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IMPROVING PATIENT CARE THROUGH  
HEALTH CARE CONNECTIVITY

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## P R O C E E D I N G S

MR. WEST: I am Darrell West, Vice President of Governance Studies and Director of the Center for Technology Innovation at The Brookings Institution and we would like to welcome you to this event on Improving Patient Care Through Health Care Connectivity. And we will be archiving this video, so anyone who wishes to view the event after today will have an opportunity to do so through Brookings.edu. And we also welcome any questions and comments that you have. We have set up a Twitter feed at hashtag HealthConnect; that's hashtag HealthConnect. So if you wish to post comments or ask questions during the event, you are welcome to do so.

So today we have put together an excellent panel to discuss how to modernize healthcare through technology that enhances quality, access, and outcomes. So joining us for the discussion are Kelly Cronin who is Director of the Office of Care Transformation in the Office of the National Coordinator for Health Information Technology. And she's been involved in establishing the national agenda for health information technology. Her current responsibilities include the coordination of the ONC programs and policies related to health reform implementation. She also has served as a senior advisor to the Centers for Medicare & Medicaid Services.

Tara Koslov is a Deputy Director of the Office of Policy Planning at the Federal Trade Commission. And she has served as an attorney advisor to three different commissioners starting in 1999 and she specializes in anti-trust law and competition policy. She previously served as a staff attorney in the Mergers II Division of the Consumers Bureau of Competition where her work focused on major mergers and matters in technology markets.

Simeon Schwartz is the Founding President and CEO of the WESTMED

Medical Group. He's been committed to improving the operational and clinical efficiency with a focus on quality outcomes. And so he and his firm have been early adopters of health information technology and he's worked with many IT vendors in the areas of process and system design in order to improve care.

Niam Yaraghi is a Fellow at the Brookings Center for Technology Innovation. And he's an expert on health information exchanges with a particular focus on how those exchanges operate and how they can help us promote quality care, as well as, cost savings in the system as a whole. He looks at the healthcare market and the effects of health information exchange adoption in usage.

So, I want to start with Kelly. So you work in the Office of the National Coordinator on health IT issues. So, what are businesses doing to promote electronic sharing of health information and what are the problems that need to be overcome?

MS. CRONIN: So it's a fairly complicated question, but I'll try to break it down a bit.

So first starting off with what are businesses are in the healthcare system, providers, and health IT software vendors; what are they doing to try to share information across the healthcare system? And that more or less breaks down into a few categories. There's two or three major ways in which their trying to share information for someone's clinical history. So if you have a summary of someone's longitudinal record or record of care in a given institution, there's, broadly speaking, sort of, three different ways in which that could be shared.

One is you have a health IT software vendor in a hospital or in another large provider organization, have a direct relationship with another treating provider. Say it's a doctor that you receive care from on a regular basis. And that hospital could share a direct discharge summary or summary of your record with that other treating provider.

And that's a known relationship if under HIPPA there is authorization to share that personal health information. And that can happen through a, you know, an appropriate technical connection, what we often call health information service provider, can help make that link when those two parties are known.

When someone shows up in an ER or for urgent care and you've never seen them before, then you need to be able to query or find someone's health information, particularly if they're really sick and they can't communicate and there could be something seriously wrong, you need to know what medications they own, what their conditions are, if you're really going to make real-time decisions on their care. So that's what we call, sort of, a query model and typically you have a -- either a community-based organization or another, sort of, network service provider that is either housing and maintaining a clinical data repository that you can ping and get data from. Often, it's organized at a community level just because it's a rational place to organize clinical data for a population, but it's -- it can be done in other ways too. So that query model is being done across the country.

And then there's also, sort of, consumer immediate exchange. So say you have your own personal health record and you have a way to maintain that at home or in the cloud, and you want to share your information with your doctor. And you choose to bring in, you know, a memory stick or however you e-mail it or however you're going to exchange that with the practice.

That latter category is, sort of, the hardest to penetrate in this market. While there's a lot of consumer empowerment interests in mobile health, there is really a lack of connectivity for consumers to plug in; there isn't a network for them to plug into so that they can make sure their information is routed at the right time and at the right place and then actually incorporate it into a doctor's office workflow or the hospital's workflow.

So what we're seeing for the most part in the market is either this, sort of, direct send-to-send or a query-based model.

The direct send-to-send, again, works when two known providers really know each other. This is, again, what a lot of people refer to as the Meaningful Use or EHR Incentives Program. That's an (inaudible) or a fair amount of money to date from the HITECH Act. That's what that is reinforcing in just Stage 2 of that program.

But with the idea that we need to move to a much more robust model because you don't always know where the data lies, you don't always know the other treating provider, and it's a limited way of exchange. It's not reaching true connectivity across the healthcare system. Some people call it, sort of, a souped-up version of e-mail. So it's not really where we need to go.

The query model could be one that we try to scale and are working on it in our operability roadmap now on how we would be scaling that kind of model so that we'd have, sort of, a federated system across the country that would really drive a lot more connectivity over time. Right now though, a lot of what's happening in the market is really driven by the business incentives. So where the business incentives are not there where -- there's no real financial imperative or clinical imperative to share data. It's not happening.

Now accountable care is really starting to change that. So the Affordable Care Act and, sort of, the take-off of ACOs and other forms of value-based payment is starting to really change the way that hospital systems and providers are looking at their own, you know, book of business and their own, sort of, scope of services to be more aware of not just what's happening on in a counter-basis when someone's in their hospital or in their site, but they're being held accountable if their clinical and financial outcomes over time which means how they experience care across the care continuum.

And in that model, in that business model, you have a real interest in knowing more about what the patient's experiencing across all these different providers and you want those providers to get back to you with the status and what meds their own and how their being managed. And ideally, being -- managing that patient as a team, which requires a lot of connectivity and information sharing. If you really want to create virtual care teams, which is being contemplated in a lot of new care models, you need the connectivity to be able to do that. So the barriers include lack of business incentives. While that is shifting and changing, it's not quite there yet.

There's also a lot of issues with data lock-in. So let's say one HR vendor, electronic health record vendor, is in a market and they have a business relationship with a lab and they choose to restrict the way that they send lab orders to just one lab. So it's a lock-in with that one lab. It's not a line for competition or choice on which lab to go to. So that's restricting the sharing. We've heard about some anecdotal of evidence out from our certification bodies that is happening in the market today.

And, you know, other examples are having -- it's being cost prohibitive to be able to share. So say there's a 10-, \$20,000 fee for an interface if you want to connect to somebody else's system. For a small provider, they can't afford to do that once let alone 10 times with 10 different kinds of connections that they might need to have in their local community. So the cost barriers are quite significant. And in other times you don't know if there is a treating relationship. So do you have -- all right -- do you have the trust or do you have the legal, sort of, authority to send personal health information to another party when you may not know who that party is or even if they've received the data? So there's a host of barriers in the market today that really can be loosely categorized into, sort of, lack of financial incentives, technical barriers, cost barriers, and then legal and privacy barriers.

MR. WEST: Okay. Thank you.

So Tara, what is the Federal Trade Commission doing to promote competition in health IT markets and how can we promote greater connectivity in healthcare?

MS. KOSLOV: Sure, thanks. I do need to issue a disclaimer that my remarks today are just my own. I don't speak on behalf of the Federal Trade Commission or any individual commissioner.

The FTC and the staff, in particular, who are working on these issues right now, have a long history of trying to promote competition in healthcare markets generally. We also have a lot of expertise and a lot of interest in promoting competition in technology markets. And so, in many ways, the increased interest in health IT is the perfect convergence of a lot our different areas of expertise and I feel as though we have not just the knowledge, but the tools that we can bring to bear to do that both on the policy side as well as potentially on the enforcement side.

So, I would say that there are four general categories where the FTC is currently devoting resources and interest. And I'll try and organize them that way and then I can, perhaps, elaborate later.

So the first I would say, generally, is competition in health IT markets themselves. So these would be issues relating to concentration in the health IT industry, looking at different health IT platforms, the concept of whether data are easily able to be shared among platforms, the kinds of, as Kelly mentioned, perhaps, different business practices that health IT providers are using to either facilitate to discourage the ability of data to flow among platforms. So there's, sort of, that level of competition and what's going on in the technology space.

The second important category would be the extent to which health IT is

used by others and facilitates, or can possibly hinder, competition in other markets; for example, in provider markets. So your lab example would be one example and maybe there would be others where if you're a provider group that has -- that is using one particular kind of health platform, to what extent can providers switch among different platforms? Let's say that you've got two big hospital systems in a town and they -- they're each using a different HIT platform. To what extent can the physicians -- can the healthcare providers in that market refer patients back and forth and you get the benefits of the competition at the provider level from primary care to specialists or just back and forth among different institutions or, are you really locked into a given system in a way that makes it difficult to have that movement at the provider level?

Another idea, another concept might be competition in markets for healthcare devices and medical technology. So to the extent that we are seeing a movement toward more connectivity of both the kinds of devices that providers use, as well as the kinds of devices that many consumers are now using like Fitbit's and all that kind of stuff. So to what extent does health information technology either promote or hinder competition in those markets?

A third big area where we have a lot of interest and expertise based on some prior work that we've done in other areas is the competition implications of standard-setting processes. And this is an area where we have done a lot of policy work and also brought cases in the past. So the basic idea here would be that, obviously, standard-setting brings tremendous benefits and generally is -- can be very good for consumers and we've seen that in countless industries in many devices that we're all holding in our bags and our pockets today.

But we have also seen situations where, depending on how the standard-setting process is conducted and who is empowered and disenfranchised as



part of that process, you can end up with standards that may entrench the market power of existing market participants or may create or facilitate lock-in. And so, it's important to have a standard-setting process that encourages continued innovation and entry and is not used in ways that can hinder competition going forward. And so, that's an area where we're paying close attention and think that we maybe can offer some assistance in watching how the standard-setting processes evolve.

And then the fourth category would be less on our competition side, that as many of you know, the FTC has dual-competition and consumer protection jurisdiction. So we have a tremendous amount of expertise in privacy and data security issues and that's a space where we've been very engaged in with respect to health information technology. Making sure that, to the extent that we are moving toward a world of greater connectivity for various forms of health data, that we are doing that in a way that respects individual choices in terms of the collection of data, the use of data, and making sure that the systems themselves are built and maintained in secure ways. And so, we've seen several examples recently of ways that the FTC is moving into that space and making sure that privacy and data security principles are fully maintained in the health IT area. So, I have nothing else. Thank you.

MR. WEST: Okay. Thank you.

So Simeon, you're working on interoperability and how we come overcome some of the barriers there. So what are the issues of interoperability and how can we do a better job connecting people?

MR. SCHWARTZ: Thank you. So WESTMED is a 275 physician multi-specialty practice with about a quarter-of-a-million primary care patients. And we've been paperless since 2002. And therefore, we were motivated to find ways of connecting ourselves to the hospitals and others just to decrease the volume of paper, but also, to

make information more actionable and available to the physician and allow for a better patient experience. And, as you probably know, there were relatively few standards back then and there's still challenge under the current standards. And the work-arounds necessary to accomplish that is to integrate organization have been tremendous. But we do have electronic interfaces for now for four or five years with our two dominant local hospitals. We have all connectivity to our laboratories and we have been getting claims data from most of the insurance companies since we have ACO risk-based contracts. And those claims are reprocessed by Optum and put into a useable format.

So currently, WESTMED has about 300 active interfaces that we have to manage. I would suggest that most healthcare organizations are not particularly motivated to undertake that kind of connectivity. But the results have been spectacular. What's happened to us is that as we've moved into the value-based payment world, we've seen dramatic improvements in our hospital utilization numbers. We've seen the transition of patients successfully from the hospital to the ambulatory settings within our practice. This has reduced costs; it has reduced the patients being in the hospital. There are very few patients who will describe a day in the hospital as a quality experience. And the best day you could have in a hospital is the day you don't have. So all those things have come about because of the availability of data. And it's not just the availability of data in general. That data has to be put in to the physician in a way that the physician can use that data and make it actionable while he's seeing the patient. It's of no use to find out that somebody had an MRI two weeks ago and you didn't know about it until a week after the visit. You need to know about it when you're seeing the patient in order to know what information to get. And I understand from my colleagues it'd be very nice if I could just, you know, through direct, fetch the information. I'll even settle for the moment knowing it exists to get a phone call for the results. So most people do not know what

exists. So interoperability, from our perspective, is really about the consumer, the patient, and also making the physician more effective.

The last point I would make about that, is that not all data's created equally. And a lot of the problems that we're having is parcing of data. Some stuff comes in discreet form, some stuff comes in non-discreet forms, some stuff comes as images. And the physicians -- you can't put on -- I've been practicing medicine for 30 years. You can't give me 400 pages and expect, somehow, during your 11 minute visit I'll have digested every word of that. So there's a necessity. One of the things that we -- what we got out of our Optum relationship was that they took our claims data and they prioritized it for us. We knew who the problems were; we knew who the people were at risk for problems in the future. So it's not just getting the data, but it's being able to use the data clinically in an important way.

MR. WEST: Okay. Thank you.

So Niam, I know you've done considerable research on health information exchanges. So, how are they promoting connectivity and what do their experiences tell us about the possibilities in the healthcare area?

MR. YARAGHI: Thank you. What I want to say about HIE's or health information exchange, somehow summarizes what the other panelists were talking about here. If we consider electronic medical records as Internet systems within an organization, then HIE's would be like Internet that enable sharing the medical information of the patients between multiple different healthcare organizations. And as you can imagine, when you have access to more complete data, then, as a physician, you would be able to avoid redundant test and make better medical decisions which, at the long time, would result in better healthcare quality and reduce costs.

I think one of the major reasons that HIE's have not been as successful

as we expected them to be, is that first off, physicians still do not believe in HIE's. To give you an example, in the most recent studies that are published evaluating the benefits of HIE's in different emergency departments, the access rate to HIE was between six and seven percent. It means that out of 100 patients who visited ER, the physicians decided to use the HIE only about six percent of the times. You may think that this is due to the fact that physicians believe that the patient's condition does not necessitate accessing HIE for further information, but we have done a study quite recently that shows otherwise.

So what we did in Western New York was that we actually hired six senior nursing students and started a project with them. We asked them to go to the emergency department and follow the physicians there for a period of two months in every shift. And as soon as the patient was signed into the emergency department, they pulled their records from the HIE regardless of what the physician was asking for them, and showed this information to the physician during the treatment. And so it basically -- we increased the HIE access rate from seven percent to 100 percent and then we're looking at the number of the test orders in terms of lab tests and radiology tests to see how these physicians who were provided with this HIE information performed, as compared to the physicians who did not have access to HIE. And the results are quite astonishing. It's about 12 percent reduction in the total number of the tests, lab tests that the physician orders for a typical patient and 24 percent reduction in the radiology tests.

So, first of all, if physicians believe that there is information, then we believe that they would be using HIE more as in our experience. Many times, the physicians were surprised that the nursing students could find a piece of information in the HIE database that really helped them to make a better decision.

The second important thing is that you wouldn't -- if the physicians

believe that HIE is useful and decide to use it, it's going to be really hard for them to use the HIE due to the workflow problems. In our case, we had to hire nursing students and pay them in order to go use HIE and show this information to physicians. If they didn't do that, it was almost impossible to persuade doctors to go and pull up their records every time a physician -- a patient is visiting the emergency department.

And the third thing is that even if these two problems are resolved, the question for the physician is that why do I have to do this? And that's the reason that all of the HIE effectiveness studies that you see are in the emergency departments because if you save costs in the emergency department, then the hospital gets a share of it. But how about a primary care doctor who accesses HIE, spends some time, spends some efforts in terms of, you know, financial cost, to look up your records and avoid radiology reports, save some time for the patient and some money for the insurers. But the only thing that he receives is just a thank you; that's it.

So what we're studying right now is to see how a part of the cost savings associated with the use of HIE can be shared between the insurance company, who is the actual winner here, and the doctors or nurses or medical providers who actually take the time, take the effort to use the HIE. And one of the things that came to really helpful here is the third stage Meaningful Use criteria and evaluation.

So basically, we should see who are the doctors, who are the most effective people in terms of using HIE and how we can see how we can share the realized cost savings between the medical providers and also the HIE platforms because historically, all of these HIE platforms started with some outsider support either from the state or federal governments or the foundations. And there was a lot of enchantment at the beginning, but they couldn't continue because they cannot start charging anybody. It's really hard for them to demonstrate their value and the benefits that they have.

So to basically summarize, what all of the other panelists were saying, is that HIE's are useful and they can save costs. We should let the physicians know that there is really data available there because their perceptions about HIE usually is old. From the beginning of times of the HIE, there were not much data there, but during time there is a considerable wealth of data available on the HIE systems. Second is to think of solutions to resolve the workflow problems. And the third and the most important thing is that to think about creative ideas about sharing the saved costs between HIE platforms so that they can continue to operate and provide us benefits. And also, the physicians and other medical providers to take the effort and continue to use the HIE platforms.

MR. WEST: Okay. Thank you.

So, I have a two-part question that I'll throw out the entire panel and any of you who want to jump in are welcome to do so.

So Kelly mentioned a number of barriers to connectivity, including things such as financial barriers, some of the technological issues, and then legal issues associated with privacy and security. So, from the standpoint of each of you, which of these barriers are most problematic? And then secondly, what are the actions that would overcome some of these barriers? Anyone who wants to jump in. Kelly?

MS. CRONIN: Sure, I'll start. And actually I would add -- I was neglectful in not mentioning the clinical and workflow barriers because they are quite significant as your research has demonstrated and a lot of experience we hear across the country really validates that.

That, I mean -- they're all significant. I think we've heard through a lot of public input over many years now that the financial incentives are one of the most significant barriers because industry can rally and, in particular, we have good -- the governance model, we've good standards governance and we are in the process of

evolving that. That this more or less comes down to business practices and having the right financial incentives in place to want to share the data. That's not to say that the technical and legal challenges aren't significant because they really are. But there are -- there's going to be, sort of, a roadmap to address those. That, over time, we hope will really help, sort of, both federal government and industry work together to solve those problems.

And financial incentives are also changing because of the movement to value-based payment. So in an accountable care or patients at our medical home Shared Savings arrangement, you would be, you know, in a contract or have a partnership with the commercial payer or Medicare and Medicaid or maybe all of them where you would be able to agree on a set of benchmarks for cost and quality. And if you meet those or surpass those, then you can share in the savings. And in that model, the HIE is an important enabler so you -- it enables better connectivity across your provider network that's going at risk. It enables you to be able to manage those patients more efficiently, avoid duplication of testing, and have visibility on when they're receiving care outside of the network; often called clinical leakage.

So there's lots of reasons in which these new payment arrangements and the, sort of, the payment and delivery reform will end up solving the financial incentive problem. It's a matter of how fast can we go, how fast can the market go, how fast are the measures ready. Is this infrastructure, which is a chicken and egg problem, going to be good enough to get to the kinds of measures we need for value-based purchasing because it can't be all be done on claims data. Has to actually be done on the software that's being develop and deployed as a part of this health IT ecosystem.

So I would -- my short answer is, its financial incentives. I think that the legal problems are still significant. We hear beyond the ones I mentioned before that

liability's a huge concern. If you talk to some of the physicians in New York where there's a lot of HIE capacity, the medical society up there is their number one concern around sharing data is that they'll be liable for something that they receive and don't act on, or a potential breach. And so they're quite fearful. So liability, you know, being able to have really clear consent laws across states, across the country, having that manageable in a variety of networks; there's a whole host of, sort of, legal privacy challenges that are probably, I would say, in the second category. And then the technical solutions are significant, but I -- with a lot of collaboration across industry, I think we can make progress.

MR. WEST: Tara?

MS. KOSLOV: So what strikes me about your answer is it's almost hard to pick which of these is the biggest problem because they are also interconnected.

MS. CRONIN: Yeah.

MS. KOSLOV: So, at the risk of being a typical competition who is going to, you know, when the -- you know the phrase when you're a hammer everything looks like a nail. So, of course, I'm going to say that by having vigorous competitive markets, that's going to solve everything. But bear with me, I'll explain where I'm coming from.

So if the idea is that when markets are competitive, you're aligning incentives so that your matching up supply and demand in the best possible way and giving the customer or the consumer, whoever that is, the product that fits best for what they need. I think that my answer would then be that the financial and economic incentives, if you solve that problem, the other pieces fall into place. So I think that the cultural barriers relating to clinical workflow and just the culture of how you integrate technology into the practice of, you know, medicine or providing healthcare.



If the economic incentives align so that it is necessary to that in order to pursue value-based care and make sure that you're, you know, getting the economic benefit and your practice is structured in a certain way, you as a healthcare provider will - - you will find a way to overcome those cultural barriers or a provider, an institution, or a system will find ways to overcome those barriers because it will be in everybody's economic interest. You're not going to be working against economic interest.

Similarly, on the technical and the legal points, we've seen in the history of this country that when we have a big problem to solve, if you can get the economic incentives aligned, brilliant minds come together and find ways to overcome technological barriers and find ways to create legal structures to solve the problems that we want to solve. And so again, I think if you get the economic incentives aligned; not that it's going to be easy to make the technology follow, but I think you at least get everybody pushing in the same direction.

And then similarly on the privacy and data security, it's, sort of, the same concept. If it is in our economic interests to protect consumer -- individual consumer patient level privacy or for a system to avoid the liability of, you know, potential data security claims if you don't have a secure system, then presumably the technology would evolve if the economic incentives were there. So I think my bottom line answer is the same; that it's the financial, but I was just trying to figure out a way to put all those pieces together.

MR. WEST: Simeon?

MR. SCHWARTZ: Unfortunately, it's the financial. As you -- the direct model gets past many of the privacy issues and concerns; at least for our physicians in our organization. It is -- has many advantages in terms of the other use of it. The problem is it's expensive. Because when you get information, you still have to parcel this

into the physicians. You still have to handle it. It's not fully automated and you have no control of what's coming in and not coming in.

So how do you really create a financial incentive for physicians to get the information they need? Consider the fact that almost every one of these strategies require increased costs. And I think, unfortunately, we're going to be in a world where we're not going to have entirely value-based payments. The best estimates are we're going to remain at 50, 60, 70 percent traditional fee-for-service for a long time. And if we're going to do that, we're going to have to figure out how we're going to have differential payments for physicians in the fee-for-service world who do different things than other physicians in the fee-for-service world. In the absence of that, sort of, financial incentive in the fee-for-service world or in very, very clear additional incentives in the value-based world, it's going to be hard to justify the very significant increase in costs that these are going to bring to the practices.

And the other challenge, which was mentioned before, is that physicians aren't using this. And that's because it's not available to them in a format that's part of their workflow, that's been predigested for them. These are real barriers to adoption; all of which can be overcome.

MR. WEST: Niam?

MR. YARAGHI: Well, to answer this question I ask another question. And the question is, what are the reasons that our healthcare system is in this situation? And when you think about it, it's all regulations and financial structure; the business models that we have.

We paid the healthcare providers for the number of the services that they are providing, not for the quality of the services that they are providing. So -- and then,

even about our most recent efforts to spread the HIE or HIT to be more general along the healthcare providers, we are so focused about how to spread money among doctors and hospitals and different providers in order to incentivize them to go and adopt a specific HIE solution or an EHR solution. And -- but we're not still at the point of having appropriately regulated healthcare market or healthcare system in which there are enough financial incentives and business reasons for the different people of this market to use electronic records and actively engage in health information exchange. Yes, it is expensive. Yes, if you pay a primary care doctor \$60,000 to adopt a brand new EHR system, yeah, he will get it, you know, I will get it. But how long can we incentivize the doctors to use this system only by paying them directly; you know, \$60,000, \$10,000, and so on.

So I would say I do agree with all the other people here and believe that it's the financial incentives, but the way to resolve this problem is not to spread money and ask the government to come up with a special grant and distribute it among physicians and other healthcare providers to use the HIE because if we do that, what you're saying is that, implicitly, that the systems are not good enough on their own to justify the investments that you have to make so that you're subsidizing this and giving this incentive money for you to go and get it. Which is, I think and I've got to think, the best way to promote these systems is to -- through rigorous research and showing their value and then coming up with business models who different healthcare market entities can engage in those business models and start saving costs and even generating revenue through proactively using these systems. And I think that's the way to come up -  
- to come up with a solution about the financial systems.

MR. WEST: Okay. Why don't we open the floor to questions and comments from the audience? So if you have a question, just raise your hand. There's a

young lady over here who has a question and there's a microphone that's coming over to you. And if you can give us your name and your organization. Actually, can you talk into the microphone or if we can turn the microphone on; either one may solve that problem. (Laughter) You know, let's try a second microphone. We have a 50 percent chance of getting it right here. (Laughter)

MS. TEALER: This works. Hi. I'm Dimma Tealer. I'm a research assistant here at Brookings. I was just wondering if the panel had any thoughts on the concept of patient stewardship over data and, sort of, devolving ownership over data to the patient and whether that could solve any problems and issues with interoperability and, sort of, data silos and even privacy. And even the issue of financial concerns that you all mentioned.

MS. CRONIN: I think it's a really important concept and probably something that's going to be instrumental over a decade, but we're not at a point where we have enough, sort of, baseline interoperability where a patient has a lot of choices in the market today to go to, sort of, the health IT platform, have all their data be aggregated easily, and then have the capacity to share that where it needs to be shared; in particular, if you're sick and you're actually getting care from multiple providers. So I think the concept of having a consumer own their data and being the steward of their data is really attractive and one that will likely be increasingly important as we get into, you know, a world of mobile apps and, you know, we -- as we have higher levels of connectivity and network services that are fully interoperable over the next several years.

But at this point and time, the consumer isn't so empowered in the healthcare system where they have the ability to, sort of, influence the way their doctor's offices practice. So you could imagine if the average doctor has, say, 3,000 patients in their whole practice and there was 500 different personal health record solutions they had

to interoperate with. There's no way they'd know all those sign-on's and would be able to receive so many different, you know, messages and it's -- the workflow complexity is so significant. And being able to get data from those providers to -- I have my own personal experience in trying to do this with my father who is quite sick and it was endless hours with me and my siblings trying to do this and we all knew something about it. You know, we had a combination of clinicians and technologists.

So, it's a great idea. We're probably going to eventually get there, but it's not something that's going to be near our term.

MS. KOSLOV: I will add to that. So one of the ways that we like to frame our mission and, sort of, looking at how -- what are the role the consumers play in the marketplace. So you've got -- the goal is consumers have choices in the marketplace, so that's the competition side. And then they have adequate and accurate information upon which to base those choices. Right? So that's, sort of, the dual FTC mission and it's the way we frame everything.

In this space, what I'm trying to think about is how would you -- and this picks up on what you were saying, Kelly. How would you even give patients the kind of information and the transparency that they would need into how this market functions in order to make an informed choice about what platform they want to commit to and where they want their information to go; assuming they can even control that in the first place, are you now shopping for a doctor not just based on your perceived quality or the actual quality of that provider and maybe what hospital they refer to and what network they're in and what insurance they take, but now you're also going to have to ask them what health IT system they're on. And then, what if your physician practice is acquired by a hospital and all of a sudden they swap to a different system? Would that have changed your decision to go with that provider? There's just all these different choices and different

steps in the system. And I'm not sure how any consumer, in today's market, could possibly get enough information to exercise an informed choice. Now I think if you got to this perfect world where you had complete interoperability, maybe that then solves the problem where everything is plug and play. And then your suggestion would, at least, get at some of the privacy and the data security issues if it's, you know, if I own my data and I am physically, or otherwise, carrying it around with me in a way that I control who gets it, that doesn't solve emergencies. Right? That's -- and that's a big thing we often hear about is that in an emergency situation, how are you going to get that information if the patient cannot give consent?

The other thing it doesn't solve is the boarder public health aspects of information sharing; which is not my area of expertise, but something I've been learning about from my ONC colleagues, right? So the idea that the research community is trying to aggregate anonymized data about not just health care, but health and healthy -- health population health in trying to use the power of big data to figure out how to make us a healthier population. And if each individual has to granularly give up access to some little piece of their information, you will never get the benefits of that kind of data flow.

MR. WEST: Okay. Other questions. Right here on the aisle.

MR. ALTMAN: Hi. I'm Fred Altman. I'm retired. My question is about the HIE. You talked about the cost benefits you've demonstrated. What about the clinical benefits of using it?

MR. YARAGHI: Well, this is a very challenging question, not only in the context of the HIE, but in more traditional medicine research type. We're always puzzled in how to measure the clinical benefits of an innovation. If there's a new drug to quit smoking, then if it helps you quit smoking, you know, for 30 days, then what if it increases your urges to smoke after 30 days. So how are you going to measure the clinical

benefits of this new innovation? In the HIE, it's the same context.

We -- one of the problems with the research in the HIE context is that there is not much measures to -- at the beginning to start even, you know, evaluating the benefits of HIE. So we rely on the most conservative kind of measures, like, the readmission rate. For example, how accessing the HIE can reduce the chance of a patient getting readmitted to the hospital for the same DRG code. And also, the chances of a patient going from an emergency department to a hospital and also the duration that the patient spends in the hospital until it gets treated for the same kind of a disease.

So I would say these three measures are the most widely accepted and also conservative measures of evaluating the benefits of HIE. And in all of them, HIE has been proven helpful. So I can refer you to the most recent study of Vest at Cornell and they were evaluating the benefits of HIE in reducing the readmission rates. In Syracuse, New York, I think it was something between 40 to 60 percent reduction in the readmission chance. And even before a patient get readmitted, there was an -- a little bit older study by Mark Frisse in Vanderbilt University. And what they observed is that if a patient records are accessed through the HIE when he or she is rushed to the emergency department, then there is about 20 to 30 percent less chance of him or her being hospitalized. So if we accept readmission and being sent to the hospital as some acceptable measures of the clinical benefits of HIE, then I would say that, at least, research shows that HIE has been helpful in those areas.

MR. WEST: Near the back there's a question.

MS. O'MALLEY: Hi. Thank you. My name is Ann O'Malley and I work at Mathematical Policy Research. We spend a lot of time talking to providers about the challenges they face in using electronic health records to try to coordinate care for patients and as a non-economist; I'm a physician, the thing that I can't get my head

around is one of the challenges -- I understand FTC is very interested in competition and that's what you're trying to promote. But what we consistently hear is the fact that EHR vendors are competing with one another that makes the direct send-to-send piece so incredibly challenging that Kelly mentioned. And so, I'm trying to see how you balance those two things. I understand that you want competition at the same time. Outside of Meaningful Use incentives, there's not a whole lot of reason for EHR vendors to care that their record talks to another record at the moment, and it's making life incredibly difficult for a physician to try to coordinate care for their patients and their practices. So, just curious about your thoughts on that especially as certain vendors, like Epic, really start to suck up more and more of the market share and become less responsive to the needs of providers because, financially, they don't necessarily have to be.

MS. CRONIN: I agree. It's a delicate balance and I'm not an economist either, though I spend lots of time with many of them so I've absorbed plenty of it.

So there's different models for what's best for whoever the consumer is. Whether the consumer here -- let's assume for purposes of this, if we're talking about the market for health information technology and systems that the consumer is probably a hospital or a physician provider, a provider group, or something like that. So on the one hand if you had us standard and everyone's just competing around that standard but you've, kind of, decided this is the standard, okay, you've eliminated competition to be the standard, but you can have competition within the standard. That's one model that works very well in some technology markets.

The other model would be you could have proprietary systems and the competition is at that level among the proprietary systems. Which, clearly we see, has some disadvantages because it's not great for interoperability, but it does, somewhat argue, promote innovation in the sense that if you ever have a proprietary system, you're



going to recoup the benefits of your investment in your system and that's why you want to keep your walled garden and keep people -- keep your data in and keep it from getting out because that's how you're recouping the investment.

So I think going back to the financial and economic incentives, if you want to promote greater -- a system that's more like the first where we've got some, sort of, standard and then we promote interoperability and the competition is for developing products around that standard, you have to do it in a way that still encourages people to innovate so that they still feel that they are recouping their investment if everything you create is just going to have to be turned over to somebody else because it's all fully interoperable. The fear would be that you're going to reduce innovation. And so I think that's the strongest argument for why we still -- why the separate system is may -- still make some economic sense for those companies.

MS. KOSLOV: Yeah. I would just add that I -- there's both technical and some trust issues with why direct isn't working across the EHR platforms that we're actively working on. We need to constrain the summary record standard, the consolidate clinical data architectures. And the instance was brought up earlier. You can't get a 400 page summary record and think that it's going to be actionable; it won't be. And you can't always figure out how to, sort of, exchange these -- what they call trust bundles across different kinds of health information service providers which are created when you have a lot of different EHR vendors in one market. So that's a governance challenge that we're trying to address.

But, hypothetically, you know, if, you know, you have let's say a large EHR vendor like Epic in a market and that's a lot of the Midwest quite frankly. They've a lot of market share. It can be easier, clinically, to share on care anywhere or within their HISP. And, perhaps, there's a higher levels of interoperability within the same platform.

But, you know, there's also this concern and it's, sort of, part of what we'll be looking at moving forward with FTC is what are the price implications? You know, if you do have really large penetration of just a few vendors and then they're able to charge much higher prices; if there's a willingness to pay for those much higher prices to transport that data outside their system, is that something that benefits the consumer is really efficient for the market.

MR. SCHWARTZ: I would add that it's not only that these systems are proprietary, but they're proprietary data models. And that is really the essence of the problem. We don't have a national data model and if we had better standardization on data models, much of the other issues would really go away because we would know when someone sent a bit of data to us where it goes. The problem is no one has the same language. It's really a Tower of Babel. And the one thing that we really could do that would dramatically change interoperability and make HIE's much more useful and also information to be parced quickly, is to move towards a national data model. And I don't see what the disadvantage of that is. I don't see why, as a standards operation, we shouldn't do that sooner than later. Particularly because there'll all sorts of international consortiums that have worked from building new effective data models. They don't have to be comprehensive. I'm not suggesting that people can't add elements to the standard data model, but at least the first 10 or 15,000 fields that are commonly used.

MR. WEST: Okay. Right here. You had a question? Yep.

MS. SPIELBERG: Actually --

MR. WEST: Just wait a minute. There's a microphone coming up for you.

MS. SPIELBERG: Hi. I'm Freya Spielberg. I'm Director of Community Oriented Primary Care at George Washington University. And actually, I was -- I'm a

family medicine physician and a health innovation researcher. And I was thinking the exact same thing that you -- I really wanted to hear about what the barriers are to creating a national health information exchange because it would -- you know, if all the data went into that and back out freely, it would solve so many of the problems.

And I also wanted to just make one comment about incentives for healthcare providers. I've been really impressed at the effectiveness of Meaningful Use in getting, you know, electronic health records disseminated. And I think similarly with health information exchanges, overcoming the barrier of just physicians really not knowing how to use it, not knowing what it can do. Even though one time incentive program so that they become comfortable, familiar with it would probably actually help overcome some of the hurdles.

MS. CRONIN: Very interesting input. Do you want me to speak to the first question? I think, you know, over the last 10 years, I was the first person in ONC, so I've heard a lot of the arguments over the years and a lot of the dialogue around the different options. For most of the last 10 years, we've been silent on architecture because it's almost a no-win argument. There's so many strong opinions on every side. And the privacy community generally would never tolerate some type of centralized clinical repository that you would ping against that would be, somehow, nationally represented. They -- it would just be a non-starter.

MS. SPIELBERG: (off mic)

MS. CRONIN: Well, that's a very interesting suggestion. I guess, operationally, that'd be really difficult to get; an opt-in consent model for the whole country. There's been some states that have tried it and it's been very hard to roll out. Some of them have been successful. But yeah, that would be one way to do it.

I mean, there is more of a dialogue, even in recent weeks around -- we

do probably need to be thinking more about a federated model that's query-based, which is where we were several years ago. That's, you know, thinking about how do we ping a series of clinical, you know, data repositories that would then allow for these quality measurement, utilities, and population health monitoring, and public health secondary uses. It would help us with Ebola outbreaks. I mean, there'd be all -- there'd be a whole host of reasons why you would need, sort of, federated repositories and the architecture around it that would be really enabled by, perhaps, a more rational model, information model.

So I think there's -- a lot of these conversations are really -- we're in the trenches if we're going to solve it right now because we're working on our interoperability roadmap. And I'd really encourage you to attend our public meeting next week; our Health IT Policy Committee and Standards Committee and express your opinions because we're wanting to -- we're going to be releasing a more full version of that in early next year, but we're trying to get all of these decisions around architecture and standards and governance and the incentives right for that roadmap.

MR. WEST: Niam?

MR. YARAGHI: I just want to clarify something. I do believe that incentives are really helpful as it was demonstrated by the latest research by ASGI at Harvard. They released their report, I think a month ago, here in D.C. And it's the natural and logical way to start any kind of innovation. You know, all these corporations when they come with a new product, they give free samples. And that is incentive to start the market and entice it to start adopting.

What I was referring to was using incentives as a way to continue to push the use of HIE. After some point of time, after giving the free samples, you should expect your product to take up and the market to, you know, start paying for that product

because they now understand the benefits of it and the utility is higher than the money that they pay for that. So I just wanted to clarify that.

MR. SHEARER: Hi. Ralph Shearer. I'm retired. For 20 years I've been on Medicare; approximately 20, and every doctor's visit, every test, every operation, has been recorded with the government. And it seems to me that the database to start from and there's been no objection to my knowing that the government knows of all my medical problems and I don't see why such a system couldn't be adapted, in other cases, to form that database.

MS. CRONIN: I can speak a little bit to that. The Medicare claims data from Part A and B and B and Medicaid data, as well, is an enormously important data asset and CMS is taking great strides to make that more transparent and more available. They have some legal restrictions on how that data can be used, but they've made a huge amount of progress in the last few years; even in the last several months on making that data more available. And that is going to be a critical piece, particularly as we move into these accountable care models and you need to know both the claims and the clinical data because you need to know costs, you need to know utilization of the healthcare procedures. We also need to know the clinical details of your blood pressure and your lab results and other aspects of your physiological status that are critical to making clinical decisions, particularly in emergency situations. So both are needed. Claims data are a terrific start and a lot of places across the country are using them.

MR. SCHWARTZ: Because we are a Medicare ACO already in the Shared Savings Program, we get that data from the feds and it was an opt-out program. So, typical of other practices, we had about four or five percent of our Medicare recipients opt out of the program. So we picked up the claims data on 95 percent of our Medicare patients, and it's been a remarkable asset to have. And we've been able to decrease the

number of tests we order because of that. We are able to have your gaps in care -- the typical gap in cares; did you have a mammogram you're supposed to have, our records may indicate that you had it or not. But if we don't know whether you had it elsewhere, we're going to send you a letter to go get your mammogram; we've already had it down the street.

So the claims data is extremely helpful in tailoring the right care to the right patient, both positively and negatively. So the federal government makes it available to people who are currently participating in their Shared Savings programs.

MR. WEST: So Nick, is there a question from our webcast audience?

SPEAKER: Yeah, we have two questions from Twitter. The first one; is anybody looking at HIE workflow design on provider side and business model design on HIE side? That's the first question.

MR. WEST: Okay. Hold on to that. We'll answer that and come back to you.

MR. SCHWARTZ: Yes, we're actively looking at the provider use of the HIE information because unless we can figure how to get the information to the doctor in a usable form at the time of the visit, then the information's worthless and it won't be looked at. So, it turns out that that's very, very challenging to do and there are various strategies that make it work. And one of the best strategies is, within the EHR world, is to build clinical ontologies so that for a particular diagnosis, the information necessary is assembled and presented to the physician, integrated both the stuff that's in the practice and outside the practice, for the decision-making either directly or as part of a pathway of care. So although that's a very complicated answer and it's not easy to do, there are structural things that you can do to make that information much more valuable.

MR. WEST: Niam?

MR. YARAGHI: And it's a very interesting question because we just have started this research and we're planning to look at the different pricing models for the HIE platforms. But as I said, the first step in order to price any kind of innovation is to precisely measure its value. So in that regard, yes, I would say we have started that research. But as far as I can say, at least I am not aware of any solid piece of research that, proposed as a pricing model for an HIE platform, basically because these platforms are, first of all, fairly new and nobody really knows how much their saving.

And the second thing is that they're very complicated. There are so many different types of users are connected to these platforms and there so many different kinds of positive spillovers happening in the systems. You know, I use the system and because of my use, somebody else is benefitting. So it's a complicated economic phenomenon and that may be another reason that there has not still been any published research at least. But I think, in the near future, we would be seeing a lot of -- a lot more research in that regards.

MR. WEST: So we have another question from our webcast audience.

SPEAKER: Yeah. The second question; so what should we do first, develop a better EHR HIE system or standardize the current systems?

MS. CRONIN: I think I'll start on that. I think we are trying through a certification program through ways to improve usability of the existing systems by constraining our standards. We are working with what we have. It's the practical thing to do. There's been an enormous investment in time and finances and clinical work for a resign to get to where we are today. We don't really want to rip and replace, nor do we have the time because we're really under pressure to -- all of us to, sort of, to reform the system. But we do need to quickly evolve the models and allow for innovation in, you know, the next five to 10 years.

MR. WEST: Okay. Right here on the aisle and then we'll go to the back. This gentleman on the aisle has a question if we can get a microphone to him. Yep.

MR. LEVIN: Thank you. Peter Levin. I've been in all parts of the healthcare system for the last 50 years. First, just to comment and then a question. My -- and none of you are responsible for what has happened. But I can't help, and I've never thought about it until today, that the government that has now brought us three times into Iraq, is also the designer of a change in the healthcare system that is not based on really any facts of accomplishment. We've decided physicians should be grouped in ACO's and various kinds of things and that they should -- they and the hospitals and whatever should be put at risk for saving money for the whole system. You can't find any other place in the world that has decided to go this way, but we apparently have.

The question, and you've all touched on it, is this -- is the issue of competing systems and the ability to talk to one another. We went into this and I don't know what their called, but you know. We've gave grants to various places all over the country to have doctors sign up for this medical -- I always forget that the name.

MR. WEST: Electronic medical records.

MR. LEVIN: To buy systems. So you have Certainer and Epic and (inaudible) and all these other things, and we never said from the beginning, this is a set of standards so you can talk to each other. And you could get buried by the lawyers on -- and the privacy nuts to stop anything if you're going to let them. So we have doctors out there in offices and, you know, we all know the doctors, they throw up their hands, I'm here until 10:00 at night trying to make this system work.

The big physician groups, you can understand, where they trust one



another, hopefully, can put in systems and make changes. But the average American small practice is standing on their heads. And when I ask the people who've run this large thing to sign up for 4,500 physicians, what's going to happen when the money runs out? They say, I don't know, because the idea is, and you've touch on it, someone up here, is that the physicians will want to pay for the wonderful services that they're going to get from these systems. And there's no evidence that this is all going to roll. I mean, I guess we'll spend a decade screwing around with this until something comes out. And I don't know why we couldn't have had an interoperability standard on basic things so that the hospital can send a record to the doctor and this has got to be part of it. But here we are rolling along.

MS. CRONIN: You said -- I mean a lot of what you're saying, there's a lot of truth to it, but when we did start the EHR Incentives Program and the Health IT Certification Program, it was based on standards for medications and labs and, you know, standard vocabularies, terminologies, that had been through some standard development organizations and balloted and tested and adopted. So there was a lot of push to get data captured in these electronic health records that are codified in the right standards. What there wasn't enough consensus around was, sort of, how to connect the system and what standards and protocols can be agreed upon to make sure you have that connectivity. That's why we staged the program. So stage two and stage three was really supposed to be getting to those higher levels of interoperability and connectivity so that protocols to share the data were really introduced in stage two. And, hypothetically, we'll be getting these higher levels over time. But we've gotten into this point where there's a lot of demand -- there's increasing demand to get the data routed, but a lack of consistent standards that -- adoption and consistency.

So it wasn't that standards were never thought about. We've been

working on them for decades. And we worked on them, you know, even before our office was started. There was a lot going on in the health and human services with the standards development community to adopt common standards. It's an ongoing struggle and it's very complicated, particularly in medicine because there are so many medical terminologies to standardize and so much data to be able to standardize. The content itself, how you organize it, and how you actually share it across the system. There's several different layers of standards.

MR. WEST: Okay. Near the back there was a -- stand up. Yep.

MR. GOLD: Hi. Ashley Gold from Politico. Can you speak any more to how the FTC and ONC are going to be working together to, maybe, fight those walled gardens you were talking about? If there's going to be specific enforcement actions or if it's just suggestions you're going to give to Congress. And can you also speak to -- if it's financial incentives that need to drive interoperability going forward, will that play into stage 3 of Meaningful Use? Are you depending on the industry to listen to the interoperability roadmap to really spread that or will it require -- or requirement of Meaningful Use to really get it going?

MS. CRONIN: I'll answer the second one and you can take the first.

(Laughs)

MS. KOSLOV: So on the first one -- so I can tell you what I think the FTC will be doing going forward and I can tell you how I think that will involve working with ONC and then I'll let Kelly pick up.

So we have a range of tools that we can use as an agency. We're fortunate that our enabling statute gives us a variety of tools which makes us fairly unique. So on the -- I mean, certainly, we are an enforcement agency. If we see conduct out there in the marketplace that we think violates a law that we enforce, we can take an

enforcement action and we will not hesitate to do that. I think we're at the stage where we are looking out at the marketplace, looking at the market participants to see if we are observing any of that kind of conduct that might justify opening an investigation and pursuing an enforcement route.

On the policy side, we have a variety of research and advocacy and study tools. So for example, we did a two-day healthcare workshop back in March examining healthcare competition. And one of the panels at that March workshop, which we started planning actually about the summer of 2013 was when we started working on that. So we were already looking ahead and we saw these issues were starting to percolate. So we had one whole panel on these issues, which I encourage all of you. You can go to the FTC website. There are PowerPoints and the full transcript of that program and I think a webcast -- a video as well. And so we really -- we brought in experts and tried to get a sense of where do we think these markets are heading to tip us off. And so we're now taking that information any synthesizing that and trying to figure out what we can do with that.

As far as our role with ONC, I think it's -- it goes in two directions. So to the extent that we are enhancing our existing understanding of these markets, we will rely on the experts at ONC who are really, you know, deep into these markets to make sure that we're getting it right and that we're, kind of, figuring out how the different players are acting. I think to the extent that ONC is engaged in, perhaps, more of the standard-setting and helping us coalesce around standards, I am hopeful that we will be able to offer technical assistance based on our competition expertise in the standard-setting arena to help make sure that that standard-setting process occurs in a way that, to the greatest extent possible, promotes competition and promotes innovation.

MR. WEST: You want to answer the second part?

MS. CRONIN: Yes. Yeah, I think she answered the collaboration perfectly. The only thing I might add is just I think we both recognize we need to work together on the monitoring of the market and we'll be figuring out how exactly we do that that because it's really important.

And as far as the incentives go, I mean, clearly, Meaningful Use Stage 3, which will be proposed in regulation, will be one mechanism to provide additional incentives for interoperability. But we've been clear for the last year or 14 months that we are going well beyond Meaningful Use in driving incentives for interoperability and it's really a commitment. Across the department now, an increasingly part of delivery system reform if -- and if you notice the secretary was blogging about delivery system reform in the last few weeks about interoperability being a critical component of it. And as we start to, you know, implement new payment models, even continuing existing fee-for-service, we are looking at every opportunity to link interoperability and health information exchange to existing Medicare and Medicaid payment policies.

So it's a comprehensive effort. It's looking at all forms of payment. We particularly are sensitive around long-term care and behavioral health because the Meaningful Use incentives did not reach them and they're critical players in delivery reform. And they are really not -- they have very low adoption rates right now. So they don't have the ability to even share electronic data. So, yeah, the -- we're -- it's, sort of, full stop out looking at all payment levers.

MR. YARAGHI: I just want to give my -- give a small comment about your question; the previous question. And I think there is no question about the concept of information exchange no matter which country you're looking at. If you ask them, I think all the healthcare professionals, the degree that, if you have a system that you can exchange the information of the patients with each other or you have some kind of an

electronic database that you can sort information, it's a good thing; or at least, it cannot hurt.

So the concept, I think, it's a unanimous agreement about that. But the difference is in the approach of how to reach that goal or the concept. And the reason that you don't see any other country doing what we're doing in the U.S. is that no other country is like the U.S. So look at Sweden, for example. They have fully interoperable, 100 percent adoption rate, electronic health information records, and HIE exchange, and everything. It's because there is a small country of 9 million people with a completely different political and economical background. I think it's -- you cannot compare the privacy concerns of the U.S. citizen with a Swedish citizen. So this is one example. And the other example is that Sweden is a single-payer, you know. The government pays for the healthcare. It's not the government actually, it's the people who pay taxes and from their taxes they pay for the healthcare. So if you are the single-payer, then you can -- you basically dictate the physician that if you want to get paid, you have to use HIE. I don't care how hard it is. And after some time, you know, the physician has no choice to use other than to use it.

But here in the United States, we don't have that and we have different cultural backgrounds and we have different socio-economical infrastructure and history that we cannot adopt approaches of Sweden or England or other countries who have been successful in that. So the United States is a whole completely different context. And that is why you see the efforts that are undertaken in the United States are very different and sometimes strange towards fully interoperable medical records.

MR. WEST: Right here. Is there a question?

MR. MOREHOUSE: Hi. Chris Morehouse from Georgetown. I had a question about DOD data currently as \$10 billion that their shopping around for a new

EHR, despite that the VA already has a pretty successful existing system that's been offered to them. And it seems like that -- I mean, the interoperability especially as current soldiers transfer to the VA that, having the same system would make sense and be cheaper. Can you speak to the rationale behind that?

MR. YARAGHI: I can -- I don't know why, but I just can't give some comments about that. The interesting point is that the system that the VA is using is basically the same system that DOD is using. You know, the VA system was so successful many years ago, the DOD decided to use the same programming language to build its own in-house system. And they did it and now they're okay with it. And they have some level of interoperability between each other. Their problem is that it's not seamless interoperability. So for example, if a soldier goes from DOD to VA, then the physician in the VA has to log in into another interface to see what happened in DOD for that specific patient. And it cannot be integrated seamlessly. So for example, if that physician -- if that patient had a radiology taken in DOD, it cannot be integrated in a single system and be shown together with all the radiology reports that are created in VA for that physician. And it becomes problematic especially in the case of prescriptions. So if the patient had 10 milligrams of this specific prescription at DOD, then the physician would like to see that 10 milligrams added to the other 10 milligrams that he has prescribed at the VA for that, but this is not happening. And they've been trying very hard to reach that and I would say only for the technical issues, they have not been able to do that. And I think they had -- they spent a couple of million, billion dollars on that project because they were not successful. They couldn't come up with a solution to resolve the issue and they say that now we are going to shop, you know, all of these -- create a system for that.

MR. SCHWARTZ: I think situation is now national with almost everybody

who's living with first-generation systems which is virtually all of us. And those first-generation system have fundamental limitations. And as you start to try to move to more advanced workflow issues, more advanced processes, more advanced pathways of care, more advanced population management, those limitations have become very obvious. And if you are taking responsibility for handling the health of a large number of people, it's not unreasonable to ask the question, is there something else out there that we could do that would be a mechanism for us to do a better job?

MR. WEST: So I have a closing question for our panel. Let's say that two years from now, Brookings puts on a panel on healthcare connectivity. How is the conversation going to be different? Meaning, where will we have made progress in a couple years? Where will we have the same complaints?

MS. CRONIN: I think we're have a lot more value-based payments so the incentives are going to shift more. I think we're going to have a governance approach to governance for both standards and network connectivity that has a distinct role for government and the private sector. And it's a collaborative model that's working much better than it is today.

MS. KOSLOV: I am optimistic that at least some of that will have happened. I certainly hope so. I think my pessimistic point would be, I think that no matter how much interoperability you achieve and how much additional value-based payment we have, all of the different economic actors in the marketplace will always be looking for ways to maximize their own advantage, keep out competitors, and prevent -- there will always be people who'll have an incentive to prevent information from flowing. Even if there're really good reasons to it, there will be people who will be looking for creative ways not to do it. And so I suspect that we will still have plenty of monitoring to do and plenty of advocacy work to do to encourage that because I just think that's the

reality.

MR. YARAGHI: I think I'm very optimistic towards this issue. I think within two years we may have resolved many of the interoperability problems only because of the new payment reforms and new organizational types that are being introduced to market like ACOs and all the other improvements. Medical providers will actively seek to exchange information with each other. And maybe within two years, we're talking about how to use the information that's being gathered as an exchange between these providers here to come up with more advanced and smarter uses of that information that now we have access to in medical research and other areas. I think this is a technology that will advance much quicker than we expect. It's -- right now we are at the very beginning of its infancy, but it will mature very fast.

MR. SCHWARTZ: I'm certain that my colleagues from the FTC and the ONC will still have plenty of work to do two years from now. (Laughter) But I'm optimistic on one characteristic, which is, is that I think that direct, this push method, right, will be widely adopted over the next two years. It just makes logical sense that we're not going to fax documents and we'll have the simple system; you have an e-mail address, you get it. I think that that secure direct system will be widely implemented and we're actually in the first phase of our practice implementing that today. So I think that will be widely accepted.

And I think the other thing that's going to happen in this panel two years from now, there's going to be a meaningful proposal on the table for the query method. And I think that when you have a query of a federated model, that's going to really be the transformational event.

MR. WEST: Okay. I want to thank Kelly, Tara, Niam, and Simeon. And I think in two years, we have to have all of you back to see the strength and accuracy of



your predictions, but thank you very much. (Applause)

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I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

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