are some of the things we talked about a little bit before, but tracking on who is the care team. It's clear that we need to know who is on the care team, and we don't know that today.

We also need the ability to aggregate data or messages and then send that data to the people who are on that care team. The suggestion about displaying and recording for all patients who is the primary care provider and sharing that with the patient is, I think, an important one. Including the ability to support an interactive and longitudinal care plan came out repeatedly.

Supporting the ability of multiple providers on the team to write notes and document simultaneously. That seems like low hanging fruit. We were discussing at lunch that I think we think is actually included as a CCHIT recommendations. At any rate, I don't know whether it made it into meaningful use, but that's something to sort out. I think it might not have, but—

**W**

It's not there.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

It's not there. Okay. So that is a potential important addition. Supporting the ability to designate who ordered a medication and who is allowed to refill it is an important thing that came out clearly in the second panel. Insuring that a number of things happen with one example being that referrals include the question to the consultant would be a valuable addition. Some relatively granular things like making the problem list sortable and searchable would be something that we could suggest that would really improve usability, as Dr. Sinsky was just suggesting.

We need to support medication reconciliation, and I like the four functions that Jeff Schnipper suggested, which included importing medication data from other sources, displaying and comparing medication lists,

the ability to order medications, and then document that information. Also, a number of people suggested making the medication lists sortable by organ system. That's really a key issue in terms of the usability. Again, as Dr. Sinsky is pointing out, if you have a long medication list, and you're trying to figure out what cardiac drugs the person is on, that would be a big win, and it's not, I don't think, that hard. We'll have to discuss with Charlene whether it's something we can do in two years or four.

And then, finally, even a broader functionality around longitudinal views, and I don't know that I have all the best use cases of this, but for issues like admissions, including the discharge diagnosis, I think there are probably a number of use cases like that that would be valuable. But certainly, just being able to see, again, as Dr. Sinsky was suggesting, when the patient was admitted and what the reasons for admission for would be a valuable thing. Those are some of the things that I took away, and we'll go through the testimony again and all our notes in more detail, and will be iterating. Yes?

### **Christine Bechtel – National Partnership for Women & Families – VP**

If I could just a couple things, I think there's a remarkable degree of alignment between my notes and what you just said, David. I think I heard two different things, and it may be the fact that I'm not a physician that takes me to two different things, but I heard both a shared care plan, and we had a lot of detail underneath that of what should be in that, but then also a transfer summary record, and that that transfer summary record would definitely include advanced directives, preferences, and things like that, which is well beyond the current, just the recording of the presence or absence of advanced directives.

The other thing that I heard was, and I heard it a lot, was that in all of these various features and functions that there needs to be some contextual information around the patient's values and preferences, which I think is absolutely right on. I don't know exactly how to translate that into a specific criterion, but I think that is absolutely worth thinking about, and I heard it most recently from Christine who said, you know, that she keeps a summary page where she could easily just jot down some notes about the patient's values, preferences, life history, and circumstances. As we think about patient centered care, and as we've talked to patients about what that means to them, what they consistently tell us is that they have a healthcare provider who knows them and remembers them, and you can't know and remember if you don't track and record values, preferences, etc. So I think that's worth doing some more thinking about.

Then the other thing that I heard is something that Charlene said, which resonated, which is how we might think of it using quality measurement as a lever. We talked about the CTM3 measure. I would add readmissions, obviously, which did not make it into the final rule, although it was in the proposed, patient experience, functional status. I think those things are really key to care coordination and transitions in particular.

And so the last thing that I would say is that I think there were some issues that were raised that at least in my view are probably outside our scope as a workgroup, but that are very in scope for some of our other workgroups, so things like the lab test stuff. I'm looking at Deven for the HIE workgroup that you no longer chair, but that has done.

### **Deven McGraw – Center for Democracy & Technology – Director**

I'm still on it.

### **Christine Bechtel – National Partnership for Women & Families – VP**

Yes, but you're on it, and has done a lot of work there, and I think that's an area that we should really pick back up for stage two of meaningful use to figure out what the enablers are to drive some progress in that area. Then the usability stuff seems to me to be really important and potentially very appropriate for the adoption and certification workgroup, who might tackle some of these issues around how do multiple

members of the care team enter notes simultaneously, or how do we make med lists sortable by organ and things like that. I think it's worth, as we go through the testimony again, thinking about what we should ask other workgroups for their thinking on.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

I agree with all that, and I just forgot to copy over in particular the part about the transfer summary document. That's an important omission.

**Christine Bechtel – National Partnership for Women & Families – VP**

...two different, so that's good to know.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Yes.

**Charlene Underwood – Siemens Medical - Director, Gov. & Industry Affairs**

I was going to add on a little bit. One of the things that, again, kind of thinking from the software development, plus listening to the degree of process change that has to drive care coordination and the demand and need for this care summary plan, which I am totally aligned and in support of. Getting there isn't going to necessarily be a straightforward path, it strikes me. So we're going to have to have some iteration learning and build some base parts. A couple of those base parts do seem to be, and I think some of that came out today, certainly knowing who the care team is, but also potentially linkage of orders to results and that type of thing.

We need to look at the current state of some of the standards around the ordering process. I know we had some restrictions in that. I know in the ambulatory space, that's been a problem. So I think we've got to look back at that repertoire of standards that we have out there to make sure that we've got a solid base to kind of move forward to build some of these things toward the care plan. There may be some short-term wins we can move forward sooner on some of this stuff, as we build the full care coordination model out.

The other thing that I thought was pretty exciting, as you start to, and I think we need to think about this concurrently, as we build toward this model is not summary care plans as a documentation tool because that's kind of what they've been, but as a management tool. There was discussion about anticipating, and you hear these stories all the time, especially with nursing where, again, you can tell a patient is in decline, and that's one of the key things that happens in hospitals. You can intervene soon, and you can prevent a lot of costs. Well, how do we take that whole process and we move it so that it happens in patient's home or externally, so we can better coordinate care?

Again, I really was supportive of the concept of let's look at the longitudinal care needs of the patient, but use some of the best practice that has been put in place, as we're monitoring care within settings and see what we can do to export that as part of the process. So I don't have all the solutions there, certainly, but that's kind of what I heard the panel starting to think about.

And the list is too long, just as a comment. We've got to really think through and narrow what we can do in a very iterative, but progressive fashion to move this agenda forward. Just a general comment.

**Deven McGraw – Center for Democracy & Technology – Director**

As always, we get a little ambitious. I want to thank the panelists. I thank actually my fellow workgroup members for taking such good, copious notes, but I also want to let the panel members know how much—I chair the privacy and security workgroup, which is being called the tiger team over the summer,

and I want to thank all of you for addressing privacy and security issues in your written testimony and for some of you in your oral. I want to let you know that that information I'm going to take back with me to fold into the work that we're doing over there, so very much appreciate that you addressed it.

You know, it's interesting. When I think about care coordination and the movement of information for that purpose, I worry much less about it from a privacy standpoint because I think most patients actually do expect their care providers, the entire care team to access and share their data more often than happens today. But having said that, we do understand that people are nervous about this movement into electronic health records, and we need to make sure that we've done the work we need to do to set some baseline expectations and make sure people understand them and implement them. That's the only thing I'll add. We don't have to add that to our task list. That one is already on mine.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Also, I'd like to thank all the panelists from today. And we have a lot of concrete suggestions from today, which David enumerated, so I agree with that, and I saw the care team expanding, I hadn't thought of, like the school nurse as an example in other healthcare workers and how they need to be part of the team, so that was good.

Just as I want to hear why the doctors stopped the med, I want to hear why the patient stopped the med, and maybe that's one mechanism by which everyone can say, why did you stop that med, or why the family member didn't fill the prescription for the patient because they thought they should stop, or whatever. The whole thing is kind of like pockets of knowledge, knowledge of the patient state, knowledge of patient preferences, knowledge of science of medicine, and how do you move ... communicate so that the information moves to the right person?

I actually wonder if there's some innovative solutions. I don't know if it's social networking or what. What's the next generation? After this generation that we're talking about today, what's the next generation of care coordination? What are some interesting experiments that the VA will be carrying out or someone will be carrying out? So I'm kind of looking forward to that from you guys or whomever of many of our panelists may be the ones doing it, so I look forward to that.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

I teach a medical informatics course at the School of Public Health. Yesterday, one of our teams presented a proposal around just that, using social networking to improve care coordination. Are there others on the phone who have comments?

**Art Davidson – Public Health Informatics at Denver Public Health – Director**

Just following up on maybe the comments that both of you have made since you introduced the word population perspective, David. The last session that we had last week was focused on population public health, and a plea from the people who work in public health who are part of this care coordination team was that they would not be able to be part of the method of sharing information because they just don't have that infrastructure. Just as George mentioned school nurses, immunization clinics, WIC, all those things that are social services that border on health could be considered something that contributed to that care coordination and would want to be factored in.

Then when you brought up the idea, David, about populations, it made me start thinking that these care coordination tools that we may have that are very specific to an individual are driven by rules that probably are set for specific populations or specific diseases. As such, they could contribute to registry functionality to monitoring the population, which contains individuals who have these care coordination plans.

The fact that someone doesn't have one could be something as noted by some of the panelists earlier could be something that would drive quality improvement efforts both within the practice or more generally in a jurisdictional level with the public health entity that pertains. I think those are a couple ideas that I kind of heard. Maybe they weren't as explicit as I'm trying to say them now, but I thought I heard them in the conversation today.

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Other comments from those on the phone? Okay. Judy.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

With that, this is the public comment period of the meeting. We have a microphone here in the room if anybody in the audience would care to stand up and ask a question or make a comment to the workgroup. And of those on the phone, if you're on the telephone, if you just press \*1, the operator will queue you up. And if you're on the computer, just dial 1-877-705-2976, and we'll begin with the woman in the room.

**Mary McDonald – American Federation of Teachers – Director, Healthcare Div.**

My name is Mary McDonald. I'm the director of the healthcare division of the American Federation of Teachers. We represent about 70,000 nurses and health professionals, and I want to thank Mary for doing such an excellent job today in representing us, and I hope that we have other opportunities to testify before panels such as this in the future.

I want to go back to the question that dominated a lot of the discussion this afternoon, which may not be within the purview of this group, but the issue of design. I guess one of my questions is, design and usability of the electronic health record and the time that's lost, and the time that might be recouped. I guess one of my questions is, where within the ONC these questions are being addressed at this point.

I don't think we expect this group or any of the groups to necessarily prescribe what should be on the record. But it would be extremely useful if some guidance were given in terms of the process by which the decisions are made in each facility about what is going to be on the record. It seems to us that if, as Mary said, the frontline users actually have a meaningful voice at the facility level, their records are flexible enough, and there is a process by which the frontline workers have a meaningful voice in the development of the records. We might be able to avoid a lot of the problems that our nurses are telling us about.

I'll just give you a few quick examples. In addition to the 12 screens that you have to go through, and the 7 screens that you have to go through for the medication, our nurses were telling us the log on process is extremely difficult. For example, you initially log on, and the logo of the hospital comes up, and then it fades to another color, and then the logo of the designer comes up, and it fades to another color. And overall, the nurses who worked, as soon as the records came in, they worked 12-hour shifts on the whole. They did their own research and figured out they spent an hour and a half of that shift just logging on. No certainly no clinical person who had a meaningful voice in the design of that record would say let's spend a lot of time on the graphics going on and off.

And another example is one of the nurses told us, you used to take blood pressure, and you would just write down the blood pressure. Now there's a whole series of questions. Was it manually, or was it by machine? Was it a big cuff, a small cuff? What part of the arm? And she asked the educator, why is all this information suddenly necessary? And the educator said, well, the guy who designed it is just very detail oriented. He just likes a lot of those kinds of details. Now again, if there were a voice of frontline

professions when those design decisions had been made, a lot of those problems might have been corrected.

And our concern, because we are so enthusiastically in support of what you're doing, our concern is that when the implementation is done badly, and people see this kind of difficult and not well designed record, their anger toward the system or their unwillingness to work with the system, we're not really able to achieve the goals that we want to do and that we all want to achieve together when the systems are not designed, and the folks don't have a chance to work out the kinks first, and frontline workers are not engaged. Thank you very much.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

We do have a caller on the line, if you would please identify yourself.

**Operator**

Our next comment is from Dr. Laurence Richards.

**Laurence Richards**

My name is Laurence Richards, M.D. Now this is my third call in today. I've had to do other things besides just stay on, and I'm going to try to comment about several things that have accumulated from the day. I've been practicing medicine for a half a century, and was fortunate to come into medical school at the time when the older guys were still from the days before antibiotics, and they still have memories of TB, Sanitaria, and quarantines, and I also entered when the new guys were in with all the anesthesia and the new medicines, etc.

Of course, as many people should know, many more medicines of major import have been invented since. Now before I get into my specific questions, I need generic information here. The internist from Boston who is the national coordinator, what is his name?

**David Bates – Brigham and Women's Hospital – Chief, Div. Internal Medicine**

Dr. Blumenthal.

**Laurence Richards**

First name?

**Judy Sparrow – Office of the National Coordinator – Executive Director**

Dr. David Blumenthal. Let me just remind you too, Dr. Richards. There's a two-minute time limit on your comment.

**Laurence Richards**

That was not explained to me in the beginning, and it was also not explained to me from the initial call in how to do \*1 so you maybe missed a lot of people who wanted to call, and maybe you could start my two minutes.

My biggest point to you is you'd better start this with just MDs and nurses and maybe pharmacists until you get the bugs worked out because you're going to have more bugs than you can even imagine. Just this discussion of people messing with the programs that bring up stuff onto the screen and changing things, that's got to be stopped. There has to be nobody having the ability to just go off onto their beautiful graphics ideas and have their imagination go in. My understanding is that Google has a team that specifically tries to keep their site simple, so KISS is very important.

The next most important thing I can say is you'd better make sure that you have a way that people don't just have an electronic equivalent of a six-inch chart to look through while they're trying to search for something. There's going to have to be some really good software written whereby people can punch in four or five criteria words, and they get a very precise pull up in the health record, now what you do when you go Google something. The more words you put in, the more hits you get, and you have to really become very good at knowing how to call up things in order to not waste a lot of time and getting a lot of stuff looked at.

Are there any questions that anybody wants to ask me about my 50 years of experience and your plans?

**Judy Sparrow – Office of the National Coordinator – Executive Director**

We're okay. Thank you very much, Dr. Richards. One more commenter in the room?

**Richard Singerman – TeraData – Consultant**

Hello. Dr. Richard Singerman, and I'm currently a consultant to TeraData on military health informatics. We're, in particular, looking at issues around the role of occupational health, the occupational therapist in particular, as so many of our soldiers unfortunately become wounded and end up in the system where maybe they leave the military, maybe they don't. Maybe they go to the VA a little later, maybe sooner.

There's a continuum there where it's kind of uncertain where people will end up over a one- or two-year period. And so it would be really helpful, as I think was somewhat alluded to here, of getting input further from these other ancillary providers, whether it's the occupational therapist, whether it's going to be the nurse practitioners at the people like Wal-Mart and Rite-Aide. Because, as this community of providers becomes broader, it's going to be important that their contributions to, let's say, the more continuous visits that are maybe not as severe to require a doctor visit in the future, become a standardized and computable part of the medical record as well.

So I'd encourage earlier than later, figuring out how to bring in this broader group of people that maybe in one model get coordinated through the medical home, if you're fortunate enough to be in that model. But if you're a consumer that may have to create your own "medical home" on the fly, the more codification and the help that can be thought of upfront would be helpful. And I think, to begin that process, having testimony from those other providers, those other places of care could be useful.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

We do have one more comment on the phone, please.

**Operator**

Our next comment is from Jackie Birmingham with Curaspan Health Group.

**Jackie Birmingham – Curaspan Health Group – Vice President**

I am a nurse by profession, and I work for a software company that has transition management software. And one of the things that I want to make sure is remembered when you're doing all of the standards and communication is that there are federal laws for hospitals that dictate how you will do discharge planning, very specific patient choice, making sure that you have all the information. So overlaying all of this care transition situation should be what people are expected to follow to be in compliance. There are more than I can list in two minutes, and I just wanted to make sure that the committee investigated what is expected from other existing standards in the Social Security Act. Thank you.

**Judy Sparrow – Office of the National Coordinator – Executive Director**

Thank you very much, and I'll turn it over to Dr. Hripcsak for any final words.

**George Hripcsak – Dept. of Biomedical Informatics Columbia University – Chair**

Thank you again, panelists, for coming. Thank you to the audience who came, and we adjourn the meeting now. Thanks.

**Public Comment Received During the Meeting**

1. Care Coordination between hospitals and post-acute providers is mandated by the CMS Discharge Planning Conditions of Participation. There are software programs that promote care coordination for the transition process. How do you see this software service integrated with the care coordination standards.
2. If a care plan is part of the requirement that Dr. Bash needs to provide the care he needs why are vendors continuing to drive the “business” requirements outside of the clinical needs?