

AMERICA'S HEALTH IT TRANSFORMATION: TRANSLATING THE PROMISE OF ELECTRONIC HEALTH RECORDS INTO BETTER CARE

HEARING

OF THE

**COMMITTEE ON HEALTH, EDUCATION,
LABOR, AND PENSIONS**

UNITED STATES SENATE

ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

ON

**EXAMINING AMERICA'S HEALTH INFORMATION TECHNOLOGY (IT)
TRANSFORMATION, FOCUSING ON TRANSLATING THE PROMISE OF
ELECTRONIC HEALTH RECORDS INTO BETTER CARE**

—————
MARCH 17, 2015
—————

Printed for the use of the Committee on Health, Education, Labor, and Pensions



Available via the World Wide Web: <http://www.gpo.gov/fdsys/>

U.S. GOVERNMENT PUBLISHING OFFICE

93-864 PDF

WASHINGTON : 2017

For sale by the Superintendent of Documents, U.S. Government Publishing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
Fax: (202) 512-2104 Mail: Stop IDCC, Washington, DC 20402-0001

COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS

LAMAR ALEXANDER, Tennessee, *Chairman*

MICHAEL B. ENZI, Wyoming	PATTY MURRAY, Washington
RICHARD BURR, North Carolina	BARBARA A. MIKULSKI, Maryland
JOHNNY ISAKSON, Georgia	BERNARD SANDERS (I), Vermont
RAND PAUL, Kentucky	ROBERT P. CASEY, JR., Pennsylvania
SUSAN COLLINS, Maine	AL FRANKEN, Minnesota
LISA MURKOWSKI, Alaska	MICHAEL F. BENNET, Colorado
MARK KIRK, Illinois	SHELDON WHITEHOUSE, Rhode Island
TIM SCOTT, South Carolina	TAMMY BALDWIN, Wisconsin
ORRIN G. HATCH, Utah	CHRISTOPHER S. MURPHY, Connecticut
PAT ROBERTS, Kansas	ELIZABETH WARREN, Massachusetts
BILL CASSIDY, M.D., Louisiana	

DAVID P. CLEARY, *Staff Director*

LINDSEY WARD SEIDMAN *Deputy Staff Director?????*

EVAN SCHATZ, *Democrat Staff Director*

JOHN RIGHTER, *Democrat Deputy Staff Director*

C O N T E N T S

STATEMENTS

THURSDAY, MARCH 17, 2015

Page

COMMITTEE MEMBERS

Alexander, Hon. Lamar, Chairman, Committee on Health, Education, Labor, and Pensions, opening statement	1
Murray, Hon. Patty, a U.S. Senator from the State of Washington, opening statement	3
Baldwin, Hon. Tammy, a U.S. Senator from the State of Wisconsin	5
Cassidy, Hon. Bill, M.D., a U.S. Senator from the State of Louisiana	6
Warren, Hon. Elizabeth, a U.S. Senator from the State of Massachusetts	36
Isakson, Hon. Johnny, a U.S. Senator from the State of Georgia	42
Whitehouse, Hon. Sheldon, a U.S. Senator from the State of Rhode Island	44
Franken, Hon. Al, a U.S. Senator from the State of Minnesota	49

WITNESSES

Adler-Milstein, Julia, Ph.D., Assistant Professor of Information, School of Information, Assistant Professor of Health Management and Policy, School of Public Health, University of Michigan, Ann Arbor, MI	6
Prepared statement	8
Wergin, Robert L., M.D., FAAFP, President, American Academy of Family Physicians (AAFP), Milford, NE	11
Prepared statement	12
DeVault, Peter, Director of Interoperability, Epic Systems Corporation, Madi- son, WI	18
Prepared statement	20
Kennedy, Angela, Ed.D., M.B.A., R.H.I.A., Head of Department/Professor, De- partment of Health Informatics and Information Management, College of Applied and Natural Sciences, Louisiana Tech University, Ruston, LA	28
Prepared statement	30

ADDITIONAL MATERIAL

Statements, articles, publications, letters, etc.:	
Peter DeVault, Letter	52
Response by Julia Adler-Milstein, Ph.D. to questions of:	
Senator Alexander	53
Senator Burr	58
Senator Warren	58
Response by Robert L. Wergin, M.D., FAAFP to questions of:	
Senator Alexander	59
Senator Burr	65
Senator Cassidy	66
Senator Murray	66
Senator Warren	67
Response by Peter DeVault to questions of:	
Senator Alexander	68
Senator Burr	73
Senator Roberts	74
Senator Cassidy	76
Senator Murray	76
Senator Warren	77

**AMERICA'S HEALTH IT TRANSFORMATION:
TRANSLATING THE PROMISE OF ELEC-
TRONIC HEALTH RECORDS INTO BETTER
CARE**

TUESDAY, MARCH 17, 2015

U.S. SENATE,
COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS,
Washington, DC.

The committee met, pursuant to notice, at 10 a.m. in room SD-430, Dirksen Senate Office Building, Hon. Lamar Alexander, chairman of the committee, presiding.

Present: Senators Alexander, Murray, Burr, Isakson, Cassidy, Franken, Bennet, Whitehouse, Baldwin, Murphy, and Warren.

OPENING STATEMENT OF SENATOR ALEXANDER

The CHAIRMAN. The Senate Committee on Health, Education, Labor, and Pensions will please come to order.

This morning, we're holding a hearing on America's Health IT Transformation: Translating the Promise of Electronic Health Records into Better Care. Senator Murray and I will each have an opening statement. Then we'll introduce our panel of witnesses. After our witnesses, Senators will have 5 minutes of questions.

We have two votes at 11. That should give us plenty of time to get through our opening statements and hear from the witnesses and some questions. We'll see where we are at about 11:20 in the first vote, and if we're through, we'll conclude the hearing. If there are Senators who still want to stay and ask further questions, we'll work it out where some of us go vote and some of us come back. We'll work it out so Senators will all have a chance to participate.

Health IT means many different things, everything from wearable gadgets that monitor your heart rate to sophisticated applications that help physicians track treatments. But today, we're focused on electronic health records used by hospitals and doctors in their practices.

Our committee hasn't had a hearing on Health IT since January 2009, a month before the \$35 billion HITECH Act became a part of the stimulus package. The HITECH Act was warmly greeted. It was meant to unleash a new IT era where our health information would move seamlessly among doctors and hospitals to help achieve better, more coordinated care.

After the bill's passage, doctors and hospitals rushed to join the so-called Meaningful Use Program. There were \$35 billion in incentives to encourage that. Adoption rates for electronic health records

grew dramatically. According to the most recent data, 48 percent of physicians and 59 percent of hospitals have at least a basic electronic health records system, compared to 26 percent and 47 percent in 2009.

The hope was that the program would improve care, coordination, and reduce costs. The evidence suggests these goals have not been reached. Half of physicians have not met the requirements of the program and are now facing penalties.

A Medical Economics survey last year found nearly 70 percent of physicians say their electronic health records systems have not been worth it. One physician wrote:

“We used to see 32 patients a day with one tech, and now we struggle to see 24 patients a day with four techs. And we provide worse care.”

Doctors and hospitals have had so much difficulty meeting the Meaningful Use requirements that CMS has had to delay or change requirements three times. We’re here today to find out how this happened and what we should do about it.

Transitioning to electronic health records requires a real transformation in how physicians practice. The administration seems to have complicated the process by rushing ahead with penalties for those who don’t adopt electronic health records systems. To be specific, doctors and hospitals that don’t adopt these records systems lose 1 percent of their Medicare payments in 2015. That penalty grows to 5 percent by 2019.

To receive incentive payments, physicians and hospitals had to buy systems certified to Federal Government specifications. Providers assumed the certified systems would be of high quality and meet program requirements. Instead, many providers discovered that certified systems have to undergo costly upgrades on short timelines to meet new requirements. Providers have to pay for these upgrades or pay even more to switch vendors.

Hospitals have spent hundreds of millions of dollars to implement and continuously upgrade their systems. For example, Wellmont Health System, which operates hospitals in Tennessee, went through a complete IT conversion from one system to a new one that guaranteed they’d be able to meet the requirements of the Meaningful Use Program.

Wellmont spent \$125 million and expects to receive \$38 million in Meaningful Use dollars. Wellmont is also seeing an approximately \$10 million increase in annual IT costs, but hasn’t been able to calculate potential savings.

Many providers are struggling with interoperability.

Here’s another example: Children’s National Medical Center in Washington spent \$400 million on its health IT over the last 4 years to make a web of 138 different electronic health records systems talk to each other and work together. That medical center received \$28 million in incentive payments.

The Eye Centers of Tennessee, with five locations, spent \$731,000 trying to comply with all the programs. Because they were not able to meet one measure, they expect a \$100,000 penalty.

This should have been a really good idea. For some, it has been. Vanderbilt, for example, had an award-winning program that includes patients’ genetic information in their medical records. That

system prevented a patient in her eighties from receiving a blood thinner that would have metabolized poorly because of her genetic variation.

Instead of the government trying to make everybody do this by taking away Medicare payments, a better route might have been to find ways to enable and encourage their adoption. Instead, the Administration seems to have rushed the process with its penalties and at the same time made the Federal Government the arbiter of IT quality.

It reminds me of a lesson I learned a long time ago. In 1980, when I was Governor, I flew out to Palo Alto to meet Steve Jobs. I had the idea of having every eighth grader in Tennessee computer literate.

We bought Macs, which then were about 4' tall, and we did that for every middle school in the State. We had a mandate that every child will become computer literate. I forgot one thing: teacher training. It sounded like a good idea to make everyone use computers, but I should have spent more time finding ways to enable them to use computers.

Enabling instead of mandates—that appears to be a good lesson for Washington policymakers who have rushed ahead with penalties in this program that has now created so many unhappy physicians and hospitals. I'm interested in learning today how we can become enablers rather than mandaters.

Senator Murray.

OPENING STATEMENT OF SENATOR MURRAY

Senator MURRAY. Thank you very much, Mr. Chairman.

Thank you to all of our witnesses for being here today.

When it comes to our healthcare system, I'm really focused on making sure that we expand coverage, make coverage more affordable, and, critically, ensuring we continue to improve the quality of care that patients receive. Today's hearing really is a great opportunity to focus, in particular, on that third goal, improving quality, because we all know having more and better information about a patient's healthcare can make all the difference.

We have come a long way in this effort. Our country has made significant gains in terms of adopting electronic health records. In 2001, only 18 percent of physicians used electronic health records, and today, 78 percent do. That is a real transformation, and I'm proud that the HITECH Act we passed in 2009 was a big part of that.

I truly appreciate the work that's been done by so many doctors and hospitals to help bring our healthcare system into the 21st century and improve the quality and value of care for families across the country. This progress does mean that doctors can identify health problems sooner and help patients get preventive care that will keep them healthy, and it means patients can know more about their own health and be better equipped to make decisions about the care that they need.

It also means patients are safer, since electronic health records can alert providers to errors that hurt patients. I look forward to hearing from Dr. Adler-Milstein and Dr. Wergin about the impor-

tant role health information plays in providing high-quality, patient-centered care.

I'm very proud that in my home State of Washington, patients are benefiting from better access to health information. For example, a patient at Group Health Cooperative in Seattle was able to switch her treatment and avoid serious health risks, thanks to electronic medical records that showed that a dangerous interaction between two of her medications was the problem.

That's just one story of many across the country that show how critical better health information is for patients. There is, of course, a lot more that should be done to build on the progress we've made so far.

Many physicians across the country are facing, as the Chairman mentioned, a Medicare payment reduction this year because they're struggling to meet the requirements for the use of these electronic health records. I know that there's a lot of frustration about that. I think we need to do more to both set high standards and ensure providers have the support and flexibility they need to reach them.

There are also important issues around interoperability that I look forward to hearing about from our witnesses today. It is critical that as electronic health records become more and more integral to our healthcare system, information can be securely and efficiently shared between doctors and across systems developed by different vendors. This is something that Mr. DeVault is deeply involved in, and I look forward to hearing his thoughts on best practices to increase interoperability.

As we do more to make sure electronic health information can be shared between providers, I think there is much more we can do to help patients stay informed about and involved in their own care. In addition to our extensive work on health information technology, I know Dr. Kennedy can speak personally to how important it is that patients have access to their medical records.

Thank you for coming today, Dr. Kennedy, and sharing your daughter's story.

Of course, a critical part of making sure our country can fully benefit from health IT is security. Patients and providers need to know that their information is safe and secure, and I'm glad to be working with Chairman Alexander to ensure that that is a top priority.

Finally, I want to note that progress on health IT is especially needed when it comes to the care of our service members and our veterans. Those who bravely serve our country deserve the absolute best care we have to offer, and that does include a state-of-the-art interoperable electronic records system. The VA and DoD missed an opportunity to develop that infrastructure, and I really hope that both departments will continue to work toward a better, modernized electronic health records system for our service members and our veterans.

Again, I want to thank our witnesses for being here today. As we continue working to strengthen our healthcare systems for patients and families, expanding and improving our Nation's health IT infrastructure cannot be more important. I truly appreciate everyone's efforts today, and I look forward to working with you in the coming weeks and months.

Thank you very much, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Murray.

This is another bipartisan hearing, which means that Senator Murray and I worked together to invite the witnesses. Our purpose is to learn what's going on and figure out what we need to do. We want to go straight down the middle and make this work and create an environment in which it can work, if we can.

I'm pleased to welcome the four witnesses. I want to thank you for being flexible. We got snowed out the last time we tried to have a hearing on this, and I know that was inconvenient for you, and we thank you for rescheduling and coming today. I want to introduce two witnesses, and then I'll turn to Senators to introduce two others.

Our first witness is Dr. Julia Adler-Milstein from the University of Michigan, Assistant Professor at the School of Information with a joint appointment in the School of Public Health. Her research focuses on policy and management issues related to the use of IT in healthcare delivery. She has expertise in health information exchange. She has conducted four national surveys of health information organizations. She also studies the productivity and efficiency of electronic health records.

Our second witness is Dr. Robert L. Wergin from Nebraska. Dr. Wergin is president of the American Academy of Family Physicians where he advocates on behalf of family physicians and patients nationwide. Dr. Wergin is a practicing physician in the town where he was born and raised, Milford, NE. He practices the full spectrum of family medicine, from obstetrics to geriatrics, at the Milford Family Practice Center and is medical director of Crestview Care Center.

Senator Baldwin, I believe you have a witness.

STATEMENT OF SENATOR BALDWIN

Senator BALDWIN. Thank you, Mr. Chairman and Ranking Member. I am honored to introduce today Mr. Peter DeVault. He is the director of Interoperability at Epic Systems in Verona—Verona, WI, I might add. He joins us armed with a significant amount of industry expertise and experience in electronic health records.

Not only does Peter sit on the Health IT Policy Committee's Information Exchange work group, which makes recommendations to the national coordinator for health IT, but he also has held leadership positions in several interoperability bodies, including the Certification Commission for the Health Information Technology Interoperability work group, HL7's EHR Technical Committee, and the Electronic Health Record Association, just to name a few.

He also works with Healthy Ways Quality Initiative, a vendor effort to drive health information exchange to help Epic accelerate connections between interoperability networks.

Peter, welcome to the committee, and thank you for joining us to share Epic's story and your expertise in this area.

The CHAIRMAN. Thank you, Senator Baldwin.

Senator Cassidy will introduce our fourth witness.

STATEMENT OF SENATOR CASSIDY

Senator CASSIDY. It's my privilege to introduce Dr. Angela Kennedy. Dr. Kennedy is from Louisiana, specifically from Ruston, a beautiful little town in north Louisiana, where she teaches.

Dr. Kennedy, welcome to you and your daughter. Thank you for being here to share your story.

Dr. Kennedy is a professor and the head of the Department of Health Informatics and Information Management at the College of Applied and Natural Sciences at Louisiana Tech University in Ruston, LA. She is here to share her personal story and her daughter, Grace's, story. Grace was not properly diagnosed with cystic fibrosis because of, frankly, a foul-up of the electronic medical record and the usage thereof. It is both as a person with expertise in health informatics, but, more importantly, as a mom that she is here to present.

Dr. Kennedy, we look forward to your testimony, and I thank you for coming from Louisiana—where azaleas are blooming and the cypress trees are gorgeous—to Washington, DC.

The CHAIRMAN. Thank you, Senator Cassidy, for that commercial.

[Laughter.]

I agree with you. This is a nice time of year in Louisiana.

Why don't we start with Dr. Milstein, and then we'll move right down the line.

STATEMENT OF JULIA ADLER-MILSTEIN, Ph.D., ASSISTANT PROFESSOR OF INFORMATION, SCHOOL OF INFORMATION, ASSISTANT PROFESSOR OF HEALTH MANAGEMENT AND POLICY, SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF MICHIGAN, ANN ARBOR, MI

Ms. ADLER-MILSTEIN. Good morning, Chairman Alexander, Ranking Member Murray, and members of the committee. Thank you for inviting me here today.

This hearing is coming at a critical time in the evolution of our healthcare system. Over the past 5 years, there's been a multibillion dollar investment of both public and private funds into adoption of electronic health records. This was driven by widespread bipartisan agreement that using a first-century technology, paper-based records, is not a good way to deliver safe, effective, and efficient care.

The result is that we now have electronic health records in place in the majority of hospitals and physician practices across the country, and this is remarkable progress. However, there are early warning signs that a set of key barriers are preventing our investment in EHRs from resulting in the better care we so desperately need.

These barriers can be boiled down into three domains: ensuring that EHRs contain accurate data; ensuring that EHRs have the capabilities to move data; and ensuring that patients and providers can use that data. Careful policymaking can tackle each of the barriers in these domains and ensure that over the next 5 years, we leverage our new health IT infrastructure to deliver the high-quality affordable care we all want for ourselves and our loved ones.

In my remaining time, let me describe these barriers and suggest some policy actions that could address them. First, I often hear physicians using the technical term, gobbledygook, to describe the information that they find was in the clinical notes fields of their EHR. They also express frustration with the amount of time they have to spend documenting information that's not directly relevant to patient care.

Simply put, the multitude of clinical, billing, and regulatory requirements for what must be documented in the EHR is compromising the quality of the data in the EHR. And if the data isn't good, simply having it be electronic isn't going to get us anywhere. CMS is in a position to experiment with introducing more flexibility into documentation requirements and then assessing the effects.

Second and perhaps the most critical challenge is enabling the data that now sits within the EHRs of healthcare organizations across the country to move to where it is needed, to providers who cannot provide safe or effective care with missing information, and to patients who can use it to better understand and manage their health and care and to do so within a robust privacy and security framework.

Instead, only a minority of physicians, as few as 20 to 30 percent of physicians and hospitals, exchange clinical data with other providers electronically. It may be surprising to discover that the true barriers to such exchange are largely not technical ones.

An agreed upon set of standards implemented in a consistent way would undoubtedly facilitate interoperability. The underlying issue is that we don't have the incentives in place to make this a reality. EHR vendors do not have a business case for seamless, affordable interoperability across vendor platforms, and provider organizations find it an expense that they often can't justify.

It is reasonable to ask in exchange for the large amount of public funding that has been dedicated to EHR adoption that vendors facilitate a robust market of new tools and technologies by enabling better access to patient data. The mechanisms to do this exist today in the form of EHR certification criteria.

Third, despite the fact that IT is deeply interwoven into the fabric of our lives, for most patients, health IT has meant very little. This is true to such an extent that provider organizations are struggling to meet the Stage 2 Meaningful Use criteria that requires that 5 percent of patients view, download, or transmit to a third party their health information.

The reason is straightforward. Most patient portals and personal health records are not making patient data understandable, useful, and engaging. Despite the tremendous explosion of patient-generated health and lifestyle data, few patients are able to sync that data with their EHR data.

If we make real progress in patient-centric data sharing from providers to patients and patients to providers, there's no shortage of smart, creative companies that will work with patients to help them make sense of the data and use it in ways that are valuable.

In closing, I think we can all agree that newly adopted EHRs have a critical role to play in improving our healthcare system. It won't happen on its own. Smart policy interventions can push to

improve the data, as well as move it to where it is needed in order to let physicians, patients, and the broader market use it to innovate and create value.

Many other industries have shown us the power of what can happen when high-quality data are at our fingertips and incentives are aligned behind innovation. We've made great progress in EHR adoption. Now is the time to do the things we need to make sure the investment leads to safer, more effective, and more efficient care.

Thank you.

[The prepared statement of Ms. Adler-Milstein follows:]

PREPARED STATEMENT OF JULIA ADLER-MILSTEIN, PH.D.

SUMMARY

There has been remarkable consensus that the U.S. healthcare system needs to adopt and use electronic health records. EHRs have been an area of so much agreement because they hold the potential to do two things: save lives and save money.

The good news is that use of electronic health records is spreading. In 2008, just 17 percent of American physicians and 9 percent of hospitals were using EHRs. Since that time—and with the passage of the HITECH Act—a majority of physicians utilize EHRs and 60 percent of hospitals have converted as well. These changes have occurred in a wide range of provider groups, from small ambulatory care practices to large teaching hospitals. Additionally, safety-net providers have largely kept up with other providers, staving off a digital divide.

While these gains are remarkable, we are not yet seeing the large anticipated benefits of EHRs: the evidence fails to show consistent improvement in patient care or a decrease in healthcare spending because of our investment. While in most industries there is a time lag—as much as a decade—between when IT is adopted and when we see large productivity gains, in healthcare we don't have a decade to wait. There is growing consensus about the challenges that need to be addressed, and we need to channel the strong momentum behind EHRs to do so.

First, and most critically, we need to enable the vast amount of “digital” data that now sits within EHRs to move to where it is needed: to other providers who cannot provide safe or effective care with missing information, and to patients who can use it to better understand and manage their health and care. Only a small minority—as few as 20–30 percent of physicians and hospitals—exchange clinical data with other providers electronically. This is not, at its core, a technological issue. The interoperability barriers that exist between providers are driven by a lack of incentives. EHR vendors do not have a business case for seamless, affordable interoperability across vendor platforms, and provider organizations find it an expense that they often can't justify.

Patient involvement is also critical to realizing the value of EHRs. At this time, EHRs have not developed in a way that is meaningful to most Americans. The reason is straightforward: most patient portals and personal health records are not making patient data understandable, useful, and engaging. There are few opportunities for patients to provide the data they generate about their lifestyle and health behaviors to create a complete picture of their health.

We also have work to do to improve the quality of data within EHRs, and there is a tension between the information that needs to be captured in EHRs for clinical care and the information needed for billing (as well as other administrative and regulatory requirements). We need to devote more attention to how to resolve this tension.

In each of these areas, solutions will come from the talents and creativity of healthcare providers, entrepreneurs and the broader industry. The job of policymakers is to enable those innovations and there are concrete things we can do. The HITECH Act has done a remarkable job of getting EHRs deployed widely, but our job is not done. With smart policy actions that enable greater innovation in the healthcare marketplace, we can realize the promise of EHRs—to drive value in healthcare for all Americans.

Good morning, Chairman Alexander, Ranking Member Murray, and distinguished members of the committee. My name is Julia Adler-Milstein and I am an assistant professor at the University of Michigan. It is an honor to appear before you to dis-

cuss how our Nation can ensure that the substantial investment we have made in health information technology over the past decade translates into improved healthcare for all Americans. My research tracks the adoption of health IT in the U.S. healthcare system as well as assesses the impact of health IT adoption on the cost and quality of care, and it is for this reason that I am here today.

A decade ago, President George W. Bush set an ambitious goal for our Nation: by 2014 every American would get their care with the support of an electronic health record.¹ In 2009, President Obama reiterated the same goal, calling for universal use of EHRs by 2014.² Investing in health information technology has been an area of remarkable consensus, and the reason is clear: when done right, health IT can have a profound impact on improving virtually all dimensions of care. No one believes that paper-based records are a good way to deliver safe, effective, high-quality care.

In response, an array of Federal and State-based strategies has sought to spur the adoption and use of electronic health records. They have been remarkably successful. Since the last time this committee met to discuss health IT, the adoption of EHRs, which include key functions known to improve the quality of care, has increased dramatically. Among U.S. hospitals, the increase has been from 9 percent³ to nearly 60 percent⁴ in the most recent data (2014). Over the same period, the increase among U.S. physicians has also been large: from 17 percent⁵ to 48 percent.⁶ These gains can be largely credited to the HITECH Act—which provided nearly \$30 billion in incentives to physicians and hospitals to adopt and meaningfully use an EHR.⁷ For example, if today you were to walk into your local hospital, you would find that the majority of medications are ordered through the EHR.⁸ This was not true only a few years ago, and the evidence is clear that just this one use of EHRs avoids errors and saves lives.⁹ There is more good news. We have seen EHR adoption among safety net providers mostly keep up with everyone else, partly due to the alternative incentive program that was created for safety-net providers. The increases in adoption of EHRs have been widespread—across all regions of the country, across a large variety of provider groups from small ambulatory care practices to large teaching hospitals. We should feel proud of these successes.

Adoption of EHRs is, however, only the first step; EHRs are necessary, but not sufficient, to drive large gains in healthcare quality. The evidence to date suggests that EHRs do not consistently lead to better care or lower healthcare spending. In some ways, this should not be a surprise. In most industries, there is a time lag—as much as a decade—between when IT is adopted and when we see large efficiency and productivity gains. In healthcare, we don't have a decade to wait. We need a strategy for figuring out how to use our new information technology infrastructure to truly transform healthcare. Here, there is growing consensus about the challenges that need to be addressed and important places where careful policymaking can make a big difference.

The first challenge is “liberating” the patient data that now sits within electronic health record systems of healthcare organizations across the country. By adopting EHRs, we have made a tremendous investment in “digitizing” clinical data, and have asked busy physicians to take extra time out of their day to enter this data. We need to enable the data to move to where it is needed: to other providers who

¹“President Bush continues EHR push, sets national goals.” *Healthcare IT News*. April 26, 2004. Available at: <http://www.healthcareitnews.com/news/president-bush-continues-ehr-push-sets-national-goals>.

²“Obama: EHRs for Americans by 2014.” *Healthcare IT News*. January 8, 2009. Available at: <http://www.healthcareitnews.com/news/obama-ehrs-americans-2014>.

³Adler-Milstein J, Desroches CM, Furukawa MF, Worzala C, Charles D, Kralovec P, Stalley S and Jha A. More than half of U.S. hospitals have at least a basic EHR, but stage 2 criteria remain challenging for most. *Health Affairs (Millwood)*. 2014;33(9):1664–71.

⁴Adler-Milstein J, Desroches CM, Furukawa MF, Worzala C, Charles D, Kralovec P, Stalley S and Jha A. More than half of U.S. hospitals have at least a basic EHR, but stage 2 criteria remain challenging for most. *Health Affairs (Millwood)*. 2014;33(9):1664–71.

⁵Desroches CM, Campbell EG, Rao SR, Donelan K, Ferris T, Jha A, Kaushal R, Levy D, Rosenbaum S, Shields A, Blumenthal D. Electronic health records in ambulatory care—a national survey of physicians. *New England Journal of Medicine*. 2008;359(1):50–60.

⁶Furukawa MF, King J, Patel V, Hsiao C-J, Adler-Milstein J, Jha AK. Despite Substantial Progress In EHR Adoption, Health Information Exchange And Patient Engagement Remain Low In Office Settings. *Health Affairs (Millwood)*. 2014;33(9): 1672–79.

⁷Public Law 111–5, Title XIII.

⁸Hospital Performance on Stage 2 Meaningful Use Measures. http://www.healthit.gov/FACAS/sites/faca/files/HITPC_Data_Analytics_Update_2014-11-04.pdf. Page 8.

⁹Ammenwerth E, Schnell-Inderst P, Machan C, Siebert U. The effect of electronic prescribing on medication errors and adverse drug events: a systematic review. *Journal of the American Medical Informatics Association*. 2008;15(5):585–600.

cannot provide safe or effective care with missing information, and to patients who can use it to better understand and manage their health and care. Instead, only a small minority—as few as 20 to 30 percent of physicians and hospitals—exchange clinical data with other providers electronically.¹⁰ That means that if, in the middle of the night, you have to rush your child to the emergency room in your community—the chances are very low that the treating physician will be able to access all of your child’s information. Much of my research has focused on identifying the primary barriers to achieving broad-based health information exchange and interoperability. It may be surprising to discover that the barriers are largely not technical ones. An agreed-upon set of standards, implemented in a consistent way, would undoubtedly facilitate interoperability. The underlying issue is that we don’t have the incentives in place to make this a reality. EHR vendors do not have a business case for seamless, affordable interoperability across vendor platforms, and provider organizations find it an expense that they often can’t justify.

We are also struggling to engage patients through health information technology and better access to their data. Despite the fact that IT is deeply interwoven into the fabric of our lives, for most consumers, *health* IT has meant very little if anything at all. Despite much hype that personal health records would engage patients to be far more involved in their care, there is little evidence that this is happening. This is true to such an extent that provider organizations are struggling to meet the Stage 2 Meaningful Use criterion that requires that 5 percent of patients “view, download, or transmit to a third party” their health information. The reason is straightforward: most patient portals and personal health records are not making patient data understandable, useful, and engaging. The difference between getting my lab test result in the mail versus viewing it online is small. The ability to sync my exercise and other lifestyle data in order to understand how those choices impact my lab results is a whole different ball game. If we make real progress in patient-centric data sharing, from providers to patients and from patients to providers, there is no shortage of smart, creative, innovative new companies that will work with patients to help them make sense of the data and use it in ways that are valuable.

There are other key challenges to ensuring that our national investment in EHRs improves care. We need to address the competing burdens on clinical documentation that are compromising the quality and usability of the data captured within EHRs. EHRs serve multiple masters, and there is a tension between the information that needs to be captured in EHRs for clinical care and the information that needs to be captured for billing (as well as other administrative and regulatory requirements). We need to think creatively about how to resolve this tension, and there is an opportunity for CMS to experiment with solutions. Finally, we know that when some physicians adopt EHR systems, they are worse off—slower, less efficient, struggling to provide high-quality care. For others, the experience is very different: they see big gains in productivity and the quality of care they provide.¹¹ Why do some do so well with technology while others struggle? The answers are not as simple as age or tech savviness. It’s likely much more about how the IT is used, and the context in which it is used.¹² We need to identify these factors and work to spread them in order to ensure that all providers translate EHR use into better care.

We are at a critical moment for our healthcare system. We are nearing the 5-year anniversary of the passage of the Affordable Care Act and 6 years after the passage of HITECH. Whatever our beliefs of those laws, we can all agree that our healthcare system has to get better—and we can all agree that newly adopted health information technology has a critical role to play. It won’t happen on its own. Smart policy interventions can push to improve the data, as well as liberate it, in order to let physicians, patients, and the broader market use it to innovate and create value. Many other industries have shown us the power of what can happen when high-quality data are at our fingertips and incentives are aligned behind innovation. Of course, we need not be overly coercive or prescriptive. Policymakers won’t have all

¹⁰ Adler-Milstein J, Jha A. Health information exchange among U.S. hospitals: who’s in, who’s out and why? *Healthcare*. 2014; 2 (1) 26–32.

¹¹ Adler-Milstein J, Green CE, Bates DW. A Survey Analysis Suggests That Electronic Health Records Will Yield Revenue Gains For Some Practices And Losses For Many. *Health Affairs (Millwood)*. 2013;32(3):562–70.

Kern LM, Edwards A, Kaushal R. The Patient-Centered Medical Home, Electronic Health Records, and Quality of Care. *Internal Medicine*. 2014;160(11):741–9.

¹² Adler-Milstein J, Scott KW, Jha AK. Leveraging EHRs to Improve Hospital Performance: The Role of Management. *American Journal of Managed Care*. 2014;20(11 Spec No. 17):SP511–SP519.

the solutions—but if we ask that, in exchange for the large amount of public funding that has been dedicated to EHR adoption, vendors be willing to facilitate and participate in a robust market of new tools and technologies, we will begin to deliver on the promise of EHRs to drive improvements in care and to engage patients and their families. We have made great progress—now is the time to do the things we need to make sure that the investments lead to safer, more efficient, more effective care for all Americans.

The CHAIRMAN. Thank you.
Dr. Wergin.

**STATEMENT OF ROBERT L. WERGIN, M.D., FAAFP, PRESIDENT,
AMERICAN ACADEMY OF FAMILY PHYSICIANS (AAFP), MIL-
FORD, NE**

Dr. WERGIN. Chairman Alexander, Ranking Member Murray, and members of the Senate HELP Committee, I want to thank you for this opportunity to testify on behalf of the American Academy of Family Physicians and over 115,000 members that I represent. My name is Robert Wergin, M.D. I'm summarizing my written statement and speaking both as president of the American Academy of Family Physicians and as a rural practicing family physician in Milford, NE.

Four years ago, my practice implemented an electronic health record, and I have to say it wasn't pretty. The transition was expensive, time consuming, and resulted in a decline of office productivity and loss of patient volume. We worked hard at it and learned the system, and productivity improved.

Although our patient volume has never returned to the pre-EHR levels, I am pleased to say that my clinic is running more smoothly. In fact, we met Meaningful Use 2 requirements late last year.

While it's difficult to provide a single characteristic of how health IT is working, I can report that my EHR experience is not unique. Today's hearing addresses a significant issue that is on the mind of every physician across this country, regardless of geography, practice size, or years in service.

Here are a few of my observations. First, technology is improving healthcare at a practice level, such as accessing and editing patient data, all the way up to advanced EHR functions that allow for e-prescribing, clinical decision support, and accessing lab results.

Family physicians were early adopters of health IT because we saw its potential for improving patient care, and we still see that potential.

Second, family physicians are excited about innovative health delivery models, such as patient-centered medical homes, ACOs, and telemedicine, that rely on health IT. For example, medical homes that use EHRs have higher quality scores, and telemedicine is increasing access to care, especially in rural areas like mine, and physicians welcome those changes.

Third, health IT improves coordination between primary care physicians and subspecialists, hospitals, pharmacies, labs, and State health departments. But there's still room for improvement.

I've discussed the opportunities and the major challenges, and they can be summed up as follows. Regulatory burdens are interfering with the doctor-patient relationship. Current EHRs are expensive and do not function well within the physician's work flow and are not fully interoperable. Payment structure does not fully

support coordinated care that is time intensive and EHR dependent.

To fulfill the promise of health technology, the AAFP respectfully submits the following recommendations. No. 1, overhaul the current documentation requirements. The current standards are time consuming, lead to bloated EHR, and emphasize billing information rather than meaningful clinical data exchanges.

For example, I recently saw a patient for a followup from an emergency room visit. After reviewing 18 pages of patient notes, all I knew was that her mother was of Mediterranean descent, and I was not easily able to ascertain through the medical history or relevant patient data why she was seen and hospitalized. I didn't think it was because her mother was of Mediterranean descent.

In addition, physicians like me are spending far too much time typing on computers instead of face-to-face patient care.

Second, provide flexibility from the regulatory burdens. The Meaningful Use incentive payments encourage health IT adoption. The regulatory burdens are tremendous, and we thank policymakers who have been supportive of regulatory relief.

CMS's recent proposal to allow a 90-day reporting period for 2015 is a good example of regulatory relief.

In addition, CMS and Congress should revisit the all-or-nothing requirement for Meaningful Use. HHS should also harmonize quality and reporting standards.

Third, physicians are also dependent on their EHRs for transition to ICD-10. As the deadline approaches, we urge the administration to establish an ICD-10 contingency plan to anticipate transition difficulties that may result in denials and loss of revenue.

Fourth, Congress and the Administration must step up efforts to require interoperability. It has now been 10 years since the EHR incentive program was created, yet we still do not have adequate levels of interoperability. HHS should strengthen its EHR certification requirements, as the AAFP and 40 other medical organizations requested in a January 21st letter. Policymakers should also delay Federal penalties for Meaningful Use until interoperability is achieved.

Fifth, Congress should strengthen consumer and health privacy laws to ensure that information is fully protected, not hoarded for commercial purposes, and physicians should not be at the mercy of their vendors to access patient data.

And, finally, we urge Congress to pass a permanent SGR repeal that supports payment reform in the type of care coordination that is health IT dependent.

Again, I appreciate the opportunity to testify and would be happy to answer your questions when appropriate.

[The prepared statement of Dr. Wergin follows:]

PREPARED STATEMENT OF ROBERT WERGIN, M.D., FAAFP

Chairman Alexander, Ranking Member Murray and members of the Senate Health, Education, Labor, and Pension (HELP) Committee, I appreciate the opportunity to testify today on behalf of the American Academy of Family Physicians (AAFP) and the more than 115,900 members we represent.

My name is Robert Wergin, M.D., FAAFP. I am president of the AAFP and a practicing family physician from Milford, NE, a small, rural town with a population of around 2,100 residents. I am a meaningful user of an electronic medical record and practice in a patient-centered medical home (PCMH).

The AAFP is one of the largest national medical organizations, and we represent the largest number of primary care physicians in the country. We have members practicing in all 50 States and over 90 percent of all counties. The AAFP was founded in 1947 to promote and maintain high-quality standards for family physicians who are providing continuous, comprehensive, and connected health care to the public.¹ Approximately one in four of all office visits are made to family physicians.² That is 214 million office visits each year—nearly 74 million more than the next largest medical specialty.³ Family physicians provide more care for America’s underserved and rural populations than any other medical specialty. In addition, family physicians provide a diverse range of care that includes pediatric, women’s health and end-of-life.

Today’s hearing addresses a significant health practice issue that is on the mind of every physician across the country regardless of geography, practice size or years in service. In recent years, I have traveled around the country and talked with dozens of family physicians whose experiences adopting health information technology (health IT) were much like mine.

Four years ago, my practice implemented an electronic health record (EHR) system. The initial results weren’t pretty. Transitioning from paper to electronic files was expensive, time consuming, and resulted in a decline in the productivity of my office. We worked at it, learned the system and productivity has improved. Although our daily patient volume has not yet returned to pre-EHR volumes, my clinic is running more smoothly than it did initially because my staff and I have adapted. We have embraced this change, and the benefits have been numerous. In fact, our practice successfully met Meaningful Use (MU) Stage 2 requirements late last year.

So, it is with that perspective, both as an AAFP leader and a practicing physician in a rural area that I am speaking with you today. Physicians around the country are anxious to know that policymakers understand and appreciate the challenges and concerns associated with successfully adopting health IT. Physicians also hope that decision makers will not simply consider the importance of health regulations but the context in which physicians are implementing a myriad of new requirements with limited financial resources and available time that can distract from the patient-physician relationship and impose significant challenges on physicians’ quality of life and for some threaten the viability of their practice.

FAMILY PHYSICIANS ARE EARLY ADOPTERS OF ELECTRONIC HEALTH RECORDS

Physicians have used computerized medical records for well over 20 years. Successful utilization of EHRs, also known as electronic medical records or EMRs, has long been a vision of family medicine well before Congress approved the *Health Information Technology for Economic and Clinical Health (HITECH)* Act, enacted as part of the *American Recovery and Reinvestment Act (ARRA)* of 2009. Over 10 years ago, the AAFP encouraged adoption of EHRs as part of its *Future of Family Medicine* initiative.⁴ In addition, the AAFP created a Center for Health IT, which is now the Alliance for e-Health Innovation, to educate physicians about issues surrounding adoption and to work with IT vendors on standards for primary care practice. The AAFP also published health IT guides, shared best practices and reported on the most widely used EHR systems. We have also worked to create interoperability standards, which are represented in meaningful use. The organization’s leadership boosted EHR adoption among family physicians. In a 2014 survey conducted by the U.S. Department of Health and Human Services’ (HHS) Office of National Coordinator (ONC) for Health IT, over 77 percent of primary care physicians indicated that they were using electronic health records and outpacing other medical and surgical specialties.⁵

We are pleased Congress and the Administration implemented the Medicare and Medicaid EHR Incentive Programs within ARRA to provide payments to eligible professionals, eligible hospitals, and critical access hospitals (CAHs) as they adopt, implement, upgrade, or demonstrate meaningful use of certified EHR technology. According to the 2014 HHS physician survey, however, lack of financial resources

¹About the American Academy of Family Physicians, website: <http://www.aafp.org/about/the-aafp/history.html>.

²Ibid.

³Ibid.

⁴Sheri Porter, What Factors Influence EHR Adoption?, *AAFP News*, December 10, 2014, <http://www.aafp.org/news/practice-professional-issues/20141210oncbrief.html>.

⁵Ibid.

was a significant barrier to adopting or upgrading systems, particularly for physicians operating in rural, small and solo practices.⁶

Family physicians are proud to be early adopters and we remain committed to pursuing the full potential of EHRs to enhance patient care, support new health delivery systems, improve population health, increase access through digital health technologies, and reduce the costs of health care. Most importantly, family doctors recognize successful EHR adoption will be the super highway for 21st century medicine. It is a road stakeholders must travel together: physicians, insurers, government agencies, patients, hospitals, community health centers and other health providers. It also is a road EHR manufacturers and vendors must travel with us. It is not enough for them to simply build the products and point physicians on their way; they must accept their responsibility to travel this road with the physicians and hospitals that purchase and rely on their systems. We are not there yet, but we are making progress toward that goal. In the final analysis, we must not lose focus on how our endeavors may ultimately impact patient care.

EHRs AND HEALTH PRACTICES

Electronic health records continue to be an important part of the future of health care delivery. There's no going back to paper records—we all recognize this even if our levels of acceptance vary. EHRs represent the potential for changing physician operations at a practice-level and for supporting new health care delivery models. On a simple level, EHRs use software that allows physicians to create, store, organize, edit and retrieve patient records on a computer or other device. An effective EHR is more than just the electronic equivalent of paper.

Advanced EHRs automate a practice's many time-consuming, paper-driven office tasks. They allow for electronic prescribing and medication refills, automatic formulary checking, electronic lab, imaging and referral ordering, automated charge capture, automated coding advice, intra-office clinical messaging, multiple note creation options, remote access to the chart, results flow charting, clinical alerts, patient education and disease management.⁷

Advanced EHRs and health IT impact every process and individual in a practice. Advanced health IT that is interoperable can improve the safety of care through clinical decision support, robust data analysis, tracking of results, and supporting routine application of evidence-based medicine. It also has the capacity to improve care coordination and the collaboration on patient care by our currently fragmented health care system. It can assist in the reduction of duplicative services and inappropriate utilization of services. To achieve these potentials, we must continue to view health IT as a tool for transformative change in health care and not a fancy electronic file cabinet.

THE FUTURE OF HEALTH DELIVERY REFORM

Health technology also holds the potential to help physicians engage in delivery system reform efforts. EHRs could improve care coordination between primary care physicians and subspecialists, hospitals, pharmacies, labs and State health departments—but this is not possible now in any meaningful way. Common standards are needed across all entities to realize this benefit. Technology also is an integral part of improving care access reform efforts with advances in telehealth and is especially important for improving access to preventive and primary care.

Research shows that preventive care, care coordination for the chronically ill, and continuity of care—all hallmarks of primary care medicine—can achieve better health for individuals and cost savings. Published studies have demonstrated the positive impact of primary care on a variety of health outcomes, including decreased mortality from cancer, heart disease, stroke, and all causes combined. EHRs are essential for many health delivery reforms aimed at improving the quality of patient care and increasing primary health care access. For example, team-based coordinated care is a foundational piece of the patient-centered medical home (PCMH), and, when coupled with the use of an EHR system, the primary care practice has the best opportunity to improve the quality of care offered to patients.⁸ New research shows that organizational changes associated with the PCMH combined with

⁶ Ibid.

⁷ Kenneth Adler, MD, Why It's Time to Purchase an Electronic Health Record System, *Family Practice Management*, 2004 Nov-Dec;11(10):43–46. <http://www.aafp.org/fpm/2004/1100/p43.html>.

⁸ Shari Porter, Combine Medical Home Culture, EHR for "One-Two" Punch, *AAFP News*, June 10, 2014, <http://www.aafp.org/news/practice-professional-issues/20140610pcmhehrstudy.html>.

use of an electronic health record can boost the quality of care delivered in primary care practices of all sizes.⁹ Researchers found that the odds of overall quality improvement in PCMH practices with an EHR were 7 percent higher than in paper-based practices and 6 percent higher than in non-PCMH practices with an EHR.¹⁰ Specifically, improvement was seen in 4 of 10 quality measures chosen by six participating health plans. Unfortunately, today's EHRs do not yet possess the needed functionality to fully support a PCMH.

As the health care industry begins to implement new value-based payment models, the use of technology will be essential for collecting patient data, measuring care quality, engaging patients in their health care and evaluating the effective management of chronic care conditions. Other health delivery reforms that rely on health IT include Accountable Care Organizations and telehealth. These also have important implications for our ability to increase access to underserved communities, better serve the homebound, and improve health at a population level.

CHALLENGES AND RECOMMENDATIONS

So far, I have focused on the great potential we see in health IT. The challenge is that this potential is not being realized in the majority of physician practices today. A recent RAND survey of physicians showed that EHRs are negatively impacting professional satisfaction.¹¹ The goal of health IT is to make patient care more efficient and less costly. For every success story, there are family physicians and others struggling to make this a reality. While there are many challenges and the testimony will not cover them all or in great detail, I have highlighted the major concerns for AAFP's members, along with potential solutions.

Current Documentation Requirements Distract from Patient Care. Physicians are deeply concerned that Federal and State regulations associated with EHRs can interfere with patient care and reduce patient and physician satisfaction. Instead of interacting with patients, physicians are typing into their computers and must spend hours keeping up with paperwork requirements. This can be distracting for patients and their doctors. In addition, physicians feel it can create a barrier to the patient-physician relationship. A 2014 Physicians Foundation survey indicated face time with patients care was among physicians' top five concerns. A majority of the 20,000 physicians surveyed expressed anxiety that patient care was suffering because they are spending more time on administrative responsibilities.¹²

When my practice implemented EHRs, I certainly experienced this challenge of balancing the need to provide the face-to-face care I know patients need and fulfilling my paperwork requirements.

We need the government to take a new critical look at the current medical documentation requirements required for Current Procedural Terminology (CPT) coding. The current requirements were developed in an era dominated by paper records and fee-for-service models. These antiquated requirements are time-consuming for physicians and other clinicians and lead to bloated medical records, both of which do not lead to better patient care.¹³ The current documentation requirements cause the generation of lengthy documents with critical clinical data buried within them. Physicians waste their time sifting through pages and pages of external "billing" documentation to find the critical data to inform treatment for the patient.

Encouraging a wider range of patients to view or download their data continues to be a challenge. A 2014 *Health Affairs* study found that only 30 percent of physicians reported using secure messaging to communicate with patients. Although 40 percent of physicians said their systems have the ability to allow patients to view, download or transmit information online, only half of those physicians said they were using that technology.¹⁴

Patients who have chronic disease and elderly patients whose care is being managed remotely by their children are among the individuals most likely to use patient portals. When my practice worked to achieve Stage 2 Meaningful Use status, meet-

⁹ Ibid.

¹⁰ Ibid.

¹¹ Mark W. Friedberg, *et al.*, Factors Affecting Physician Satisfaction and their Implications for Patient Care, Health System and Health Care, Rand Corporation, September 30, 2013, accessed online: http://www.rand.org/pubs/research_reports/RR439.html.

¹² Top Five Concerns Include Consolidation, ICD-10, AAFP News, January 14, 2015, <http://www.aafp.org/news/practice-professional-issues/20150114physfdtnwatchlist.html>.

¹³ Robert A. Berenson, M.D., Revisiting E&M Guidelines—A Missing Piece of Payment Reform, *New England Journal of Medicine*, 2011, page 1892-95, accessed online: <http://www.nejm.org/doi/full/10.1056/NEJMp1102099>.

¹⁴ Michael Laff, Basic EHR Use Rising But Data Sharing, Patient Engagement Lag Behind, AAFP News, August 22, 2014, <http://www.aafp.org/news/practice-professional-issues/20140822healthaffehrstudy.html>.

ing the patient portal requirement was particularly challenging. We have strong concern with requirements for action by those outside the control of the practice to avoid financial penalties.

The AAFP is pleased the Centers for Medicare and Medicaid Services (CMS) has announced proposed rules to reduce the reporting period for Meaningful Use from 365 days to 90 days, and we hope CMS will provide physicians with certainty regarding this decision as soon as possible. This type of flexibility will give physicians more time to implement the guidelines without compromising patient care. We would like to see further flexibility to address the all-or-nothing nature of meaningful use. Today if a physician misses a single requirement by a mere 1 percent, the physician is ineligible for an incentive payment and will see a penalty the following year under Medicare.

EHRs Have Limited Functionality for Physicians. Physicians across specialties are deeply frustrated with EHR functionality and the fact that systems do not meet their workflow needs. In addition, these systems can reduce efficiency and have limited interoperability. These concerns are reflected in a January 21, 2015 letter to ONC that AAFP, along with 40 other medical and health organizations signed urging a serious review of the current certification standards.¹⁵

The letter outlined the following recommendations:

- (1) Decouple EHR certification from the Meaningful Use program.
- (2) Re-consider alternative software testing methods.
- (3) Establish greater transparency and uniformity on UCD testing and process results.
- (4) Incorporate exception handling into EHR certification.
- (5) Develop C-CDA guidance and tests to support exchange.
- (6) Seek further stakeholder feedback.
- (7) Increase education on EHR implementation.

The letter stated the urgent need to change the current certification program to better align end-to-end testing to focus on EHR usability, interoperability and safety. AAFP stands with the medical community in urging ONC to address these certification standards.

EHR Systems Lack Full Interoperability. The issue of interoperability between electronic health records represents one of the most complex challenges facing the health care community as we pursue patient-centered health care reform. The ability to share and utilize information between two or more information systems is critical in today's increasingly interconnected health care environment, yet significant challenges have impeded information exchange across the spectrum of care.

To achieve better care, smarter spending and healthier people, both patients and physicians must be able to securely access their health care information when and where it is needed. When our patients leave our practice and go to another—for a subspecialist consultation, for example—my EHR most likely will not be able to communicate with the subspecialist's EHR.

This is a major flaw in our health care system, and the AAFP continues to push the Office of the National Coordinator for Health Information Technology and EHR vendors on this important issue.

AAFP leaders continue to advocate for requirements that demand interoperability from health IT vendors. The Federal Government should require that vendors achieve a high level of interoperability before expecting physicians and other clinicians to achieve current EHR and MU requirements. We have expressed our concern with the lack of interoperability and are pleased that the ONC has identified critical actions and outlined a timeline for implementation. We are making progress, such as with the Direct Project. This project was a partnership between the Federal Government and the private sector to establish the needed standardization for secure "email" in health care. We encourage continued support for this exchange and agree with many others that more work is needed to define the underlying data standards.

Physicians Face Expensive Regulatory Burdens. Physicians face what has been described as a tsunami of regulatory burdens associated with health IT that include Meaningful Use, ICD-10, and CMS' Patient Quality Reporting System (PQRS). Implementing each requirement requires a time commitment, financial investment, and training to integrate into the physicians' practices. In addition, physicians face growing Medicare payment cuts for non-compliance. A 2014 *Washington*

¹⁵ EHRs Fails to Meet Physician, Patient Standards, *AAFP News*, January 27, 2015, <http://www.aafp.org/news/practice-professional-issues/20150127EHRcert.html>.

Post article states that paperwork is contributing to physician burnout, particularly among primary care physicians.¹⁶

We have written numerous letters to CMS calling for improvements to the Meaningful Use program to ensure that family physicians can qualify and thus avoid the penalties associated with non-compliance. In addition, the AAFP has urged the Administration to push implementation back to 2017.

The Federal Government's strategic plan for the future of health information technology encompasses worthy goals. It should both seek to ease the administrative burden physicians confront and build on goals set a decade ago. The AAFP wrote in response to a public request for comments on the draft strategic plan that the ONC released in December 2014 which outlines a working plan for the next 5 years. As the AAFP outlined in our comments, we urge greater coordination among agencies and efforts to reduce administrative burdens on physicians.

Another area of concern regarding administrative burden with little impact on improved patient care is ICD-10. Many physicians worry that even if they successfully transition to ICD-10, they may still face potential claims denials or delays. Avoiding a disruption in the practice's cashflow remains a serious concern with this transition. Physicians heavily depend on electronic system vendors, claim clearinghouses, and payment administrators and need to know that testing is available and will be conducted to allow for corrections prior to the transition date. ICD-10 transition concerns are particularly acute for rural, small and solo practices.

We strongly urge CMS to establish contingency plans or establish task forces that include payers, clearinghouses, and software vendors to ensure that a system is in place to identify and address unexpected process failures. In 2012, CMS mandated the roll-out of Health Insurance Portability and Privacy Act (HIPAA) 5010 rule for claims submissions. There were major issues across the Nation with payment to providers. With many practices operating on very thin budget margins and depending on normal revenue cycles, a payment delay of even 2 weeks could be harmful to the financial health of a clinic, regardless of its size.

We urge Congress to make sure that legislation includes adequate timelines that take into account the complexity of health systems, the many competing demands for physicians' time and planning to mitigate the unintended consequences that could jeopardize patient care.

Vendors Engage In Data Hoarding. The AAFP also has written to the Federal Trade Commission about anti-competitive practices that hinder interoperability. The AAFP is concerned with the utilization of health information technology to create competitive barriers against physicians and patients. The lack of interoperability makes it practically infeasible for a physician practice to switch electronic health records should the vendor or health care community use anticompetitive methods to limit the practice's access to needed health information on their patients. This hoarding of data—this vendor lock—negatively impacts care and distorts market forces trying to decrease health care costs and improve quality. It is critical that health data flow to where patients wish to be treated—in fact, these records are the patient's records and should be electronically available to any physician or other provider of care at any time. These records and data do not belong to the EHR vendor. The current market forces for EHR vendors and large (quasi-monopoly) health systems limit interoperability to retain customers and patients and to elevate prices artificially. We need to make sure the business incentives are aligned to ensure continuity of care for patients and appropriate access to data by providers.

Reimbursement for Care Coordination is Inadequate. The biggest barrier to usable and interoperable health IT is the Nation's current fee-for-service business model that stresses volume rather than value. The system we have now is all about getting widgets out the door. In this case, those widgets are real live people who depend on their family physicians to provide quality care. It takes time and energy to improve quality in a busy medical practice. Moving to a value-based payment system can set the stage for a revolution in health IT that will move us from automating the business of health care to automating the delivery of that care. In a value-based payment-driven health care system, interoperability is desired not mandated.

On January 26, 2015, HHS announced that a higher percentage of Medicare payment systems would be tied to quality-based systems by the end of 2016. Also, Medicare began paying for chronic care management (CCM) effective January 1, 2015, recognizing the value that primary care brings to health care. In addition, the bipar-

¹⁶Roni Caryn Rabin, A Growing Number of Physicians Are Burning Out, *Washington Post*, March 31, 2014, accessed online: http://www.washingtonpost.com/national/health-science/a-growing-number-of-primary-care-doctors-are-burning-out-how-does-this-affect-patients/2014/03/31/2e8bce24-a951-11e3-b61e-8051b8b52d06_story.html.

tisan, bicameral legislation to repeal the Medicare Sustainable Growth Rate (SGR) proposes a payment system that focuses on the value of the health care delivered and that supports health care delivery models centered on care coordination. We support the Administration's efforts to advance a quality-based payment system. We strongly urge CMS to expand this program and to eliminate the co-payment requirement. Ultimately, physicians need a long-term and permanent solution. Congress should repeal and replace the SGR based on the 2014 legislative framework that supports value-based payments, encourages health delivery reforms and streamlines administrative requirements.

CONCLUSION

Again, thank you for inviting me to testify before the committee today. I would like to reiterate our key recommendations to Congress:

(1) **Overhaul the current documentation requirements.** The current standards are time-consuming, lead to bloated medical records which emphasize billing information rather than helpful and important clinical data.

(2) **Provide flexibility from regulatory burdens.** The Meaningful Use 90-day reporting rule is a good example of the type of flexibility physicians need. In addition, HHS should establish a minimum threshold necessary to meet the Meaningful Use standards instead of its all-or-nothing requirement. Regulatory implementation is as important, in some cases, as the regulation, itself. AAFP urges policymakers and the Administration to take a "do no harm" approach when considering current and future standards that factor in the current physician workforce shortages, practice viability and patient care and safety. Harmonizing quality and reporting standards across all payers, especially for primary care, would also help physicians successfully implement Federal standards and similar requirements in the private sector.

(3) **The Administration should take steps to put an ICD-10 contingency plan in place.** Although the initial testing reports were favorable, physicians have been advised to take out loans to prepare for potential billing denials. Rural, small and solo practices may be especially hard hit if the transition process is not implemented as anticipated and there are weeks or months of claims denials.

(4) **Congress and the Administration must step up efforts to require interoperability and functionality.** It has been 10 years since the EHR incentive program was created, yet we have not reached an adequate level of interoperability. This is not acceptable. HHS should use its authority to strengthen certification requirements to advance interoperability requirements and improve EHR functionality. We also believe that Congress should take action to delay Federal penalties for Meaningful Use until interoperability is achieved. In addition, until national standards are established, EHR vendors should be required, at a minimum, to use open Application Programming Interfacing technology, which experts indicate would significantly advance interoperability, by the end of 2016.

(5) **Review current consumer and privacy data protections.** Patients' information should be fully protected and not hoarded for commercial purposes, and physicians' should not be at the mercy of their vendors as they are now. Physicians should not be charged by their vendors for accessing their own patients' data. Congress should consider amending medical privacy laws to strengthen consumer protections in ways that address both patients' concerns as well as physicians' data management responsibilities.

(6) **Congress must pass a permanent SGR repeal legislation this year.** The SGR bicameral, bipartisan legislation included policies that help bring the health care industry into the 21st Century through value-based payment reform. This level of patient care emphasized in the legislation is intensive, but it is not adequately reimbursed right now. We urge Congress to enact SGR reform in 2015.

I appreciate the opportunity to share the perspective of America's family physicians on what's working well and what challenges remain in implementing successful health IT systems.

The CHAIRMAN. Thank you.
Mr. DeVault.

STATEMENT OF PETER DeVAULT, DIRECTOR OF INTEROPERABILITY, EPIC SYSTEMS CORPORATION, MADISON, WI

Mr. DeVAULT. Thank you, Senators Alexander and Murray and other members of the committee. It's quite an honor for me to be here today.

I've been with Epic for 18 years, and during that time, not only has our company grown from a small company to a larger one, but we've seen the growth of the electronic health record as a simple replacement for paper records to becoming a very sophisticated platform for healthcare innovation, population management, patient engagement, and the development of the learning healthcare system. You have access to my written testimony. I'll summarize a few thoughts in the areas of adoption, innovation, and interoperability.

U.S. healthcare organizations have made great strides in electronic health record adoption over the last 10 years, and that's certainly an area in which the Meaningful Use Program has helped. Epic's community of leading healthcare organizations actually serves as a model for EHR adoption success.

Epic has never had a customer fail to go live. No hospital has ever replaced Epic by choice, and we have never lost a customer due to dissatisfaction with our software or our services.

The Epic community of customers represents a very diverse cross section of the U.S. care industry, including academic medical centers, safety net organizations, and some of the world's largest EHR deployments, such as Kaiser Permanente, and the care for patients in all 50 States and the District of Columbia. By the time our current customers finish rolling out the record to all of their users, they will be caring for about half of the U.S. population and include more than 310,000 physicians.

Our customers lead the industry in objective measurements of EHR adoption, including Meaningful Use attestation both for hospitals and eligible providers, as well as achieving Stage 7, which is HIMSS' categorization of EHR adoption. That's the highest level you can achieve, and the majority of organizations who have achieved Level 7 are Epic sites.

Epic's customers are most often large organizations. Smaller organizations and smaller physician practices have a more difficult time in adopting healthcare information technology. One of the ways that we've sought to help with that is to open up what we call the Community Connect Program, which allows our customers, again, the larger organizations, to extend the EHR out to those community physicians and practices. More than 70 percent of our customers currently participate in that program and have extended to more than 17,000 physicians.

Healthcare organizations adopt technology for a variety of reasons, often several, including increased efficiency; better and safer patient care; furthering their clinical research missions, which is very important for many of our customers; and the ability to adapt to healthcare payment reform.

Our customers have achieved benefits in a wide variety of areas, including decreased wait times for appointments, reduction in hospital-acquired infections, elimination of duplicate tests, and engaging patients in their own care. Today, more than 30 million patients access the MyChart patient portal so they have access to their records and their families' records, can manage their medications, can incorporate outside data from their devices, and communicate securely with their care team.

Increasingly, the ability to achieve these kinds of benefits, especially with payment reform and the mobility of patients, relies on a sharing ecosystem. It relies on being able to get the patient's health information from one point of care to another and to be shared among members of the care team, whether that's between hospitals and independent physicians or between a doctor's office in Wisconsin and an emergency department in Florida.

Our interoperability platform, for which I'm responsible at Epic, is called Care Everywhere—and it's in use now by every customer in the United States—which gives access to more than 1,000 hospitals and 23,000-some clinics to the ability to share patients' records. That doesn't mean that everybody is accessing that capability, and during the course of this morning's discussion, it would be useful to talk about what further barriers there are to actually using that technology.

However, even though that is the case, today, our customers share more than 8.8 million records a month with different healthcare systems, almost 2 million of which are non-Epic, whether those are health information exchanges, other vendor systems, or Federal agencies on the e-health exchange, such as the DoD and the VA and the Social Security Administration. Healthy Ways tells us that we exchange more records with the VA than users of any other system.

That being said, interoperability is certainly not a solved problem, and there are still barriers to achieving everything that it promises. Significant progress has been made, and it's important to recognize that progress in the last several years. We are certainly committed to sharing what we've learned and furthering the adoption of interoperable technology for the benefit of our country's patients.

Thank you, and I'll be happy to answer any questions you have.
[The prepared statement of Mr. DeVault follows.]

PREPARED STATEMENT OF PETER DEVAULT

Chairman Alexander, Ranking Member Murray and distinguished Senators serving on the Health, Education, Labor, and Pensions Committee, thank you for the opportunity to testify before you today to help you address, "America's Health IT Transformation: Translating the Promise of Electronic Health Records Into Better Care." My name is Peter DeVault. I am director of Interoperability for Epic and I would respectfully like to share my views on the State of Electronic Health Record adoption and interoperability as well as the success healthcare organizations have achieved using our software to engage patients in their own care. Additionally, I hope my testimony and answers to your questions today address any concerns you may have and demonstrate our commitment to advancing Interoperability for our Nations' health care system.

ELECTRONIC HEALTH RECORD—STATE OF ADOPTION

Over the last 10 years, U.S. healthcare organizations have made major strides in Electronic Health Record adoption. According to data released from the ONC and the National Ambulatory Medical Care survey, nearly 80 percent of office-based physicians and about 60 percent of hospitals used an electronic health record (EHR) system.

The community of leading care organizations that use Epic have served as a model of EHR Adoption Success. Epic has never had a customer fail to go live. No hospital has ever replaced Epic by choice and we have never lost a customer due to dissatisfaction with our software or services. Our customers serve patients in all 50 States and we estimate that when fully rolled out they will provide care for more than 54 percent of the U.S. population and support efficient daily workflows for

more than 300,000 physicians and many more nurses, physicians assistants, schedulers, front desk staff and others. They include the Majority of U.S. News and World Report's Top Hospitals and Top Pediatric Hospitals Honor Rolls as well as the clinical organizations affiliated with the top medical schools.

They represent a diverse cross section of the U.S. care industry, from the world's largest non-government electronic health record deployment at Kaiser Permanente, to academic medical centers such as Stanford, Yale, Cleveland Clinic, and the Mayo Clinic, to faith-based organizations such as Mercy health and Providence, to the Nation's "Safety Net" of organizations that run the FQHCs and Critical Access hospitals that provide access to care for the most vulnerable patient populations.

More eligible hospitals and professionals have attested for the first and second stages of Meaningful Use with Epic than any other system. The Healthcare Information and Management Systems Society (HIMSS) grades care organizations on a 7-point scale for Electronic Health Record adoption. More hospitals and clinics at the highest level, the HIMSS Stage 7 award, use Epic than every other Electronic Health Record put together.

We are very proud of what they have achieved with our software:

- In 2014 alone, groups using Epic handled nearly 400 million ambulatory visits, 34 million Emergency Department visits, 13 million hospital admissions and 48 million hospital outpatient visits.
- They are using our software to improve patient safety. Over 390 million medication warnings were presented in our system, and our customers used bar code administration workflows to avoid nearly a quarter of a million harmful or fatal events were prevented by stopping medication from being administered to the wrong patient.
- They are reducing the cost of care by avoiding duplicate tests, unnecessary clinical visits, and hospital re-admissions due to complications. Most importantly, they are helping their patients live healthier lives and take active decisionmaking roles in their own care—keeping patients out of the hospital, helping them manage chronic conditions effectively, and ensure important screenings are performed to catch minor issues before they become major.

It would be impossible to share everything our customers have done to use the Electronic Health Record to improve quality of care and reduce costs so I'll just touch on a few examples:¹

- University of Iowa Hospitals and clinics saw a 159 percent return on investment in the first 5 years following implementation. UIHC has netted over \$50 million from July 2013 to June 2014 attributable toward the use of information technology.
- Lakeland Healthcare achieved a 44 percent reduction in sepsis mortality rate in one quarter due to adherence to EHR-based clinical decision support order sets and analytical review of outcomes. They also achieved a 100 percent reduction in transcription-related adverse drug events.
- Children's Medical Center of Dallas reduced Emergency Department length of stay by 40 percent. They also used the system's bronchiolitis and RSV pneumonia² pathway³ to achieve:
 - 19 percent reduction in median length of stay for bronchiolitis (from 2.4 to 1.95 days).
 - 34 percent reduction in chest x-rays (59 to 39 percent).
 - 48 percent reduction in bronchodilator use (27 to 14 percent).
 - 22 percent reduction in antibiotic use (32 to 25 percent).

EPIC'S BACKGROUND IN INNOVATIVE HEALTHCARE INFORMATION TECHNOLOGY

Epic is 100 percent focused on developing, implementing, and supporting industry-leading integrated software for a *small* client base composed of the world's top academic medical centers, children's hospitals and large integrated delivery systems. To ensure their success, our staff to customer ratio is over 20 times higher than our nearest global competitor. We have a relatively small client base, and our development priorities are driven by their goals and vision.

¹ Customer statistics are taken from winning HIMSS Davies Award Case Studies. These Studies are available at <http://www.himss.org/library/davies-awards>.

² Bronchiolitis and RSV Pneumonia is the No. 1 cause of hospitalization in the United States and accounts for approximately 1,000 inpatient admissions every year at Children's.

³ The Bronchiolitis and RSV Pneumonia Pathway was used for previously healthy children less than 2 years old with a primary or secondary diagnosis of bronchiolitis (ICD-9: 466.11 and 466.19).

The first Epic software systems were created more than 30 years ago at an academic medical center. Since our founding we have contributed a number of innovations to health information technology:

- Groups using Epic were the first in the industry to have access to a single system supporting both hospital and ambulatory clinical care, patient access (*i.e.*, admissions, registration, scheduling), and medical billing.
- Their patients were the first to have a secure web portal that is part of the electronic health record. MyChart offers access to medical information such as lab results and immunization records along with self-service features for appointment scheduling, prescription renewal requests, and co-pays.
- Doctors using Epic were the first to be able to access patient information, prescription writing, visit notes, and related features on smartphone and tablet apps that are part of the same electronic health record they use in the hospital and clinic. They do it in way that does not store data on the smartphone or tablet, so that even if the device is lost or stolen their patients' confidential information is safe.

This level of innovation, coupled with a strong history of clinician and IT staff satisfaction with our software and services helped us become one of the most widely adopted and well-respected health IT vendors. We support the goals and vision of our customer community with one of the industry's largest research and development commitments. Nearly 54 percent of our annual operating expenses are dedicated to development. We conduct all of our development in the United States, and we support all U.S. customers with U.S.-based staff.

KLAS Enterprises has ranked Epic the **#1 overall software suite and #1 overall practice management vendor** based on the results of thousands of surveys of U.S. healthcare organizations using major health IT vendors' software. Our enterprise products lead the industry in the following categories in the most recent *Top 20 Best in KLAS* report:

- #1 Acute Care EMR
- #1 Ambulatory EMR (75+ physicians)
- #1 Ambulatory EMR (11–75 physicians)
- #1 Practice Management (75+ physicians)
- #1 Patient Accounting/Patient Management
- #1 Health Information Exchange
- #1 Patient Portal
- #1 Surgery Management
- #1 Lab

Over the past 10–15 years, we have helped drive the evolution of the Electronic Health Record from a system used primarily to document the care an organization has provided to one that actively supports the growth of medical knowledge and improves the health of diverse communities of patients. The Epic EHR underlies our customers' activities in:

- *Medical Research and Discovery.* The majority of the top 20 National Institute of Health grant recipients use Epic, as do most of the Nation's most well-respected academic medical centers. Our software improves the speed and efficiency of areas including research participant recruitment and data analysis, allowing researchers to accelerate the pace of discovery and get new knowledge into practice faster and at a lower cost than was possible with older methods.

Our vision is that a research-enabling EHR should not just empower the research department. It should empower the curious physician who wants to investigate a hunch to make the best decision for the patients. With Epic's self-service reporting, physicians can parse a large quantity of clinical data and view the results within seconds to find trends across patient populations or identify specific sets of patients for whom they need to take followup actions.

- *Performance-based Reimbursement Models.* The healthcare industry is in the midst of a shift from volume-based payment models where care organizations are paid based on the number of services they provide to value-based models that take their quality of care and the health of their patients into account. Epic's customers have used our software to pioneer models of care that have emerged to address this shift such as the Accountable Care Organization and the Patient Centered Medical Home.

- *Business Intelligence and Population Management.* Epic's software automatically collects data on each stage of the care process and the revenue cycle. This gives healthcare organizations a rich source of data for reporting and analytics. Our analytics tools do more than show what happened in the past. They include built in benchmarking so that each Epic customer can see how they are performing against national averages and against anonymized data from their peers in the Epic

community. They also support predictive modeling that can help organizations anticipate and prepare for future trends.

Healthy Planet, Epic's population health management module, is the Nation's fastest growing population health system. More than 115 million patients have already been added to registries to help organizations manage their care. This makes it very easy for clinicians and care managers to address the unique needs of diverse groups of patients. The system helps them identify and engage patients at risk for specific conditions such as diabetes and events such as hospital re-admissions. It helps them manage care longitudinally, whether the patient is seen in a hospital, clinic, post-acute care setting, retail clinic, or at home—and it provides tools to reach patients in new ways by taking advantage of emerging technologies for engagement and telemedicine.

EFFORTS TO EXTEND HEALTH IT ADOPTION

Epic has taken an active role encouraging health IT adoption, serving with healthcare organizations, policy experts, and other healthcare software developers in government and industry groups dedicated to extending the benefits of the EHR nationwide. We have also been an early supporter of the Government's Meaningful Use program, becoming one of the first of the major Vendors to offer systems with Stage 1 and Stage 2 certification.

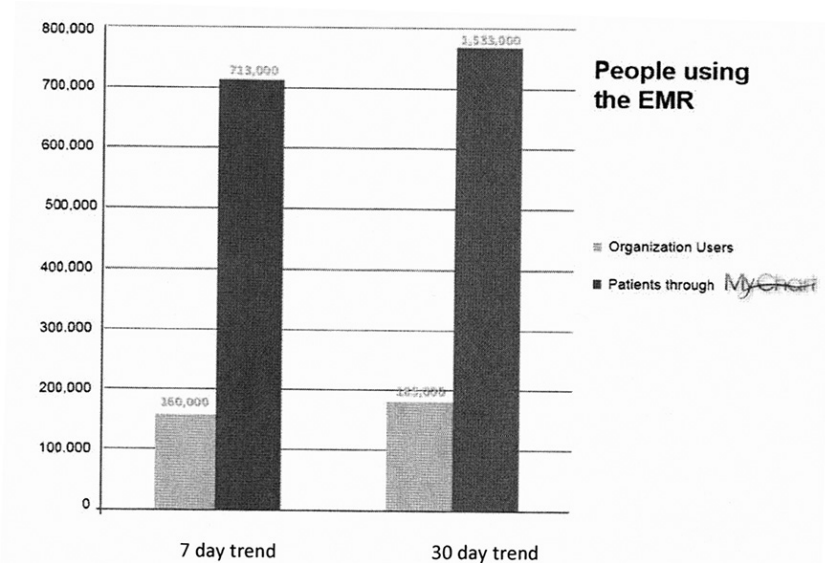
As a program to accelerate health IT adoption, we view Meaningful Use as a success. We saw a surge of interest from care organizations in making the move from paper to EHRs as well as groups looking to move beyond outdated and functionally limited systems.

One remaining challenge is encouraging health IT adoption among the smaller and single-provider practices that deliver care for a large percentage of the U.S. population. These groups encounter higher barriers to EHR adoption than larger organizations. Even with incentives that offset costs of acquiring systems the investment of time and IT resources to install an EHR successfully can be prohibitive for these groups. Epic is collaborating with its community of customers to help address this challenge. Through the Connect program, organizations that use Epic can extend their software to other practices and hospitals. More than 70 percent of our customers are helping boost IT adoption among smaller practices and hospitals through the Connect Program—bringing thousands of new providers live on the system.

ENGAGING THE PATIENT

Advances in telemedicine coupled with a proliferation of affordable consumer devices for healthcare monitoring continue to expand the reach of the healthcare organization beyond the walls of the clinic and hospital. This increases convenience for patients, allows them to receive services at convenient times and locations, and helps them take a more active role in managing their own care.

A survey of 12 large organizations using Epic showed that patients have become the #1 consumer of EHRs (graphic below), echoing what we see in the evolving healthcare industry, and we have aligned our vision with this trend. Top MyChart adopters are engaging 65–95 percent of their populations and reporting millions of dollars in savings.



MyChart gives patients access to data from same Epic chart used by clinicians. Patients can use MyChart to exchange secure messages with members of their care team, review goals and instructions recorded by their physicians, add data such as blood pressure readings to their charts, see their upcoming preventive care needs, and schedule appointments. Patients can access links to education materials curated for their specific health issues from MyChart.

Patients can update their Epic records with data from home blood pressure cuffs, glucometers, Fitbits, and other personal devices, helping clinicians monitor those patients' health and well-being. Data taken from monitoring devices using Apple's HealthKit will populate Epic's medical record and similar integration will be available with Google Fit in the future.

For the hospital, we offer MyChart Bedside, a tablet-based system that helps improve the care experience for hospitalized patients and their families. It provides access to personalized information on the patient's treatment team, scheduled procedures, lab results, electronic requests for services, and educational materials with support for rich content such as streaming video, images and Web sites.

For the future, we are creating a MyChart dashboard which will allow patients to monitor their progress toward their health goals and give them access to tools that help them meet their goals. We are also developing a "Companion" capability that will remind patients to take medications, exercise, track blood glucose, or perform other tasks according to post discharge instructions or their health maintenance/disease management plan.

THE INTEROPERABLE EHR

The last concept I'll touch on is Interoperability. There's been a lot of focus on the need for interoperable electronic health records over the last couple of years, and a lot of confusion and misinformation in terms of what Epic's software will support.

Epic does not own or claim rights to our customers' patient data. We do not interfere with their ability to access patient data and we do not re-sell patient data. We give our customers access to our source code and developer support. We also provide tools that support the free flow of information between different system and different organizations.

We have a patient record exchange platform called Care Everywhere to support the exchange of patient data between organizations. A library of interfaces helps keep Epic systems communicate with hundreds of other systems, transmitting billions of messages a year. And last, we have application programming interfaces or

APIs that we freely publish along with testing tools on open.epic to support third party innovation and connection to Epic's EHR.

Our efforts have been validated by independent surveys of live customers conducted by KLAS. According to a KLAS survey of healthcare organizations in 2014, we were the only vendor to successfully balance success and depth of interoperability. We also had the highest ability to support interfacing and keep interfacing costs low.⁴

There are three major components that make up an interoperable Electronic Health Record:

- *Secure health information exchange between healthcare organizations.* Care Everywhere, Epic's standards-based patient record exchange platform, debuted in 2005—years before the HITECH Act took effect. Today, Care Everywhere uses the Consolidated Clinical Document Architecture (C-CDA) as required for Meaningful Use Stage 2 certification. Epic has installed Care Everywhere in all versions of its EpicCare EHR software in live use. One-hundred percent of customers who are live with EpicCare also have the ability to exchange patient records with any other system that supports the national interoperability standards.

Organizations using Care Everywhere make up the largest active EHR exchange group in the United States—over 1,000 hospitals and 26,000 clinics are live today and last month they exchanged nearly 8.5 million records patient with each other and with about 7,500 other organizations. This includes healthcare providers using other EHR systems, Health Information Service Providers (HISPs), Health Information Exchanges (HIEs), and groups connected to the eHealth Exchange like the VA, the Social Security Administration and the Department of Defense. According to Healthway in July 2014, "Organizations using Care Everywhere exchange more records with the VA than any other vendor."

Any Epic customer can exchange patient data with third party that support national interoperability standards. There is no language in Epic's contracts to restrict our customer's ability to exchange data.

Care Everywhere connects with these vendors			
Connections to other systems are growing as more organizations on different vendor systems are able to meet Meaningful Use Stage 2 exchange requirements.			
ACS/Xerox	DataMotion	MaxMD	Optum Insight
Agilex	dbMotion	MDLive	Orion
Allscripts	eClinicalWorks	MDI Achieve	Pearl
ApeniMED	eHealth Data Solutions	MedAction Plan	RelayHealth
athenahealth	Greenway	MedAllies	Soarian Clinicals
Caradigm	Harris	MedFx	Surescripts
CareEvolution	Iatric Systems	Medicity	SURVEYOR Health
Cerner	ICA	MEDITECH	Team of Care
Certify	Inpriva	MedSleuth	Tiani Spirit
Coldwater Software	Intelligent Healthcare	Mirth	Truven
CONNECT	InterSystems	MobileMD	
Covisint	Logician	Netsmart	
Curaspan	Magellan Health Services	NextGen NoMoreClipboard	

- *Interfaces between products.* With over 36 years of experience creating and maintaining connections to other vendor systems, Epic has one of the largest libraries of existing interfaces. Each year, billions of data transactions happen between Epic and 600+ other systems through 12,500+ standards-based interfaces.

Along with our interfaces we supply Bridges™, an interface development and runtime toolkit that allows customers to write new interfaces and enhance/modify existing ones as well as efficiently maintain and monitor all the Epic interfaces they use.

These interfaces allow healthcare organizations to connect with other vendors and outside groups such as pharmacies, specialty and immunization registries, and lab systems. Connections to outside agencies include public health agencies, research societies, immunization registries for 46 States, and research registries.

⁴Source: "EMR Interoperability 2014", KLAS Enterprises, September 2014.

- *An open system that encourages customer and third party innovation.* For third-party application providers and device manufacturers, the open.epic initiative speeds the connection process to Epic’s systems through public documentation, application programming interfaces (APIs), and online testing tools. Epic provides public test harnesses for third party developers to test their integration with our software using FHIR© (Fast Health Interoperability Resources) at <http://open.epic.com/Interface/FHIR>.

For healthcare organizations, we have a large set of Web services and APIs for them to create add-ons, extensions, and new functionality. We also offer them the same tools that we use to develop our systems, as well as training for developers and access to source code.

This year, we debut the Epic app exchange to allow these developers to offer their innovations to the Epic customer community.

We are also continuing our work as a founding member of the Argonaut Project launched by Health Level 7, a non-profit driving the development of international healthcare informatics interoperability standards. Epic is working with healthcare and IT leaders such as Mayo Clinic, athenahealth, Cerner Corporation, Intermountain Healthcare, Meditech, and Beth Israel Deaconess Medical Center accelerate the development and adoption of Health Level 7’s Fast Healthcare Interoperability Resources (FHIR). This development will enhance and expand information sharing among EHR systems and other elements of healthcare technology.

EPIC’S EFFORTS TO ENCOURAGE INTEROPERABILITY

Along with encouraging adoption, the Meaningful Use program was intended to encourage seamless interoperability across electronic health records. The goal is that a patient should be able to go to any organization using an Electronic Health Record that meets national interoperability standards and have their key medical information be accessible to the provider treating them. While Epic views the Meaningful Use program as a success in terms of encouraging Health IT adoption, three key challenges still remain in achieving true nationwide interoperability.

- *A single nationwide directory of exchange ready organizations and providers.* It should be fast and simple for a provider to determine whether another organization has treated their patient in the past. This can be challenging because the organization they are looking for could be a member of one of several interoperability networks—resulting in a time consuming search every time the provider wants to share information. One nationwide network of groups able to exchange patient data would make the process much more efficient.

- *Consistent Standards.* Products from light bulbs to cars rely on standards, and healthcare is no exception. Healthcare information technology has a variety of Standards Development Organizations tackling a variety of challenges including: data exchange/messaging standards, terminology standards, document standards, conceptual standards, applications standards, and architecture standards. At times, healthcare has too many options to choose from, with multiple standards serving similar purposes. That’s why you can have multiple interoperability networks adopting different standards for exchange of something as fundamental as a patient’s medications, or using different data exchange methods. One network may choose to “push” messages to another participant using one standard (*e.g.*, Direct messaging), while another may choose to pull messages from its participants using another standard (*e.g.*, IHE profiles).

- *Legal Framework.* Before care organizations can exchange data, they must have a legal framework in place governing the use of this connectivity. This ensures, for example, that use remains consistent with the Health Insurance Portability and Accountability Act (HIPAA) requirements. Today, the legal agreements used by one network typically are not compatible with other networks. This means that every time a care organization wants to connect with another group, they may be required to negotiate a new agreement. This is an extremely time consuming process and has created the misconception in the industry that interoperability is being “blocked.”

The result is that while many individual interoperability networks have emerged (see graphic), no single network provides universal interoperability. No single network attempts to address all interoperability use cases and scenarios, and no single technical platform operated by a single provider can meet the needs of all the diverse players in healthcare. Just as ATMs and cell phones rely on multiple, interconnected networks, healthcare must connect its interoperability networks to achieve universal connectivity.

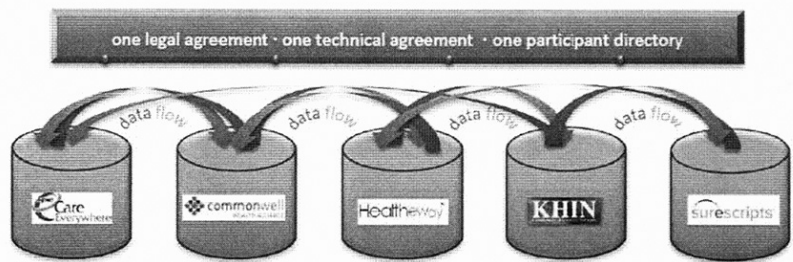
Examples of Interoperability Network Offerings

Health Information Exchange Platform	Care Everywhere	Commonwell	Delaware Health Information Network (DHIN)	Healthway's eHealthExchange	Kansas Health Information Network (KHIN)
Description	Largest EHR-based C-CDA record exchange network	Network of 7 EHR vendors using one platform.	First operational statewide HIE for Delaware providers.	Group of federal agencies, non-federal provider groups and HIEs. Includes the DoD, SSA and VA	Provider-led organization that provides HIE technology for providers in Kansas and Western Missouri.
Year Launched	2005	2013	2007	2009	2011
Platform or Underlying technology	Care Everywhere by Epic	Relay Health by McKesson	Network v7 By Medicity	Self-developed	CareAlign By ICA
States Covered	50	4	1	50	2
# live organizations	266	4	~425	85	120
Market Share	<ul style="list-style-type: none"> • 1,000 live hospitals • 28,000 live clinics • 100,000+ live physicians 	<ul style="list-style-type: none"> • 4 live sites • 10 locations • <100 live physicians 	<ul style="list-style-type: none"> • Largest state HIE • 1.5 million unique patients from all 50 states • >7,000 live physicians 	<ul style="list-style-type: none"> • 4 federal agencies • 30% of US hospitals • 10,000 medical groups • 5,200 pharmacies • 100 million patients 	<ul style="list-style-type: none"> • 70 live hospitals • 275 live clinics • ~4,500 live physicians
# records exchanged per month	8.3 million	~2000	1 million	N/A	N/A
Sources	Epic March 2015	Commonwell Annual Report published Feb 2014; Commonwell website	DHIN 2014 Annual Report: "DHIN & Meaningful Use" slideshow; 6/25/13	Healthway website; Mariann Yeager and Michelle Whitecar of Healthway	KHIN website; Office of Laura McCrary, Executive Director at KHIN

To put this ATM-like structure in place for healthcare, Epic has helped found Carequality, a public-private collaboration working to create a unifying legal and technical agreement to accelerate connection between networks regardless of platform or underlying technology. Carequality participants include the largest public and private interoperability networks in the United States like the Surescripts network (largest e-prescribing network) and the eHealth Exchange.

Carequality's work will build on the success of Epic's Care Everywhere network. By providing a single directory of participating organizations, one consistent legal agreement governing data exchange, and a single set of technical standards, Epic allowed customers to make connections with other network participants much faster and at lower expense that is possible when making connections to groups outside the network. That's what made Care Everywhere the largest open interoperability network in the United States, and what allowed us to achieve 100 percent adoption across all live customers. The CareQuality Vision is illustrated in the graphic below.

Framework to Link the Networks
(an ATM-like framework for healthcare)



I look forward to answering any questions you may have for me and welcome future dialog beyond this hearing. Thank you for this opportunity.

The CHAIRMAN. Thank you, Mr. DeVault.
Dr. Kennedy.

STATEMENT OF ANGELA KENNEDY, Ed.D., M.B.A., R.H.I.A, HEAD OF DEPARTMENT/PROFESSOR, DEPARTMENT OF HEALTH INFORMATICS AND INFORMATION MANAGEMENT, COLLEGE OF APPLIED AND NATURAL SCIENCES, LOUISIANA TECH UNIVERSITY, RUSTON, LA

Ms. KENNEDY. I'm very honored to be here today. Certainly, I don't want to over-simplify my testimony as Professor of Health Informatics and past president of the American Health Information Management Association. I will answer questions related to policy and technical questions as appropriate. Today, I really want the voice of the consumer to be heard, and the importance of interoperable health IT for the consumer to be shared with you.

As a parent of two adopted children, my desire for complete and accurate medical information rests at the top of my to-do list. My children, Zach and Grace, are siblings, adopted at the ages of 2 and 4 from the State of Louisiana.

State laws vary on the provision of medical information and the provision of family medical history to parents of adopted children. We acquired a limited medical history for each child and almost no family medical history. Through diligent searching, I have been able to access additional information and recreate missing medical information through claims data and limited hospital medical records.

Many of the medical records for my children have been destroyed by both hospitals and clinics. My children have been treated for asthma and allergies for most of their lives. With each visit, I'm quick to tell every physician that we encounter that my children are adopted and that I do not have a family medical history for them.

This is a statement that I've always believed to be valuable to the care and treatment of my children. Recently, the impact of that statement and the importance of carefully maintaining their personal health information has become paramount.

In January 2014, at the request of my physician, we changed asthma and allergy specialists. After a review of Grace's past medical history, the physician requested a followup appointment for additional testing. The second visit changed our world forever, and my daughter, Grace, was diagnosed with cystic fibrosis at the age of 11.

Armed with a thumb drive and a 5-inch binder of medical information, which included copies of every pulmonary function test and every doctor's visit since the age of two, we presented for our first visit with the pediatric pulmonary specialist. When we returned for the second visit, our physician had analyzed the data and concluded that Grace never had asthma or allergies and removed her from medications that she had been taking for 9 years.

Grace is just one example of why the commitment to the consumer must be made that we can provide health information where and when we need it, a guarantee that information will be available, accessible, accurate, and complete. I experienced many frustrations in my attempt to gather my child's medical records.

Due to an inaccurate entry in my daughter's medical record, the inheritable condition was overlooked. The records included an inaccurate statement that had been copied and pasted into subsequent

records for 9 years. Copy-paste and copy-forward pose risks to patient care.

In my daughter's case, perhaps if the information had been reviewed or audited for accuracy, she would have received an earlier diagnosis. If information governance practices would have been in place, things could have been different.

Information governance is not just a program for hospitals. It should be thought of as the gold standard for health information and documentation practice across the healthcare ecosystem. From creation to deletion, information governance policies created and enforced by the provider can support a data and information infrastructure that is as critical to patient care as the care that is provided.

Governance policies must clearly define the legal health record and address retention standards. Consumers shouldn't have to recreate care from claims data or worry about their data being stolen or destroyed. Things are rapidly changing, but we must navigate that change in ways that drive better decisionmaking for patients and the providers who treat them.

As healthcare professionals, we have been applying data analytics and informatics techniques for many years. The difference now is that the data is electronic with multiple users at multiple settings applying multiple guidelines for collection, creation, storage, use, and deletion. Care is important, but the information generated is what remains when the care is complete. We cannot neglect this consumer's legacy that is left for us to preserve and to protect.

Healthcare professionals encounter healthcare consumers daily. We know the benefits that access and use of personal health information can bring to the consumer and their families.

But consider this. Over the past year, I've written numerous appeals to our insurance company to pay for an \$18,000 vest for my daughter, and I've lobbied for prescription medicine coverage and coverage for supplements, all of which are vital to her care. I am a healthcare professional. What about the average consumer who is just overwhelmed by a diagnosis and just trying to make it to the next day?

As we address these barriers, we also must keep in mind health literacy levels of healthcare consumers. Health literacy can be defined as the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate decisions. Only 12 percent of adults have proficient health literacy, according to the National Assessment of Adult Literacy.

On our journey to remove barriers to accessible health information, we must ensure that this is understandable and actionable by consumers. It is our challenge to educate consumers and local communities on the importance and value of personal health information and educate consumers on the importance of the opt-in and interoperability for continuity for care.

For my daughter, personal health information is saving Grace.
[The prepared statement of Ms. Kennedy follows:]

PREPARED STATEMENT OF ANGELA KENNEDY, ED.D., M.B.A., R.H.I.A.

SUMMARY

As a parent of two adopted children, my desire for complete and accurate medical information rests at the top of my “Mom to-do list.” My children, Zach and Grace, are siblings, adopted at the ages of two and four from the State of Louisiana. State laws vary on the provision of medical information and the provision of family medical history to parents of adopted children. We acquired a limited medical history for each child and almost no family medical history. Through diligent searching, I have been able to access additional information and recreate missing medical information through claims data and limited hospital medical records. Many of the medical records for my children have been destroyed by both hospitals and clinics.

My children have been treated for asthma and allergies most of their lives. With each visit I’m quick to tell every physician that we encounter that my children are adopted and I don’t have a family medical history for them. This is a statement that I have always believed to be valuable to the care and treatment of my children, but recently the impact of that statement and the importance of carefully maintaining their personal health information has become paramount.

In January 2014, at the request of my physician, we changed asthma and allergy specialists. After a review of Grace’s past medical history, the physician requested a followup appointment for additional testing. The second visit changed our world forever. Grace was diagnosed with cystic fibrosis at the age of 11.

Armed with a thumb drive and a 5” binder of medical information—which included copies of every pulmonary function test and every doctor’s visit since she was two—we presented for our first visit with the pediatric pulmonary specialist. When we returned for the second visit, our physician had analyzed the data and concluded that Grace never had asthma or allergies and removed her from those medications.

Gracie is just one example of why a commitment to the consumer must be made . . . that we can provide health information *where* and *when* they need it; a guarantee that information will be available, accessible, accurate, and complete. I experienced many frustrations in my attempt to gather my child’s medical records. Due to an incorrect entry in my daughter’s medical record, the inheritable condition was overlooked. The records included an inaccurate statement that had been copied and pasted into all subsequent records for 9 years. Copy paste and copy forward pose risks to patient care. In my daughter’s case, perhaps if the information had been reviewed or audited for accuracy, she would have received an earlier diagnosis. If information governance practices would have been in place, things could have been different. Information governance is not a program just for hospitals. Information governance should be thought of as the gold standard for health information and documentation practice across the healthcare ecosystem. From creation to deletion, information governance policies can support a data and information infrastructure that is as critical to the patient as the care that is provided. Governance policies must clearly define the legal health record and address retention standards. Consumers shouldn’t have to recreate care from claims data or worry about their data being stolen.

Things are rapidly changing, but we must navigate that change in ways that drive better decision making for patients and the providers who treat them. As healthcare professionals, we have been applying data analytics and informatics techniques for many years. The difference now is that the data is electronic, with multiple users at multiple settings, applying multiple guidelines for collection, creation, storage, use, and deletion. Care is important but the information generated is what remains when the care is complete, and we can’t neglect the consumer’s legacy that is left for us to preserve and protect. Healthcare professionals encounter healthcare consumers daily. We know the benefits that access and use of personal health information can bring to the consumer and their families. But consider this: over the past year, I have written numerous appeals to our insurance company to pay for an \$18,000 vest for my daughter, and I have lobbied for prescription and supplement coverage, all of which are vital to her care. I am a healthcare professional. What about the average consumer who is overwhelmed by a diagnosis and just trying to make it to the next day?

As we address these barriers, we must also keep in mind the health literacy levels of healthcare consumers. Health literacy can be defined as the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate decisions.¹ Only 12 percent of adults

¹U.S. Department of Health and Human Services. 2000. *Healthy People 2010*. Washington, DC: U.S. Government Printing Office. Originally developed for Ratzan SC, Parker RM. 2000.

have proficient health literacy according to the National Assessment of Adult Literacy. On our journey to remove barriers to accessible health information, we must ensure that it is understandable and actionable by consumers. It is our challenge to educate consumers and local communities on the importance and value of personal health information. For my daughter, personal health information is “saving Grace.”

As a health informatics and information management (HIIM) professional and a parent of two adopted children, my desire for complete and accurate medical information rests at the top of my “Mom to-do list.” My children, Zach and Grace, are siblings, adopted at the ages of two and four from the State of Louisiana Office of Family and Child Services.

State laws vary on the provision of medical information and the provision of family medical history to parents of adopted children. We acquired a limited medical history for each child and almost no family medical history. Through diligent searching, I have been able to access additional information and recreate missing medical information through claims data and limited hospital medical records. Many of the medical records for my children have been destroyed by both hospitals and clinics.

My children have been treated for asthma and allergies most of their lives. With each visit I’m quick to tell every physician and medical professional that we encounter that my children are adopted and I don’t have a family medical history for them. This is a statement that I have always believed to be valuable to the care and treatment of my children, but recently the impact of that statement and the importance of carefully maintaining their personal health information has become paramount.

In January 2014, at the request of my physician, we changed asthma and allergy specialists. After a review of Zach and Grace’s past medical history, the physician requested a followup appointment for additional allergy testing. The second visit changed our world forever. With no known family history of autoimmune disease, Grace was sent for a sweat test as a precaution when she failed to respond to the allergy testing.

Grace was diagnosed with cystic fibrosis at the age of 11. Cystic fibrosis is usually diagnosed shortly after birth. Grace was immediately seen by a pulmonary pediatric research specialist at Texas Children’s Hospital. Armed with a thumb drive and a 5” binder of medical information—which included copies of every pulmonary function test and every doctor’s visit since she was two—we presented for our first visit.

When we returned for the second visit, our physician had analyzed the data and concluded that Grace never had asthma or allergies and removed her from those medications. Her analysis of the data also helped her determine a correlation between seasons and when Grace’s pulmonary functions declined, finding that past episodes that were labeled “upper respiratory infection” were due to her lungs not clearing properly during periods of lower activity. Genetic testing revealed that she has a rare form of cystic fibrosis.

Her plan of treatment focuses on wellness. Grace wears a Nike FuelBand to track her levels of activity. The data collected helps to keep Grace well. Grace journals and keeps records on her activity, diet, and how she’s feeling. All of the data that she collects is shared with her care team and becomes a part of the medical record. Grace reviews her electronic medical record and is aware when additions are made to the documentation. Records that are not available electronically are collected and added to the personal health record we keep at home. Copies of those records are shared with her specialist on each visit.

Grace communicates with her care team and is actively involved in making decisions about her care. Personal health information is saving Grace. When you meet my daughter, she appears to be the picture of wellness. That’s a picture that we want to see every day, a picture that tracking data helps us to keep.

It is important to note that a comprehensive past medical history enabled Grace’s physician to quickly assess and create a plan of treatment specific to her needs. A complete medical record, cradle to current medical history, was not available electronically and was not easy to obtain. I went to every care provider that has seen my daughter since the age of two. I requested copies of complete medical records. For those medical records prior to her adoption, I went to local clinics and hospitals near the location where my children were placed in foster care for the first few years of their lives and requested any available medical or claims data. Most early

medical records had been destroyed but the claims data and with associated charges and ICD-9-CM diagnosis codes remained. From claims data, I was able to reveal an early history of acute and chronic respiratory illness and the treatment that was provided.

Acquiring medical data from local family physician and pediatrician was fairly easy. I requested the medical information and it was printed from the electronic record on the day of request. All x-rays were placed on a CD and the information was provided to me and sent directly to the pediatric pulmonary specialist in Texas. While the critical access hospital/clinic utilizes an electronic medical record, interoperability between the two facilities was not possible. Not all documentation was stored in the electronic record. Both a paper and an electronic record existed for my daughter. While these records were easy to obtain others were not.

The asthma and allergy clinic, where my daughter had been seen every 6 months since the age of two, delayed the release of her medical records. The office immediately provided me a copy of every pulmonary function test since the age of two, but refused to release physician notes. The office manager stated that the physician would need to verify the notes and then information would be sent to the specialist after review.

The office promised to fax to my husband's office and the research clinic the following day (Saturday). The records were never received and the office was closed on Saturday. On Monday, I requested the notes be faxed directly to me at the hotel where we were staying and to the research clinic. The office manager told me that the fax on Saturday had been sent but to the wrong location. The first fax that was sent to the hotel also went to the wrong location. On the third attempt the records were received. The records were never sent from the physician to the research clinic. After receiving the information I quickly began to collate and review. Upon review, I found this statement in the family medical history: "the mother states that there is no family medical history of genetic disease." The statement was entered on the first visit at the clinic. It was clearly a copy paste/copy forward in the electronic record and the entry was made on every visit that followed. That one statement ruled out cystic fibrosis as a diagnosis for that care team and possibly any care team that utilized that record.

Gracie is just one example of why a commitment to the consumer must be made that we can provide health information *where* and *when* they need it. We need a guarantee that information will be available, accessible, accurate, and complete. Copy paste and copy forward pose risks to patient care. In my daughter's case, perhaps if the information had been reviewed or audited for accuracy, she would have received an earlier diagnosis.

This audit is not just the responsibility of the care giver but also the responsibility of the patient. Patients should routinely access and review records for accuracy. Since 2003, the Federal HIPAA privacy rule has given individuals the right to examine and obtain copies of their health records, yet there is still widespread misunderstanding about these rights in the healthcare community, and barriers still exist for patients and families seeking full access to health records and information.

For example (and anecdotally), the "HIPAA law" is still given as the reason a patient or another provider cannot be provided with copies of or access to health records or information—although this could not be further from the truth.

Without full access to their health information, patients and consumers are unable to make informed care decisions and the status quo—care that is not patient-centric—continues. There is a need to ensure that barriers to accessing health information are removed—both through education of providers about patient rights and how to administer HIPAA, and through increased implementation and effective leveraging of health information technology to make information more accessible to patients, consumers, and all providers caring for the patient.

If information governance practices would have been in place, things could have been different. Information governance is not a program just for hospitals. Information governance should be thought of as the gold standard for health information and documentation practice across the healthcare ecosystem. From creation to deletion, information governance policies can support a data and information infrastructure that is as critical to the patient as the care that is provided. Governance policies must clearly define the legal health record and address retention standards. Consumers shouldn't have to recreate care from claims data or worry about their data being stolen.

Effective implementation of regulations and laws and leveraging of health information technology for sharing of health information with both consumers and other providers highlights the need for "rules of the road" or information governance. Without governance mechanisms that are agreed upon across the larger healthcare ecosystem, the United States will not be able to receive full benefit from its multi-

billion dollar investment in health IT, let alone advance patient-centric care. Governance is needed to have high-integrity, reliable health information that can be trusted for healthcare decisionmaking.

The American Health Information Management Association (AHIMA) defines information governance as a framework for managing health information throughout its lifecycle and which supports strategy, operations, regulatory, legal, risk, and environmental requirements. It includes the processes, standards, and tools necessary for establishing decision rights, valuation of information, and improvement of data quality and integrity. Most importantly, information governance is based on principles. AHIMA has identified the set of Information Governance Principles for Health Care as:

- *Accountability*: Senior leadership oversight and responsibility for information management.
- *Transparency*: Information management practices and processes that are open and verifiable.
- *Integrity*: Reasonable and suitable guarantee of the authenticity and reliability of information.
- *Protection*: Appropriate levels of protection against breach, loss, or corruption of information.
- *Compliance*: Information complies with applicable laws, regulations, standards and organizational policies.
- *Availability*: Maintenance of information in a manner that ensures timely, efficient, accurate retrieval.
- *Retention*: Maintenance of information for the period of time that takes into account its legal, regulatory, fiscal, operational, risk and historical requirements.
- *Disposition*: Secure and appropriate disposal of information no longer required to be retained by law or organizational policies.

Many of the current challenges in the healthcare industry associated with health IT have been the result of inattention to these principles at higher levels of the healthcare ecosystem—not just at the level of the individual healthcare entity or organization.

In addition to principles, the adoption and use of functional, semantic, and technical standards to support the interoperability necessary for stakeholders to share information is a critical information governance issue. This includes the ability to properly identify patients as well as locate information about them. It also includes ensuring the proper incentives are in place to encourage their adoption, implementation and use.

If we continue with a narrow focus on technology and without a focus on information governance processes and principles, the United States will continue to experience daunting challenges related to health information exchange and sharing, patient identification, and privacy/security. Patients will continue to be at a disadvantage in trying to manage their health without appropriate, trusted information. Information governance is the new imperative for advancing the use of health IT and health information to support patient-centric care. And what about claims data? It was critical to providing a complete medical history for my daughter and the codes that remained and the charges associated with her visits helped to recreate the encounter.

Addressing the current classification system is important, too. We should have been talking about the value of patient information and the classification of disease for population health long before now. The ICD-10 implementation delay presents implications for providers, health plans, and State and Federal agencies, but we *must* continue to advocate for ICD-10 implementation. ICD-10 will have tremendous value and impact on population health data and the consumer. It is imperative we clearly articulate to the consumer the value of accurately coded data.

Things are rapidly changing, but we must navigate that change in ways that drive better decisionmaking for patients and the providers who treat them. As healthcare professionals, we have been applying data analytics and informatics techniques for many years. The difference now is that the data is electronic, with multiple users at multiple settings, applying multiple guidelines for collection, creation, storage, use, and deletion. Data are being generated by mobile health and personal health devices. We have to make certain that we are using clean data to create health intelligence. Care is important but the information generated is what remains when the care is complete, and we can't neglect the consumer's legacy that is left for us to preserve and protect.

Healthcare professionals encounter healthcare consumers daily. We know the benefits that access and use of personal health information can bring to the consumer and their families. Consider this: over the past year, I have written numerous ap-

peals to our insurance company to pay for an \$18,000 vest for my daughter, and I have lobbied for prescription coverage for a \$1,500 monthly prescription and supplement coverage for my daughter, all of which are vital to her care. I am a healthcare professional; I know how to get these things accomplished. What about the average consumer who is overwhelmed by a diagnosis and just trying to make it to the next day?

As we address these barriers, we must also keep in mind the health literacy levels of healthcare consumers. Health literacy can be defined as the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate decisions.¹ Only 12 percent of adults have proficient health literacy according to the National Assessment of Adult Literacy. Fourteen percent of adults (30 million) have below basic health literacy. These people were more likely to report their health as poor when compare with those with proficient health literacy.² In our journey to remove barriers to accessible health information, we must ensure that it is understandable and actionable by consumers.

Today's models of healthcare demand a commitment to wellness. It is our challenge to educate consumers and local communities on the importance and value of personal health information. There is so much each and every one of us can do to make an incredible difference.

The CHAIRMAN. Thank you, Dr. Kennedy.

Senator MURRAY. Mr. Chairman, if I could just say, I have to go to the floor, and we have numerous Senators here. If I could, I would like to submit my questions for the record. I just want to thank all of the witnesses here today, and I will allow one of the other Senators to take my time.

The CHAIRMAN. If you would like to go ahead and ask questions, you're welcome to do that.

Senator MURRAY. No, that's OK. I'll submit mine for the record. We have a lot of people here who want to ask questions.

The CHAIRMAN. All right. We have two votes. The first is at 11. What we'll do is we'll begin a round of 5-minute questions. I'll go vote at 11, and then I'll come back, and we'll make sure that as long as Senators want to ask questions, we'll keep going until about noon. We'll work it out so someone is presiding while I'm gone.

Thank you, Senator Murray.

We'll begin a round of 5-minute questions.

Dr. WERGIN, about half the doctors, half the physicians who are participating in Medicare and are eligible for the electronic health records program aren't participating, and they're about to be penalized this year. Why are they not participating, and why are they willing to accept a penalty rather than participate?

Dr. WERGIN. Senator Alexander, that's a good question. A lot of it has to do with the regulatory requirements to meet Meaningful Use, and I'll use a personal story again.

I met Meaningful Use in the last day of the 90-day reporting period when my staff came up at 3 o'clock—the reporting period was going to end at 5 o'clock—and said, "You're two patients short of having a patient send you a question through the portal." I stopped what I was doing, called two patients that I'd seen—"Could you

¹U.S. Department of Health and Human Services. 2000. *Healthy People 2010*. Washington, DC: U.S. Government Printing Office. Originally developed for Ratzan SC, Parker RM. 2000. Introduction. In *National Library of Medicine Current Bibliographies in Medicine: Health Literacy*. Selden CR, Zorn M, Ratzan SC, Parker RM, Editors. NLM Pub. No. CBM 2000-1. Bethesda, MD: National Institutes of Health, U.S. Department of Health and Human Services.

²Kirsch IS, Jungeblut A, Jenkins L, Kolstad A. 1993. *Adult Literacy in America: A First Look at the Results of the National Adult Literacy Survey (NALS)*. Washington, DC: National Center for Education Statistics, U.S. Department of Education.

send me a question about your labs?" They were a little confused. I met it by the skin of my teeth.

The all-or-nothing quality of that—those two patients allowed me to participate in Meaningful Use and avoid the penalties. If they had not, I would not have met Meaningful Use and got the penalty.

All or nothing, 100 percent or 0 percent. Many of the providers, in terms of their work flow and the reporting requirements, particularly small practices—I don't have an IT support team. My staff and I worked very hard on this, spent many hours, and, in fact, if I had calculated the hours I spent on meeting Meaningful Use, it may have been a wash in terms of the benefit, but also the penalty.

Many practices, as they look at it, say, "We're engaged. We were early adopters." About 77 percent that have electronic health records say, "The time, expense, and the effort it takes makes it not worthwhile, and I'll have to take the penalty."

The CHAIRMAN. The penalty starts out at 1 percent, but it will eventually go up to 5 percent. It gets to be a pretty significant penalty for about a quarter of a million doctors. Right?

Dr. WERGIN. Yes, and that's significant. Again, in primary care—and I can speak for my family physicians—we're in the trenches, in day-to-day practice that—it's really small margin care. We don't have large procedures with high margins, and we have overhead to meet. You're exactly right. It becomes kind of a business decision—the efforts to do that.

We, as an academy, try to provide them tools and support to help them meet Meaningful Use. I'll use another example. I practice in a Mennonite community. My Mennonites don't have TVs, newspapers, or radios, so they surely don't have computers. That removes them from the pool.

The CHAIRMAN. Let me go to Dr. Adler-Milstein. We live in an era where it seems like almost everyone has a smart phone, and we imagine all of these wonderful advances that could happen with this sort of useful information. You mentioned other industries that have done a good job of dealing with data. What industries do you have in mind? Who has done something like this better?

Ms. ADLER-MILSTEIN. Sure. I think there are two components to it. One is if you look at industries that are sort of regularly using data to improve the value that they deliver, we look to technology service companies. Amazon, on a day-to-day basis, is making decisions about its business strategy based on the data that they see.

But that's just within Amazon. Amazon is certainly not sharing their data with their competitors and other organizations. When we look to the data sharing piece of it, then we turn to the financial and banking industry, where you do see that there is a national system that's been created that allows you to put your ATM card into any ATM machine.

I don't want to say that the two scenarios are equivalent. In healthcare, we're dealing with much more complex data. It is very different from the financial industry, but we can at least see that it is possible to achieve that level of information sharing of a basic set of data.

The CHAIRMAN. You study this. You don't receive incentives for all this.

Do you believe the penalties should be deferred until the government does a better job of enabling physicians and hospitals to use electronic healthcare data?

Ms. ADLER-MILSTEIN. That's a tricky question, because on the one hand, we want to keep the pressure on to keep doctors and hospitals from demanding more from these systems. We want to keep that market demand piece there.

If we pull the penalties back, there's a risk that we'll sort of accept the status quo and that pressure won't be there. That's a reason to think carefully about it. If we were to pull back penalties, we need to think carefully about how to make sure that the market incentives are in place to make sure that the systems continue to improve.

The CHAIRMAN. Senator Warren and then Senator Cassidy.

STATEMENT OF SENATOR WARREN

Senator WARREN. Thank you, Mr. Chairman.

As a result of the 2009 HITECH Act, most providers have electronic health record systems right now. Many still can't exchange patient information. For example, when a patient goes to a new doctor for the first time, all of their background information and their tests have to be collected from scratch, even if it was collected just down the street a week earlier.

This leads potentially to unnecessary testing, to lost time, to wasted money. A 2014 study performed by Dr. Adler-Milstein and other University of Michigan researchers found that emergency rooms connected to a regional health information exchange ordered fewer duplicate tests. Patients in these ERs were 59 percent less likely to have a redundant CT scan, 44 percent less likely to get a duplicate ultrasound, and 67 percent less likely to have a duplicated chest x-ray compared with patients who went to unconnected hospitals.

In 2015, when cell phones can text pictures instantly around the globe, it just doesn't make sense that potentially lifesaving health information can't be transferred across the street. The problem doesn't seem to be a lack of technology. Instead, it seems that there must be other barriers that are holding up the exchange of health information.

Mr. DeVault, you represent Epic, the largest electronic medical record vendor in the country. You have testified that you can set up systems that talk to each other. Doctors report that it can cost tens of thousands of dollars for a single office to set up a connection to another system.

The Department of Health and Human Services is working with the industry to address one of the three key remaining challenges that you identified in your testimony, and that is a lack of consistent data standards. I want to ask once we have uniform standards, can we expect that health information exchange will be easier and cheaper?

Mr. DEVAULT. Thank you, Senator Warren. It's a very good question. Often, I hear that the problem with interoperability is the lack of standards, and I would argue that that's a minor problem compared to some of the others. We've had standards for several years now for being able to interoperate with some kinds of data.

Senator WARREN. I'm sorry. Let me just make sure I'm following you. You're saying we already have uniform standards?

Mr. DEVAULT. We don't have standards for everything. We have standards for being able to exchange some information, such as medications, laboratory results—

Senator WARREN. We saw the business here—x-rays, blood tests—

Mr. DEVAULT. Absolutely. There's much more work to be done. However, we can do a lot of important—

Senator WARREN. The question I'm asking is when we get standards, would we expect that the cost of creating interoperability among systems would decline?

Mr. DEVAULT. It will eventually decline. Here are some of the costs that—

Senator WARREN. I just want to focus right now on this question about what standards will do for us and how it is that we get this cost down. I assume having better standards means we get these costs beaten down, at least some. There may be other issues going on here.

Mr. DEVAULT. Once they're implemented.

Senator WARREN. Let me ask about some of these other issues.

Dr. Adler-Milstein, even once we have consistent standards, what barriers will stand in the way of health information exchange?

Ms. ADLER-MILSTEIN. One of the key ones are these issues around competition. Some of my research has shown that in more competitive markets, hospitals are less likely to share data with each other. It's, in some ways, an obvious point, which is when you say, "This is an entity you're used to competing with. Now share all your data with them," most organizations are going to say that makes no sense.

Senator WARREN. Wait. Why do they not want to share the data?

Ms. ADLER-MILSTEIN. Because they're competitors. They're competing for the same patients. If you share the data, it makes it easier for patients to go get care from your competitor.

Senator WARREN. Basically, it's a way to tie a patient to a system, to say the system is not going to share data anywhere else.

Ms. ADLER-MILSTEIN. Exactly, and I actually think it gets factored in on the margin. When interoperability is expensive, you have to justify that expense, and it makes it hard to justify when there are these potential competitive implications that get played in. The two barriers relate to each other.

If interoperability were cheap, it may be—hospitals and doctors may be more willing to take that risk. As long as it's expensive, as I said, it's an expense that becomes hard to justify.

Senator WARREN. Thank you. The Federal Government has invested nearly \$30 billion in electronic health records, because exchanging health information in real time improves patient safety, it saves lives, and it can reduce healthcare costs.

We now have the technology, as you rightly point out, to create an electronic records system that lets one part talk to another. Soon we're going to have data standards that will make the connection to the system both easier and cheaper. It seems past time to eliminate the perverse incentives and administrative barriers and just get this done.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Warren.

Senator Cassidy.

Senator CASSIDY. Mr. DeVault, we're hearing over and over again about the cost. You all have a 50 percent market share, so I guess that kind of looks at you. How much do you all charge each practice for each patient to interface with the—if you will, to put each patient into Epic and to share their data?

Mr. DEVAULT. Thank you, Senator. One thing that's important to note is that we do not sell our systems at the practice level. Most of our organizations are very large.

Senator CASSIDY. If I work for Our Lady of the Lake Hospital in Baton Rouge when I go see patients, and I have a patient's data I'm entering, and imagine the Lake wants to send that data someplace else, how much does the Lake pay for the cost of that transaction?

Mr. DEVAULT. There are two costs that go into creating the connection to begin with, and then the licensing cost for the actual software. Creating the connection to begin with to that other system can vary widely. We charge for that based on an hourly fee.

Senator CASSIDY. Let me ask, because it seems as if to a certain extent there is common ground between all these different interfaces.

Mr. DEVAULT. To some extent.

Senator CASSIDY. It almost seems like you could plug and play a little bit.

Mr. DEVAULT. It's getting there. It's not quite—with some vendors, we've done it so many times that it is plug and play. For example, when we connect to a Greenway, we've done that many times—

Senator CASSIDY. Now, back to the question. We have 1,000 patients that they are sending data elsewhere. How much is charged on a per-patient basis, if you will, to send that data?

Mr. DEVAULT. We charge on a per-patient, per-year basis, so it's not per transaction, and it's the same whether that patient is sent to 100 different places or one other place, and that charge is \$2.35—

Senator CASSIDY. Does both the receiver and the sender—

Mr. DEVAULT. No. We only have a relationship with the Epic side of that, so we charge our customer.

Senator CASSIDY. How much do the upgrades typically cost?

Mr. DEVAULT. We don't charge for our upgrades. All of our customers have a perpetual license to the software. We did not charge anything for the Meaningful Use upgrade. I know many other vendors did. We didn't raise our licensing rate, so somebody who bought our system last year paid the same with differences in—

Senator CASSIDY. The Office of the National Coordinator for Health IT speaks of a cost of \$15,000 to \$70,000 per provider to bring in an electronic medical record. Dr. Wergin is nodding his head yes.

Can I ask how much your practice had to pay for your EMR?

Dr. WERGIN. Easily in that range. I would say a little more.

Senator CASSIDY. It's a big range. So you paid more than \$70,000?

Dr. WERGIN. Yes. Probably per provider, including training and implementation, not counting reduced patient volume and stuff, it was probably in that \$70,000 to \$80,000 per provider.

Senator CASSIDY. Per provider?

Dr. WERGIN. Yes, per provider.

Senator CASSIDY. My gosh. How much was offset with the Federal subsidies?

Dr. WERGIN. It did not offset the entire amount, and one of the—

Senator CASSIDY. Substantially, or 20 percent, 100 percent, 90 percent—ball park.

Dr. WERGIN. It was \$44,000, so roughly half.

Senator CASSIDY. Per provider.

Dr. WERGIN. I'd say probably half of it. Also to meet Meaningful Use, as Senator Alexander was saying, we didn't often upgrade. Our vendors kind of had us hostage. We had to pay for upgrades to meet Meaningful Use. Some chose not to do that.

Senator CASSIDY. So that was over and above the \$80,000?

Dr. WERGIN. Oh, yes.

Senator CASSIDY. Somebody in one of the testimonies spoke about the doc who formerly saw 30 patients a day—maybe you mentioned this to Mr. Alexander—and is now seeing 24—was with one tech, and now has four techs. Are you including the cost of the extra personnel to maintain all this?

Dr. WERGIN. No, but that's a standard story I hear as I travel around the United States—lower patient volumes and more cost.

Senator CASSIDY. Mr. DeVault, this is an incredible problem. I can tell you that we've just decreased productivity, and frankly—by the way, I still teach. When I see medical students—and we have Epic at the hospital—they're not talking to the patient. They're entering data.

And as Dr. Adler-Milstein pointed out, sometimes the data is data bloat. I'm thinking, "I'm a doggone hepatologist"—which is liver disease—"why in the hell am I asking about cigarette smoking?" Because I've got that much time with the patient—

Mr. DEVAULT. It's not because the vendor wanted you to do that.

Senator CASSIDY. So who's driving that?

Mr. DEVAULT. That's often billing requirements or Meaningful Use requirements.

Senator CASSIDY. The Federal Government has said, "Listen, you've got to have this in order to have Meaningful Use, and so the Federal Government is here to help you," and that's the problem?

Mr. DEVAULT. That's a significant problem, yes. We take it on the chin from our customers all the time, and it's not because we have an interest in people filling out all those fields.

Senator CASSIDY. I'll also say I was told that the interface—again, the interface is so 1990. You know what I'm saying? I'm sitting there typing into a screen as opposed to looking into someone's eyes.

Mr. DEVAULT. Oh, the user interface?

Senator CASSIDY. Someone told me that that in part is driven by the lack of venture capital. The HITECH Act basically prescribed the interface, and, therefore, there's been no investment in how to

make that more efficient or friendlier to the provider. Again, Dr. Wergin, who's kind of on the front lines, is nodding his head.

Mr. DEVAULT. Speaking for us, we invest an incredible amount of research and development on user interface design.

Senator CASSIDY. It still seems to be, though, the screen—and I'm using a keyboard, correct?

Mr. DEVAULT. Often, yes. There is an art to learning how to do that with a patient, as you probably know.

Senator CASSIDY. I'm told that by your data, it's about 17 minutes more per patient to enter electronically as opposed to paper. Is that right?

Mr. DEVAULT. I don't have that information, but I can followup with your—

Senator CASSIDY. Somebody told me it's now 17 minutes per patient.

Mr. DEVAULT. I can't imagine that's the case.

Senator CASSIDY. I can. It's just incredible how much time you spend on that.

Mr. DEVAULT. We have documented practices that have reduced the amount of time that they spend per visit.

Senator CASSIDY. Really?

Mr. DEVAULT. Yes.

Senator CASSIDY. Dr. Wergin, relative to paper, how much more are you spending per patient to enter data?

Mr. DEVAULT. Again, I don't have—

Senator CASSIDY. No, I'm asking the doc.

Dr. WERGIN. I would say it's 10 to 15 minutes per patient, and that's why I've never gotten back to the same volume pre-EHR. I hear that story pretty consistently across the country.

Senator CASSIDY. I yield back.

Mr. DEVAULT. It is harder for family practitioners. I will grant you that.

Senator CASSIDY. I yield back, and I will say we have a big problem here. Anyway, our productivity for the front lines is down by 25 percent.

Thank you.

The CHAIRMAN. Thank you, Dr. Cassidy.

I'm going to go vote, and Senator Isakson is going to preside. I'll be right back, so every Senator who is here will have a chance to ask questions. The next Senator is Senator Baldwin, then Senator Isakson, and I'll be back by the time he is finished.

Senator BALDWIN. Thank you, Mr. Chairman. Our health system has made tremendous gains in the use of electronic health records, and I'm proud to represent a constituent who has played a major role in our health IT transformation, Epic Systems in Verona, WI.

You mentioned, Mr. DeVault, in your testimony that in just the last month, Epic users exchanged almost 8.5 million records with each other and almost 7,500 with other organizations. We all know that more work needs to be done, and our system has not yet achieved the goal of being fully interoperable, which is why, Mr. Chairman, I'm very glad that we're having this constructive discussion here today about how we move forward.

We've all heard stories from providers arguing that some vendors won't allow them to easily exchange patient records with health

systems that use a different EHR company. Mr. DeVault, can you please address some of the issues and help us understand what interoperability means, including why all providers today can't seamlessly share and access data as part of their workflow between healthcare settings?

Mr. DEVAULT. Thank you, Senator Baldwin. Interoperability does mean different things to different people, and if you talk to the Googles and the Facebooks of the world, they're interested in data for different purposes than clinicians might be interested in. I'll narrow that focus down to what we often call health information exchange, getting a patient's record from one point of care to another.

We have seen a lot of progress on this in the last few years for a few different reasons. One, Meaningful Use 2 did put a focus on health information exchange. It was not a focus of Meaningful Use 1, so things have taken some time.

We have seen a large up-tick in the last year and a half of our customers being able to connect easily to non-Epic systems. Previously, that was not the case. Different implementations of standards was an impediment, and now some of that has shaken out. That's reducing the cost of those connections significantly and the time to implementation.

There are some other things that were not anticipated by ONC that are important for interoperability. There's a whole ecosystem that needs to be in place. If we went back 150 years ago and gave everybody a phone, that would not allow us to talk to each other, because there's no operator, there's no information, there's no white pages.

We need provider directories. We need the ability to find resources. Those are starting to appear. We're starting to have an ecosystem with provider directories where you can actually look up somebody's phone number, which is obviously important in order to be able to send somebody something.

The other thing that's made our Care Everywhere interoperability platform so successful among the Epic groups is something that we've shared with ONC over the last several years and suggested that they take very seriously—and I'm happy to see it's in their roadmap—which is the role of governance.

People need to understand what are the rules of the road, have common understanding of their rights and responsibilities with regard to their patients' data, and they need to have recourse to somebody when they believe that there is a bad actor. We've had that in place within our Care Everywhere network, and that is what has allowed us to, for one thing—and I wanted to address something else.

Senator BALDWIN. I do have another question that I'd like to ask.

Mr. DEVAULT. I'll wrap that up, then.

Senator BALDWIN. In your written testimony, you identify several different networks of interoperability that operate today, such as Commonwell, and, of course, you've just been talking about Epic's Care Everywhere. Can you please elaborate on how these networks are different, including why Epic is not a member of Commonwell, and then discuss the work that Epic is doing with other vendors to connect these various networks?

Mr. DEVAULT. Yes. Great. Thank you. There are different networks, and there should be different networks, just like there are different banking networks, and there are systems that are out there to connect all of them together. Things work best when there's a robust ecosystem, and there are multiple players involved. Care Everywhere is one such network.

Commonwell is what I would call an aspiring network. They aspire to be a nationwide network with a record locator service that will tell you where every part of a patient's record is. They are not that today. According to their latest report that I've seen, they have four different sites live on their network, fewer than 1,000 physicians, compared to 100,000 physicians in Care Everywhere and almost 10 million records exchanged a month now.

That having been said, in terms of what they're doing, architecturally, there's not a problem with that. When we were approached by them and asked to join, we were told that it would be multiple millions of dollars for us to join, and that we would have to sign an NDA. And, to us, the only reasons to have an NDA are if they're going to tell you something that otherwise they wouldn't want people to know, for example, the possibility that they might sell data downstream, or that they want to make sure that their intellectual property doesn't conflict with ours. That kind of lack of transparency did not sit right with us.

Instead, we have engaged Commonwell through Carequality. Carequality is meant to be that fabric that connects all of the networks together. You've got health information exchanges. You've got the Care Everywhere network. You will eventually have Commonwell. Carequality then will be the fabric that stitches all of that together. We hope that they will join Carequality.

Senator BALDWIN. Thank you.

STATEMENT OF SENATOR ISAKSON

Senator ISAKSON [presiding]. Thank you, Senator Baldwin. I want to followup on your line of questioning, and I want to ask a question to Dr. Wergin and Dr. Adler-Milstein. I want to preface it by saying I'm not a physician. I'm not a high-tech person. I was a salesman all my life before I came to Congress, and I guess I still am if I'm in Congress.

I learned in business, though, that scarcity and exclusivity drive cost and drive price. Is the interoperability a competitive advantage for the people who sell the different software for IT?

Ms. ADLER-MILSTEIN. It certainly is, because when you have that, it makes it harder to switch vendors and much more expensive to switch vendors. I do think the reality is that that's playing a factor, because if you protect the data within your system, it makes it harder for people to switch systems if they were to decide that there's a better system on the market for them.

Senator ISAKSON. Dr. Wergin, do you agree with that?

Dr. WERGIN. Yes, I would. What I see in a pragmatic sense as a practicing physician is the vendors are siloed, and you're held somewhat hostage by the vendor you have, because it's very difficult to change. Who owns the data is a point that makes it difficult to make those changes.

It does make it difficult, and I think it does give them a competitive advantage, plus updates are for your system. That makes it difficult, and we're charged for updates. I'm glad to hear Epic does not. You have to pick and choose with the small margin care that we do. Yes, we have difficulty with those kinds of exchanges or who owns the data.

Senator ISAKSON. Mr. DeVault, let me ask you a question. I'm assuming it's to nobody's advantage, yours or Cerner's or any of the others in the business, to try and create an interoperable system because nobody would cooperate. Is that correct? I don't mean that in a negative way. I mean that in a factual way.

Mr. DEVAULT. I'm not sure I follow the question.

Senator ISAKSON. Let me preface it—would it not take the cooperation of all the vendors, including sharing intellectual property, in order to create an interoperable system?

Mr. DEVAULT. Not necessarily intellectual property, but it certainly does require the participation of at least a core set of vendors, and that's why we participate in HL7, which is a standards development organization. We participated in the development of Direct. I was actually the chair of the user case work group that created the protocol for doing the exchange. We participate in the EHR Vendors Association, now called the EHR Association.

Senator ISAKSON. Let me interrupt you real quick.

Mr. DEVAULT. Yes.

Senator ISAKSON. I don't want to run out of time. What would be a catalyst to cause you to get together with Cerner and the other people and find a way to be interoperable?

Mr. DEVAULT. We already have, and another example of that is what's called the Argonaut Project in HL7 right now, which is developing state-of-the-art, web-based application programming interfaces that will make it even easier for new systems to talk to each other. In my opinion, it's not a technological problem to create these standards.

The deficiencies in the system are—the ecosystem, as I mentioned earlier—things like provider directories, and then provider incentives, which is one reason why even though we developed our Care Everywhere application in 2005, we did not go live with it until 2008. That was how long it took for us to find customers who were willing to say, "We are not going to compete over data."

And we have a rule in our governance structure that says, "If you're going to share data, you're going to share with everybody," and I'm happy to say that all of our customers now do that.

Senator ISAKSON. Does provider incentives mean incentives to the physicians?

Mr. DEVAULT. Yes, or the hospitals or the health system, in general.

Senator ISAKSON. To cooperate in sharing the data?

Mr. DEVAULT. That's right.

Senator ISAKSON. To a certain extent, that's a competitive advantage right now for them as well, is it not?

Mr. DEVAULT. It could be, depending on the payment model. There are lots of things that could influence what those incentives are. Different kinds of payment models have different kinds of incentives for data sharing. In an ACO, for example, an Accountable

Care Organization, you are highly incentivized to share information with the other parts of your network.

Senator ISAKSON. I am told that some people have a fear of security—cyber security in terms of data—

Mr. DEVAULT. Well, they should, yes.

Senator ISAKSON [continuing]. And they should. We in Congress have been reluctantly moving toward finally getting to a cyber security bill, which, hopefully, we'll do pretty soon. Is there anything we should be aware of or cognizant of in terms of cyber security in terms of medical IT?

Mr. DEVAULT. Absolutely. I've seen draft legislation from a variety of areas and heard lots of conversations about radically opening up patient health information to a variety of actors, and we need to think very carefully about who these actors are and what kinds of security needs to be in place to make sure that some foreign actor or a nefarious actor doesn't have access to that information. That needs to be done at the same time that we have these discussions about opening up systems further.

Senator ISAKSON. Thank you all very much for your testimony. Senator Franken.

Oh, I'm sorry. Senator Franken disappeared or lost a lot of weight, one of the two.

[Laughter.]

Senator Whitehouse.

STATEMENT OF SENATOR WHITEHOUSE

Senator WHITEHOUSE. Thank you for that comment, Chairman Isakson. I agree with what a number of my colleagues have said, that it's time for a reboot of the Meaningful Use Program. It's been run for quite a while now.

It started from a little bit of a disability, which was basically the equivalent of subsidizing cars or penalizing people for not buying cars, and then figuring out that they're all going to go and build the roads on their own. That's not the way we do highways, and it's a pretty fair analogy for what the problem has been with health information exchange.

We have put some money into health information exchanges. Mr. DeVault, as you know, Rhode Island has worked very hard to have CurrentCare, which is a very good health information exchange, perhaps best in show, and we've been really fighting, I feel, very much on our own, without much help from the Federal Government. If you get the exchange part right, so much of the rest falls into place.

We're doing this, very inefficiently, focusing on the most remote parts of the system, the physicians' desks, without building the internal infrastructure and supporting the State-built, in our case, internal infrastructure that allows those points to all connect. If you get that right, then people will have to connect, because there'll be a value proposition from the system, and you won't have to make an artificial value proposition of subsidy and punishment. We need to reboot that.

I also think that we need to reboot the failure to include behavioral health and nursing homes into it. I see lots of heads nodding here. If you're looking at the expensive people in the healthcare

system, a lot of them are going back and forth, cycling between nursing homes and the healthcare system. I see more heads nodding here. If you don't capture that, and if you don't require the nursing home to meet the Meaningful Use standard or cooperate, then you've made a really stupid tactical error in the rollout of health information technology.

Ditto if you are a patient who has a significant behavioral health issue. Your behavioral health provider—guess what—is your medical home. They're the ones who help you deal with the rest of the healthcare needs that you have. When you cut out the behavioral health provider from Meaningful Use, you've made another stupid decision, and we refuse to fix those decisions.

I would love to work with my colleagues on rebooting Meaningful Use in those directions and, particularly, empowering the local information exchanges that have come up. I'm tired of being a lead dog, carrying a huge load, and having floods of money go into this in a whole bunch of different areas, but having to struggle for support at trying to get CurrentCare up and going, and we have.

To Epic's credit, Epic, through life-span, has just created its CurrentCare link, and so it will be linked into our health information exchange. Care New England, our second biggest hospital chain in Rhode Island, is also an Epic customer. We stand a real possibility of having our two largest hospital chains and our health information exchange all linked in a very meaningful way. As others have said, it's incredibly important that we gather this data and that we use it to empower the reforms that we need in healthcare.

I do think that there are some vendor business practices that we need to be worried about. We need to be worried about vendors who don't put the connecting fees into their pitch to their clients, and then you find out, once you've budgeted what you think your cost is to the vender, that now to hook you up will cost tens of thousands of dollars more. That's just a bad business practice.

We have not really resolved the question of ownership of data, and as big data begins to move more and more, people want less and less to share the data that they have with other competitors. That data should be ultimately the property of the patient, not of anybody else. These artificial divisions of "you can have the data" and "you can't have the data" do none of us any good in the long run. They just provide immediate private advantage in the short run.

Finally, there is a business model in which not being interoperable is to the advantage of the company, because it means you have to link up with them. You can try to get the advantage of being the Microsoft operating system, that you're everywhere, and then you can charge high prices because you're the dominant player in the marketplace. That should not be a factor. There's a role for government in protecting against some of the abuses that are possible here.

And the last thing I'll say is that it's really important that we solve the question of ownership of this data, so that it's clear how privacy is protected, and it's clear that we maximize the extent to which this data is available to the patient and, on an anonymized basis, to anybody who is doing really important research that will

save lives and improve our healthcare system. We've got a lot at stake.

I've used up my whole time and 1 minute more just saying those things. I've been kicking at this for a while now, and so thank you, Chairman, for allowing me to vent here. We can agree as a panel that we have important work to do on this topic. We are a long way from where we should be. The possibilities are immensely positive, and the hazards, are solvable and negotiable.

Thank you for the hearing, Mr. Chairman.

The CHAIRMAN [presiding]. Thank you, Senator Whitehouse.

Senator Franken wants to come back, so I'll wait a few minutes and see if he does.

This is a sufficiently important issue, and there's sufficient interest in the committee—Senator Cassidy, Senator Whitehouse, and others—that we ought to focus—Senator Whitehouse, I wonder if you agree, we ought to focus some extra time on this and maybe organize a way to see how we can help get a result.

Senator WHITEHOUSE. I think we should. It might even be helpful to have a group of us kind of meet on a regular basis offline and try to put something together for the committee to consider.

The CHAIRMAN. Yes.

Senator WHITEHOUSE. This is a bipartisan issue. It's about doing it right versus doing it wrong, doing it stupid versus doing it smart, and we ought to be able to work together on it.

The CHAIRMAN. I agree with that. So we will do that. This has been a helpful hearing. It's been 5 years since we've really taken a look at this. We're moving into an era where, after providing a lot of money, \$30 billion, for incentives and grants, we're now going to start collecting penalties.

Mr. DeVault, do you charge an hourly labor fee for upgrades?

Mr. DEVAULT. If the customer needs assistance in the upgrade, which often they do not, yes, we do.

The CHAIRMAN. Often they do?

Mr. DEVAULT. I'm sorry. Let me take that back. Not for upgrades. That's part of the maintenance cost that's built into the licensing fee. I misunderstood your question.

The CHAIRMAN. You do not charge an hourly labor fee for upgrades.

Mr. DEVAULT. That's right. For creating those new connections, we do. That's what I thought you were asking about.

The CHAIRMAN. Let me ask a question in this way. Assuming we on the committee wanted to spend the next several months trying to fix the problem here, my own sense of it—and this shows a bias about government—is that the Federal Government does a much better job when it is an enabler or an encourager rather than a mandater, and that there are also some things the Federal Government just doesn't do as well as the private sector.

Also, it's just an evitable law, whether it's Republicans or Democrats, that regulations just pile up over time. Let me ask each of you now if you would reflect on this, and then maybe you could think about it after the hearing and either provide in writing or in the subsequent activities so that we have your thoughts.

If you were in our shoes, and you looked at the \$30 billion that's been spent, and you looked at the promise of the idea, and if you

looked at the fact that about half the doctors who are a part of Medicare reimbursement would rather take a penalty this year than be involved with electronic healthcare records, what are the first two or three things that you would do to try to realize the potential of expanding the use of electronic health records for more physicians and more doctors to the advantage of patients?

Let's start with you, Dr. Adler-Milstein.

Ms. ADLER-MILSTEIN. Sure. In the category of enabler, I would begin with focusing on transparency, and this is really about transparency in terms of how the frontline physicians experience both the usefulness and usability of the system, the connectivity of the system, and the cost associated with these. Part of the challenge has been that it's been very hard to get information on this, and, therefore, we have uninformed consumers.

The CHAIRMAN. Information from whom?

Ms. ADLER-MILSTEIN. From the frontline physicians. It would be great to be able to say we have a consumer report style set of information that really compares the system, compares the cost, compares the value. We don't have that basic information, and we, therefore, can't have a robust market around these tools.

The CHAIRMAN. Dr. Wergin.

Dr. WERGIN. Well, a couple of suggestions I'd make is interacting and having electronic health records that work with the workflow of my day-to-day operation of what I do, particularly in family medicine. We as an organization started a task force that included an efficiency engineer we hired from outside at the American Academy of Family Physicians to look at just that instead of just complaining about how can we do it—if there were standards that said that.

Regarding interoperability, I do want to say that it shouldn't just be a data dump. I mentioned that patient I had that I had to call and get a fax copy of the record. It was 18 pages long, and I wasn't sure why she was seen in the ER.

My own small system that I operate in, a 20-bed critical access hospital, has a different EHR than mine. I have to log out of mine, go to theirs, in my own system to find out if one of my partners—

The CHAIRMAN. Where do we start to change that?

Dr. WERGIN. I would say if there's some certification standard—we're working on making specific suggestions on how the interaction can take in workflow. From my standpoint—and that's what this is all about, patient outcomes—the electronic health record is a tool. It's not delivering care. It's helping me deliver the proper care. Having meaningful data that I can get from my partner to me, or from me to my other partner, and set standards and move away from bullets on billing which is what we have now.

The CHAIRMAN. Mr. DeVault.

Mr. DEVAULT. Thank you. The first few things that come to mind are to be descriptive rather than prescriptive. The Meaningful Use Programs were meant to be an adoption in an interoperability program, as I understand it, largely successful on the adoption front. Rather than focusing on interoperability and describing the kinds of outcomes that people wanted, it ended up becoming an EHR design session by committee.

I would much rather see an incentive to have the kinds of outcomes we all want to have. Then there will be incredible innovation, both at the clinician level and at the vendor level to make that happen in a variety of ways.

I agree with Dr. Wergin here, that we don't need just data dump. That was also something that was very prescriptive, that this is the data that needs to be shared, no matter what the use case was. There are also very artificial incentives to do that sharing.

You mentioned the fact that you had to get a patient to send you a message about nothing so that you could qualify, or send all of the information that you have on a patient because you're transitioning their care, and for an electronic transition of care, you have to send everything.

So getting rid of artificial incentives by incentivizing the kinds of outcomes that we want to see and refocusing MU on interoperability.

The CHAIRMAN. Dr. Kennedy.

Ms. KENNEDY. I agree with the previous comments. I do have one comment, though, the road to interoperability is long, and it's a journey that we have to—it's critical that we continue on. At some point, while I understand the business of business is business, we have to stop leveraging profits at the expense of the care that's given to the patient.

In my daughter's case, I created the record that is carried across State lines to the provider. Both providers or all of the providers did have electronic health records, yet none of them could share the data. It was shared via fax, or it was copied and given to me. We have to make sure that we can exchange data in a way that providers receive the information that they need to care for the patient.

In my daughter's case, two faxes went to organizations that were not healthcare organizations before it ever arrived in my hands. Had I not been diligent to copy and carry the records, I don't think that they could have diagnosed or been able to take my daughter off of some of the medications that she had received for 9 years.

In looking at this from the consumer's perspective, it is important, and while not every consumer is going to go in and demand a copy of their information, certainly, they do own the data, and they are entitled to it, because that data, wherever it is created, is going to lead to better continuity of care that's provided to me, you, everyone in this room.

It's critically important that we continue to work toward interoperability and remove the barriers, whether they're on the side of the developer, the provider, even maybe with the consumer. I don't think that it should be prescriptive in terms of what interoperability looks like. That is going to present with another barrier to innovation, and we want companies to continue to be innovative.

The current portal that my daughter uses is a widely used electronic health records system. The information that is in that portal is not adequate to support care across the line. If we were to go in as a family and pull that information from that portal, it is not every piece of information that we need to continue her care when we cross the State line 6 hours away and she needs something. I

still continue, even with electronic records, to copy and carry records with us wherever we go.

So much work needs to be done in this area. I don't disagree with any of the comments. However, I don't think we're moving fast enough on the issue.

The CHAIRMAN. Thank you.

I see Senator Franken, and we'll let him take 5 minutes of questions, and then we'll wind up the hearing, and I'll wind it up after Senator Franken has a chance to comment.

Senator Franken.

STATEMENT OF SENATOR FRANKEN

Senator FRANKEN. First, I'd like to thank the Chairman for stalling until I got here, and thank you for holding this hearing.

The HITECH was great, because it really spurred this investment in health records. I have a hospital in New Ulm, MN, and they're doing a thing with Allina called Heart of New Ulm, and they wouldn't be able to do it if it hadn't been for HITECH. Yet we've been hearing about all the barriers to getting this done smoothly. It's incredibly essential that we do this, because it helps operations, things like Accountable Care Organizations and patient-centered medical homes and bundled payments.

Ms. Adler-Milstein, in response to Senator Warren, you talked about some of the barriers to data sharing between healthcare organizations because of economic incentives which discourages communitywide data sharing. Is that because they'll worry that—and I've heard this before—they worry that you'll steal your healthy patients? Is there anything to that?

Ms. ADLER-MILSTEIN. I don't know if it's so much stealing the healthy patients. It's actually stealing the sick patients, because those are the ones that need the care on which you have the higher margins. It's a concern—

Senator FRANKEN. An Accountable Care Organization would want to steal your healthy patients.

Ms. ADLER-MILSTEIN. So true. That's what I think Dr. Wergin was referring to.

Senator FRANKEN. This is for Dr. Kennedy. How can we leverage some of the new pay for performance reimbursement models to create a business case for providers to connect and actively share health information with each other, even their competitors, to ensure the patients can receive the best possible care?

Ms. KENNEDY. You have to reduce some of the penalties that are imposed on providers, and you have to encourage the use of electronic health records. Maybe there are other incentives that need to be given to our providers.

Also, in terms of payers, payers are receiving the data. We know that the exchange is there. Some of my daughter's records were recreated from claims data, and we had to rely on that solely to get a picture of the care that was provided at that time. Incentives to providers are probably going to enable adoption or further adoption. Right now, we say we have interoperability. However, that doesn't exist in every case.

Senator FRANKEN. Dr. Adler-Milstein, we can have access to everything, theoretically, right? I've heard that they do this in other

countries, and it's a lot easier. I remember when we had—well, OK, I don't like that, so I'll ask what that meant, but I'm human and I know kind of what that means, which is, "yes, but"—right?

When we were having the discussion about ACA, I heard, "Well, we have the best healthcare system in the world." I heard that in Minnesota. And we have Mayo. Look at Mayo. It's the best—we have the best healthcare in the world, but I'm not sure we have the best healthcare system. I'm not even sure we have a healthcare system.

It depends on—if you're getting Medicare, you're in the Canadian system. If you're in the VA or Indian health services, you're in the British system. If you get it through your employer, you're in the German system. If you're paying for it yourself, you're in the Cambodian system—is what we had. We didn't have a system.

What do other countries do differently to be successful on this front, and then—because you went like that, which for—is someone taking a record of this? He imitated her doing what she did.

[Laughter.]

What do some countries do better, and what don't they do better?

Ms. ADLER-MILSTEIN. Sure. I sit on an OECD task force that has looked at—first is trying to benchmark adoption of health information technology in various countries so we can truly say where we stand and from which countries we have an opportunity to learn.

Senator FRANKEN. Good.

Ms. ADLER-MILSTEIN. I will say that health information exchange has been the common challenge across countries, and that is despite the way they pay for care, despite the way they deliver care. There have been real challenges with getting the data to move across the systems and to be in front of the providers when they need it.

I don't think that there's a country that we can point to and say they have gotten it right, and the United States should look toward that model. There are countries that I think have done a better job of trying to centralize some of the data and get patient-controlled access to that data. Again, I don't think that there is a sort of silver bullet here, and it's been a real challenge.

Senator FRANKEN. Since you held this for me, and I'm the last person, can I go over this? Or is that the reason for us to go? It's one way or the other.

The CHAIRMAN. We've got to go vote again.

Senator FRANKEN. Well, let's go vote again.

The CHAIRMAN. No, go ahead.

Senator FRANKEN. I was wondering—like in France, I thought that you have on your card a chip that basically has your healthcare records in it. Is that not true, or is that a limited thing?

Ms. ADLER-MILSTEIN. There are places—and Germany is experimenting with it as well—where you have a basic set of your information, and that at least gives the provider the ability to see that when you go from place to place. They've had relatively low patient opt-in rates, and even when the provider goes to see that information, it doesn't always seamlessly connect with that.

So if the provider wants to then keep that information in their system from there on out, they would need to spend time entering

it. Again, there are solutions to this, but no one has the sort of vision of seamless—I show up and my data is there when it's needed.

Senator FRANKEN. Thank you.

Again, Mr. Chairman, thank you for this important hearing, and thank you for holding it for me.

The CHAIRMAN. Thank you for making the special effort to get here.

I want to thank the witnesses for coming and, again, for adjusting your schedules for our snow day. You've gotten the interest of the committee. I anticipate additional hearings or at least additional activities. We'd like to also hear from the administration about this in a subsequent hearing. They have some things they'd like to say.

What I'd like to ask you to do as you reflect on this is to be very specific about what you think we should do. You have been in some cases. To give you an example, four of us, two Democrats, two Republicans, asked a group of higher education people, who were complaining about over-regulation, to give us a number of things, specifically, that we could do, and give us the 10 that would make the most difference.

They actually did that, and it's very helpful, and we're preparing bipartisan legislation to actually get it done. If you could help us think of ways to get specific suggestions of how we're going to fix the problem—start one, two, three, four—that's what we need to know. Not everything needs to be done by the Congress. Some of it can be done administratively, and if that's the case, that can be said as well.

We've been focusing on this for a couple of years. We have Senators like Senator Franken, Senator Whitehouse, Senator Cassidy, Senator Burr, and others who want to pursue it. We'll be spending more time on this issue as we go forward.

The hearing record will remain open for 10 days. Members may submit additional information within that time if they would like.

Thank you for being here. The committee will stand adjourned.
[Additional material follows.]

ADDITIONAL MATERIAL

EPIC SYSTEMS CORPORATION,
VERONA, WI 53593.

DEAR SENATOR ALEXANDER, I thank you for the opportunity to testify on March 17th during the HELP Committee's hearing entitled, "America's Health IT Transformation: Translating the Promise of Electronic Health Records into Better Care." At the end of the hearing, you asked the witnesses to send you a list of ideas that could help the government in its efforts to increase interoperability and foster adoption of electronic health record (EHR) technology by "enabling rather than mandating." Below are four suggestions that we believe will help:

1. Use the existing cross-industry definition of interoperability rather than support new definitions based on complete and open access that are unmanageable, unsafe and unnecessary to achieve national goals.

2. Support public-private initiatives that are already working on solving key interoperability problems; don't support new government-centered governance.

3. Push to normalize public health reporting across the States.

4. For maximum adoption and benefit, be descriptive rather than prescriptive

Use the existing cross-industry definition of interoperability rather than support new ones that are unmanageable, unsafe and unnecessary to achieve national goals.

To improve safety, the coordination of care and bring down costs, we need providers to be automated and interoperable. There is already a good definition of interoperability that is used by HHS and the FCC and which was put forth by The Institute of Electrical and Electronic Engineers (IEEE). It provides the generally accepted definition of interoperability as "the ability of two or more systems or components to **exchange** information and to **use** the information that has been exchanged."

In the healthcare context, this means the ability for different systems to exchange data and for that data to appear meaningfully in a care provider's workflow as actionable information. The data could be part of a patient's record exchanged between an EHR and an ancillary system or device. Or the data could be a more complete patient record exchanged between two EHRs or an EHR and a personal health record system managed by a patient.

This simple definition built around the ability to exchange and use data is manageable, reportable and enforceable. Expanded definitions of interoperability are not.

Recently there has been a push to redefine interoperability in healthcare as **access** to patient health information. For example, the draft legislation put forth recently by Congressman Burgess (some of which appears in the SGR Bill) attempts to redefine interoperability variously as "open access," "complete access" and "does not block access." However, access and interoperability are different concepts. Attempts to radically open up EHR systems to a wide variety of actors has serious implications for privacy, cybersecurity oversight, infrastructure costs, and the public's trust.

By focusing on interoperability as opposed to access, we can avoid introducing unwieldy expectations that create either dangerous scenarios or marginal value.

Support public-private initiatives that are already working to solving key interoperability problems.

The healthcare industry has realized that beyond technical standards, appropriate governance of interoperability networks is critical to their success. This has been borne out in the development of our network, Care Everywhere, with Healthway's eHealthExchange, which includes the DoD, VA, and Social Security Administration, as well as in numerous State and regional health information exchanges. What is also clear is that ubiquitous, *nationwide* interoperability will require *national* governance so that all of the networks can interoperate with each other. We were pleased to see this recognition in ONC's recently published Interoperability Roadmap.

What was not mentioned in the Roadmap is that there is already a public-private collaborative well down the road of creating such a national governance framework: Healthway's Carequality. On the contrary, based on the Roadmap itself and a roundtable ONC recently held on governance, ONC seems poised to create a governance superstructure from scratch. If they were to do so, this would create market

confusion as well as perpetuate a reliance on government to administer interoperability networks.

We were pleased to see the ONC recognize Healthway at the recent Health Information Management Systems Society (HIMSS) conference. The ONC should support the activity already underway in Carequality and other existing bodies and public-private collaboratives.

Push to normalize public health reporting across the States.

Bidirectional communication between Electronic Health Records and State and Federal registries, such as immunization registries, is necessary to deliver safe and efficient care and to better manage the health of populations. However, there are no common standards and capabilities that registries in different States currently have. This requires EHR developers and care providers to build and maintain dozens of different interface formats at great ongoing expense. Additionally, some registries can be queried for information by an EHR while others are only an information destination. The Federal Government should recommend standards and minimum capabilities for State registries and incentivize their adoption.

For maximum adoption and benefit, be descriptive rather than prescriptive.

Rather than mandate how systems are built and used, describe the results you want and incentivize the desired outcome. For example, one way to reduce costs of care is to eliminate duplicate laboratory and radiological testing. A prescriptive measure might be to mandate the use of EHR technology that alerts a physician when she is about to place an order for a test that the EHR knows is a duplicate. This may or may not solve the problem: the EHR may not know about a prior test performed at another facility. And if the physician bypasses the alert, there's no downstream check (for example in the lab itself) to make sure that the test is not performed unnecessarily.

A descriptive approach with appropriate incentives might be for CMS to declare that they no longer will pay for duplicate testing. This would incentivize the entire health system to innovate ways to avoid such tests. It would also incentivize EHR developers to find novel ways to support clinical decision making. Further, it would incentivize care providers to use the interoperability technology many of them already have in order to find tests that took place in other facilities.

I hope these recommendations are helpful. As always, please do not hesitate to call on me to contribute further in any way.

Sincerely,

PETER DEVAULT,
Vice President, Epic,
peter@epic.com
(608) 271-9000.

RESPONSE BY JULIA ADLER-MILSTEIN TO QUESTIONS OF SENATOR ALEXANDER,
SENATOR BURR, AND SENATOR WARREN

SENATOR ALEXANDER

Question 1. With the rapid digitization of health data, is the industry effectively protecting personal health information?

(a) What additional resources would be valuable in encouraging organizations to prioritize health data security?

(b) Is the government offering proper guidance and/or resources to inform industry decision making relative to data security?

(c) Is threat information readily shared throughout the industry? Or with other industries?

(i) If so, is the information useful?

(ii) If not, what incentives could be offered for organizations to share threat information with other organizations?

Answer 1. Health data security is not my area of expertise and so these questions are best answered by someone better versed with the current state of practice. I do know that it is an area in which the Office of the National Coordinator for Health IT (ONC) is offering guidance and they have issued a "Privacy and Security Guide" with resources for provider organizations.¹ In addition, the most recently issued Stage 3 Meaningful Use criteria include a domain that seeks to ensure protection of patient health information through appropriate technical, administrative, and

¹<http://www.healthit.gov/sites/default/files/pdf/privacy/privacy-and-security-guide.pdf>.

physical safeguards. Specifically, attesting providers must conduct an annual security risk analysis to ensure that data security, including encryption of stored data, meets standards set by Federal regulations. This is estimated to take 6 hours and, since providers are not data security experts, its success seems heavily dependent on whether the guidance can be both robust and simple to follow.

Overall, my sense is that there is more that could be done to prevent PHI breaches, but it is not clear whether these actions are cost-effective. This is because of limited evidence that breaches result in harm. While the number of breaches reported to HHS has increased over time and is expected to continue increasing, the effects of these breaches, and subsequent costs to identify and repair the security problem, are difficult to estimate. Currently, all breaches of PHI must be reported to HHS. Reports for breaches involving 500 or more individuals must include detailed information to pinpoint the data security vulnerabilities. To date, the vast majority of breaches seem to be occurring as a result of “poor data hygiene” (i.e., theft of portable electronic equipment, unauthorized access, or improper disposal) as opposed to intentional data hacking.² This is to be expected given the large number of healthcare professionals who come into contact with PHI. Addressing the human behavior element is, unfortunately, far more challenging than addressing a purely technical problem.

Question 2a. Half of the Nation’s physicians have chosen not to participate in the Meaningful Use program to date. How can this change?

Answer 2a. If we look at the trends in terms of physician adoption of EHRs and meaningful use (MU) attestation rates, it does not appear that we are on the flat of the curve.³ In fact the number of Medicaid eligible physicians who have registered for MU has been increasing linearly from January 2011 to January 2015, showing that there is a steady growth of eligible professionals who seem to intend to attest each quarter.⁴ Given this, I don’t think we are at the point of needing to say that the MU program needs a wholesale overhaul. But we do need to consider why so many physicians have chosen not to participate, in order to try to speed the rate of response.

When assessing physician participation in MU, it is important to differentiate between those who cannot attest due to cost/resource reasons and those who could but choose not to because they do not find it valuable to do so. Solving the first problem is, relatively speaking, easier. We could make available more resources to help physicians to adopt. This strategy has proven successful with programs like the Regional Extension Center Program. And I feel that there is more that could be done to take what we’ve learned from past implementations and better deploy it to reduce the cost of future implementations. Addressing the second problem—how to make MU participation feel more valuable—is trickier because the MU program has to balance the need to identify a national set of criteria (both for simplicity of understanding and administering the program, and ensuring societal benefits from it), with the greater physician response that is likely to emerge from allowing more customization of the criteria to better meet the varied needs of physicians (particularly for specialists). With the Stage 3 criteria, CMS/ONC are trying to structure them in a way that allows more customization (i.e., picking 2 of 3 possible criteria), and this could perhaps go even a bit further (i.e., expanding the possible criteria).

Question 2b. Continually, physicians call for the all-or-nothing nature of the program to be rethought. Why are rulemakers so hesitant to adjust this rigid mandate?

Answer 2b. First, I think it is important to acknowledge that there is a reasonable degree of flexibility built into the program, evident in the core versus menu measures, a qualification period that gives organizations the flexibility to meet requirements within any 90-day window, and staging the criteria to ramp up over time. I also think that there is strong justification for having attestation thresholds; they define a minimum level of utilization that is needed in order for there to be a real shift from paper to electronic processes, and for EHR benefits to be realized at a meaningful level. For a subset of measures, thresholds are also needed to realize network effects—in particular, for health information exchange. In addition, having a set threshold reduces the complexity of administering the program (for CMS) and understanding it (for providers). Finally, data from Stage 1 MU attestations reveal

² Liu V, Musen MA, & Chou T. (2015). Data breaches of protected health information in the United States. *JAMA*, 313(14), 1471–73. <http://doi.org/10.1001/jama.2015.2252>.

³ <http://dashboard.healthit.gov/quickstats/pages/FIG-Medicare-Professionals-Stage-One-Meaningful-Use-Attestation.php>.

⁴ http://healthit.gov/FACAS/sites/faca/files/HITPC_Data_Analytics_Update_2015-04-07_FINAL.pdf.

that very few attestors are right at the threshold. Most of those attesting well exceed the thresholds.

That said, we can all agree that it feels profoundly unfair for a provider to get no compensation for being just shy of a cutoff for a single measure. It would be worth exploring whether there could be a provision that allows a provider to fall just short (e.g., within 5 percent) of the threshold on a single measure, and still receive the full incentive.

Question 2c. Are there any additional resources, other than additional incentive payments, that the Federal Government should provide to increase physician participation?

Answer 2c. We have heavily invested in Regional Extension Centers and they have the most experience with helping physicians adopt EHRs. I think it would be valuable to pursue Regional Extension Centers version 2.0 in which there are stronger incentives for them to take what they have learned over the past 4 years, and demonstrate that they can help providers adopt EHRs more quickly, less expensively, and with less disruption. A second factor that is likely to help is to continue the push to streamline requirements of various Federal programs. This is proposed in Stage 3 MU and is included in the new SGR approach. If MU is clearly tied to broader healthcare delivery reform efforts that physicians are pursuing, this will help it feel more valuable. To the extent that this could be done more broadly across payers, it would be even better.

Question 3a. The goal of HITECH was to improve patient care while decreasing costs—has there been a change in the cost to health care because of HITECH?

Answer 3a. It is very difficult to attribute the healthcare cost reductions we have seen over the past few years specifically to HITECH. Because HITECH is a national program, there is no “control” group to which to compare outcomes. In addition there are many other health reform (and broader economic) changes occurring in parallel, notably the ACA. If the experience in other industries, most of which adopted IT in the 90s, is any indication, the answer to this question is that: (1) benefits from IT take time (up to a decade), and (2) during that time, some organizations figure out how to use IT well and others do not. So we will undoubtedly get some benefit from the HITECH investment, but it could be greatly increased by figuring out how to minimize the number of provider organizations that never learn how to take advantage of EHR capabilities to improve the care they deliver.

Question 3b. Since EHRs have become more common place, are there any metrics of public health improvement being observed?

Answer 3b. If we limit our evaluation to the subset of measures that specifically characterize public health domains (e.g., disease surveillance, immunization rates, cancer and lab data), there is scant evidence of improvement in “hard outcomes” from EHRs. The greatest impact of EHRs so far is on key processes that we would expect to facilitate improvement in outcomes. Most notably, there has been a large increase in the volume of data reported to public health departments. Electronic reporting of public health data greatly improves the timeliness and completeness of data, while reducing variability in data quality and error. Public health data is used primarily to identify and track disease outbreaks (including contact tracing) and track disease trends over time. However, there are still some gaps to close in terms of the ability of public health departments to receive electronic public health data. As of 2014, 21 percent of hospitals attesting to Stage 2 MU were unable to submit syndromic surveillance data electronically because their local public health department was unable to receive them, 15 percent were unable to submit lab results electronically, and 9 percent were unable to submit immunization data.⁵

EHRs also have the ability to enhance public health by allowing providers to access repositories that include public health data. This two-way exchange of data may be extremely effective for clinical care in public health clinics for certain chronic conditions such as tuberculosis or STDs, or identifying resistance patterns to certain drugs. It may also assist providers in identifying which of their patients are in need of immunizations.⁶ However, significant improvements in EHR interoperability and usability are necessary for these benefits to be fully realized.⁷ In addition EHR

⁵ http://www.healthit.gov/sites/default/files/databrief22_hospitalreporting.pdf.

⁶ Shapiro, J.S., Mostashari, F., Hripcsak, G., Soulikis, N., Kuperman, G. Using Health Information Exchange to Improve Public Health. *American Journal of Public Health*. [Article]. 2011;101(4):616–23.

⁷ Dombkowski, K.J., Clark, S.J.. Redefining Meaningful Use: Achieving Interoperability with Immunization Registries. *American Journal of Preventive Medicine*. 2012;42(4):e33–e5.

data can be used to assist in emergency situations. For example, in the aftermath of Hurricane Sandy, patients leveraged the New York State Health Information Exchange to easily grant permission for providers to access their health records.⁸

The primary challenge to leveraging EHRs for public health purposes is assisting public health departments to modernize their health IT infrastructure. Under HITECH, public health departments were not provided with the resources to do so, and 72 percent of local public health departments identified funding as a significant barrier to system development.⁹ This is particularly problematic because as they receive an increasing amount of data, they may not be able to fully leverage it to improve public health. For example, in 2005, only eight State public health departments had the ability to electronically report lab results related to public health issues (e.g., lead, HIV, STD). By 2014, 48 States supported this capability.¹⁰ However, we do not have evidence that this increase in reporting has had any impact on public health outcomes.

Question 3c. What can government do to further the goal of using this technology to decrease costs?

Answer 3c. If the target is specifically cost reduction, I believe that the most effective way to use HIT to reduce wasteful spending is to facilitate health information exchange. If done well, HIE would help reduce duplicative utilization (such as redundant lab tests), prevent avoidable errors, and improve care coordination. However, as you know, HIE progress has been slow and there are a range of barriers that need to be addressed.

In addition, clinical decision support (CDS) can also be tailored to targeted cost reduction. Thus far, CDS has largely focused on ensuring appropriate care (i.e., recommending immunizations, preventing medication errors) but it could be instead focused on detecting misuse and waste, as well as on promoting cost-effective treatments, both of which would reduce costs. A related idea is using EHR data to profile physicians as this feedback may lead to changes in practice patterns that could reduce spending. Many physicians do not realize that they are higher than their peers in terms of how often they order high-cost tests, or admit patients from the ED into the hospital. This could be bolstered by not only showing physicians their relative performance data, but also using algorithms to help them identify when they are making a decision that might deviate from their peers.

Question 4a. What are the biggest barriers inhibiting nationwide interoperability?

What is the biggest barrier blocking providers from sharing information with each other?

What is the biggest barrier blocking patients from sharing their information with different providers?

Answer 4a. At the highest level, the challenge stems from two interrelated dynamics: EHR vendors earn substantial revenue from the lack of interoperability (they can design their systems however they think best, and then charge for custom interfaces) and provider organizations don't have a clear business case for being interoperable (therefore, they are not willing to pay the high costs or demand interoperability out of the box). Patients simply haven't shown much interest in being the stewards of their own health information—so patient-facing solutions such as portable personal health records do not appear to be a viable national alternative to work around the lack of interoperability among providers. We therefore have to decide if we want to tackle the problem by changing the incentives for the EHR vendors, for the provider side, or for both. Targeting vendors seems to be the most effective option—there are policy levers in place and it is a more clearly defined, manageable group. ONC has proposed a good set of first steps, as outlined in their recent report on health information blocking.¹¹ There are some challenges, however, in operationalizing the steps described in the report. Nonetheless, there is an opportunity for Congress pass legislation that gives ONC and other Federal agencies more ability to reign in the behavior of those engaging in information blocking.

Question 4b. Is ONC's nationwide Interoperability Roadmap a reasonable guide to widespread interoperability?

⁸Shapiro, J. S., Mostashari, F., Hripcsak, G., Soulakis, N., & Kuperman, G. (2011). Using Health Information Exchange to Improve Public Health. *American Journal of Public Health, 101*(4), 616–23. <http://doi.org/10.2105/AJPH.2008.158980>.

⁹Linert, L. & Sundwall, D. (2012). Public health surveillance and meaningful use regulations: A crisis of opportunity. *American Journal of Public Health, 102*(3), e1–e7.

¹⁰<http://www.healthit.gov/sites/default/files/phissuebrief04-24-14.pdf>.

¹¹http://www.healthit.gov/sites/default/files/reports/info_blocking_040915.pdf.

Answer 4b. The Interoperability Roadmap offers a set of guiding principles that ONC has committed to follow when designing policies to promote interoperability. Efforts are currently underway to figure out how best to operationalize these principles. Currently, the ONC is focusing on key issues of data governance, but much work remains in terms of gaining agreement on next steps and turning it into a true “guide.”

Question 4c. The lack of enforceable, consistent standards has been an industry concern. Does the 2015 Interoperability Standards Advisory fill the void? If not, what else can or should the Federal Government do to ensure a single set of standards is used within the industry?

Answer 4c. I would also encourage you here to consult someone with deep expertise on standards. In my opinion, the issue seems to be more related to generating broad consensus on an *effective* set of standards, not just a consistent set of standards. Effective standards need to be detailed and prescriptive enough to enable receipt of data without extensive customization; however, standards that allow for flexibility and optionality are easier for vendors to implement. A single set of effective standards would have to balance both of these needs, and could be developed through closely coordinated work among various participants to make key decisions on the tradeoffs. To do this, key use cases for interoperability must be identified and the diverse needs and interests of stakeholders have to be addressed to achieve consensus. Furthermore, there must be a mechanism through which participants are held accountable for their decisions, such that they have an incentive to adhere to the consensus solution.¹²

Question 4d. Patient matching is a consistent concern raised by industry. How can government and industry ensure that patient data can be reliably shared across care settings?

Answer 4d. Patient matching is another area in which ONC is issuing guidance.¹³ Specifically ONC has identified consistent implementation of best practices across healthcare organizations as key to successful patient matching across systems. These best practices include: standardizing patient identifying attributes (possibly by enforcing these standards through EHR certification criteria), encouraging patients to keep their identifying information up to date, and systematically verifying patient identifying information. ONC also recommends exploring the use of other types of patient information as alternative options for patient identifiers. These are good areas, but the key is consistent use and ensuring that all stakeholders put effort into maintaining data integrity. As with data security, this requires organizational and individual behavior change, which is not easy. Another suggestion is to make clear that HHS is allowed to experiment with national patient identifiers, which (somewhat counter-intuitively) have the potential to be more secure than the current approach of using name, birth date, etc.

Question 5. Physicians consistently voice concerns with product usability. What can be done to foster user-centered design rather than technology built to meet regulatory and billing mandates?

In the near term, we should consider including in EHR certification a key set of usability metrics, and either require that they be met, or publicly report on their performance. I feel that user-centered design is tricky because it is not clear that there is consensus across users (particularly in different specialties, with different patient panels, etc.) on what constitutes optimal design. A promising medium-term direction is to work toward a substitutable app-based model for EHRs, like the one advocated by SMRT (smarthealthit.org). This would allow users to configure displays and functions to a much greater extent (like we have a choice of map applications on our smart phones). Ultimately, we don’t want a single vendor to be in charge of the user experience. We want each physician to be able to choose what they like best and have a robust “market” for creating the best apps to improve user experience. Thinking longer term, I think we could learn a lot from allowing CMS to experiment with relaxing regulatory and billing mandates (i.e., creation of safe harbors) to see what can happen in terms of improving EHR usability when EHRs can be wholly focused on supporting clinical care.

¹² Email Correspondance with Dr. Walter Sujanky, Sujanski & Associates; see Sujansky, W. V., Overhage, J. M., Chang, S., Frohlich, J., & Faus, S. A. (2009). The development of a highly constrained health level 7 implementation guide to facilitate electronic laboratory reporting to ambulatory electronic health record systems. *Journal of the American Medical Informatics Association: JAMIA*, 16(3), 285–90. <http://doi.org/10.1197/jamia.M2610>.

¹³ http://www.healthit.gov/sites/default/files/patient_identification_matching_final_report.pdf.

Question 6. A lack of a “business case,” both for vendors and providers, is often cited as a hindrance to information sharing. What can be done to create the “business case” to generate interoperability?

Answer 6. We need to decide if we want to tie incentives to the process (like MU) or the outcome (stop paying for outcomes that we think could be avoided with good interoperability). Right now we are doing a bit of both but neither approach has been very effective. Going back to answer (1), I think the key to promoting the business case for interoperability is bringing down the cost for providers. I think we are clearly on a path toward stronger pay-for-value incentives, and while in theory, this should lead to higher provider willingness to pay for interoperability, if the cost of interoperability is high, providers may decide to invest in other areas. Bringing down the cost of interoperability could also speed provider willingness to take on more risk-based contracts.

Question 7a. Stakeholders often voice concerns that the electronic health record product as certified is quite different from the products deployed in individual care settings. How can we ensure that the certification program delivers capable technology not just upon initial testing but once deployed in the field?

Answer 7a. This is important and there is a lot to be said for considering extending certification to include post-market surveillance. Some of these ideas are discussed in the health information blocking report. Currently, ONC implements post-market surveillance through ONC-Authorized Certification Bodies (ONC-ACBs). ONC-ACB’s have been asked to prioritize the monitoring of EHR safety-related capabilities and assuring that vendors have processes in place for addressing user concerns.

One option that has been suggested for improving post-market surveillance of EHR products is to implement a centralized reporting system where end-users can report issues with their EHR systems, especially those concerning patient safety, for further analysis and followup by an ONC committee. In this way, issues that are common across EHRs can be identified and addressed, and individual vendors can also be held accountable for addressing user concerns.¹⁴ Random auditing seems like another approach to post-market surveillance that could be quite effective and create minimal opportunity for vendors to meet the certification standards while failing to deliver a well-functioning product in the field.

Question 7b. How can we create transparency in cost, satisfaction and vendor responsiveness?

Answer 7b. As mentioned above, this issue could be addressed through systematic data collection and public reporting. A public reporting model, coupled with consequences for bad vendor behavior (such as financial penalties for not addressing consumer concerns with a certain time period) are likely to incentivize vendors to increase responsiveness.

Question 7c. Does ONC have the proper resources to employ enhanced testing capabilities relative to the Certification Program?

Answer 7c. The testing is performed by ONC certified labs, and so it seems that with more resources, their scope could be extended to include post-market surveillance.

SENATOR BURR

Question. Your testimony states that even though there has been a large uptake of EHR systems, only 20 to 30 percent of physicians and hospitals exchange electronic health data with other providers. What are the biggest barriers to the interoperability of these systems? What incentives need to be in place that are not today?

Answer. Please see answers 4 and 6 above.

SENATOR WARREN

Question 1. As you know, our electronic health record systems often have trouble matching a particular scan or a test result to the right patient, and those mismatches endanger patients. As more providers move to electronic health records and databases contain records for more patients, the risk of mismatching information to patients only goes up. A 2008 RAND Corporation study estimated that even with database management software and personnel dedicated to preventing these mistakes, hospitals mismatch patient information about 8 percent of the time. A

¹⁴Sittig DF, & Classen DC. (2010). Safe electronic health record use requires a comprehensive monitoring and evaluation framework. *JAMA*, 303(5), 450–51. <http://doi.org/10.1001/jama.2010.61>.

2012 survey conducted by The Council of Health Information Management Executives found that one in five physicians encountered mismatched information that that put a patient at risk at least once over the previous year. Accurately matching health information to the correct patient record is critical to creating an electronic health information exchange that works. How can we reduce these errors?

Answer 1. Please see answer 4D above.

Question 2. Today, 90 percent of hospitals have certified that they meaningfully use electronic health records. And in some areas, hospitals and providers have taken the next step of creating regional health information exchanges to share patient information. This sharing has enormous benefits to patients. A 2014 study performed by University of Michigan researchers found that Emergency Departments that were connected to a regional health information exchange ordered fewer duplicate tests—patients in these Emergency Departments were 59 percent less likely to have a redundant CT scan, 44 percent less likely to get a duplicate ultrasound, and 67 percent less likely to have a duplicated chest x-ray compared to patients who went to hospitals that were not connected to a regional health information exchange. We've made real progress, but we can't get the full value of electronic health records until hospitals and providers from around the country can exchange patient information with each other. To what extent would expanding these small regional systems to a nationally interoperable electronic health record system reduce duplicative tests and how much money could that save our health care system?

Answer 2. There have been two estimates of the savings from nationwide interoperability. A 2005 Rand study found that fully interoperable EMR systems could generate savings of \$142–\$371 billion nationwide; this estimate includes efficiency and safety savings, as well as short- and long-term effects on patient health and productivity. Of that estimate, \$1.3–4.6 billion would be generated from efficiency savings in lab tests.¹⁵ A 2005 Partners HealthCare study estimated savings of \$77.8 billion a year that could be generated through the implementation of a nationwide interoperable exchange network that includes payers and public health departments as well as labs, radiology centers, pharmacies, physicians, and hospitals. This study estimated that an average of \$17.41 per person could be saved from reductions in redundant lab tests per year.¹⁶

What is not clear is how to best realize these savings—and how to interconnect the varied regional systems. ONC has laid out a nationwide interoperability roadmap, but we are in the early stages of operationalizing it. Response to Question 4B above speaks more to the roadmap.

RESPONSE BY ROBERT L. WERGIN, M.D., FAAFP TO QUESTIONS OF SENATOR ALEXANDER, SENATOR BURR, SENATOR CASSIDY, SENATOR MURRAY, AND SENATOR WARREN

SENATOR ALEXANDER

Question 1a. With the rapid digitization of health data, is the industry effectively protecting personal health information?

Answer 1a. Privacy of health information is of the utmost concern to family physicians. A confidential relationship between physician and patient is essential for the free flow of information necessary for sound medical care. Only in a setting of trust can a patient share the private feelings and personal history that enable the physician to comprehend fully, to diagnose logically, and to treat properly. The American Academy of Family Physicians (AAFP) supports full access by physicians to all electronic health information. Medical information may have legitimate purposes outside of the physician/patient relationship, such as billing, quality improvement, quality assurance, population-based care or patient safety. However, the AAFP believes that patients and physicians must authorize the release of any personally identifiable information to third parties.

Electronic health information communication systems must be equipped with appropriate safeguards (e.g., encryption, message authentication, user verification) to protect the physician-patient confidentiality. Individuals with access to electronic systems should be subject to clear, explicit, mandatory policies and procedures re-

¹⁵ Hillestad, R., Bigelow, J., Bower, A., Girosi, F., Meili, R., Scoville, R., & Taylor, R. (2005). Can Electronic Medical Record Systems Transform Health Care? Potential Health Benefits, Savings, And Costs. *Health Affairs*, 24(5), 1103–17. <http://doi.org/10.1377/hlthaff.24.5.1103-17>.

¹⁶ Walker, J., Pan, E., Johnston, D., Adler-Milstein, J., Bates, D. W., & Middleton, B. (2005). The Value of Health Care Information Exchange And Interoperability. *Health Affairs*. <http://doi.org/10.1377/hlthaff.w5.10>.

garding the entry, management, storage, transmission and distribution of patient and physician information.

The AAFP supports the use of patient record information for primary care research, biomedical and pharmaceutical research and other health research, provided there is appropriate protection for research subjects, i.e., Institutional Review Board approval.¹

In a January letter to the U.S. Department of Health and Human Services (HHS), the AAFP indicated that we have seen a significant increase in adoption of health information technology (HIT) by family physicians and we are beginning to see a robust network of secure, interoperable exchange via Direct, supported by a security and trust framework, accreditation programs, and trust anchor services established by DirectTrust under the Exemplar Health Information Exchange (HIE) Governance Program's Cooperative Agreement with the HHS Office of the National Coordinator for Health IT (ONC).² More could always be done, but we must balance confidentiality and integrity of data with appropriate access.

Question 1b. What additional resources would be valuable in encouraging organizations to prioritize health data security?

Is the government offering proper guidance and/or resources to inform industry decisionmaking relative to data security?

Answer 1b. Physicians would benefit from resources that help promote security in ways that do not reduce efficiency or work flow. The Federal Government could better support physicians, and small practices, in particular by sharing best practices and providing simple tools that would help physicians learn from mistakes or implement secure HIT in a cost-effective manner. For example, a 2013 article published in *Family Practice Management* discussed many of the concerns physicians face and pitfalls to avoid.³ The article noted that many physicians believe sharing brochures would encourage patients to use the portal, but ultimately other methods proved more effective. Also, some practices learned how an electronic messaging set up can ensure that offices follow the best methods for ensuring patient information will not be compromised. Providing resources for effective ways to satisfy Meaningful Use requirements regarding the use of the patient portals and secure messaging would also be helpful.

Question 1c. Is threat information readily shared throughout the industry? Or with other industries?

If so, is the information useful?

If not, what incentives could be offered for organizations to share threat information with other organizations?

Answer 1c. Currently, there is no system for sharing threat information among organizations. Perhaps the creation of an information working group might provide a forum for greatly needed dialog on privacy and security issues. Such a forum should include vendors, medical associations, and patient advocates.

Question 2a. Half of the Nation's physicians have chosen not to participate in the Meaningful Use program to date. How can this change?

Answer 2a. Several published reports indicate that many physicians opt-out of the program due to the administrative burden of the requirements they are required to satisfy. These views were reflected in a 2014 Medscape Electronics Health Record (EHR) poll.⁴ The survey data suggest that physicians are concerned that Meaningful Use requirements interfere with the doctor-patient relationship and interfere with how they can effectively and efficiently practice medicine.

As an AAFP leader, I travel across the country and consistently hear physicians' concerns about cost and workflow. As I mentioned in my testimony, lowering the Meaningful Use requirements and reducing penalties would help alleviate some of those concerns. In addition, for those physicians who are later in their careers, the program is simply viewed as too burdensome and expensive for their practices.

This issue could be addressed by requiring certified EHR systems to be organized in cooperation with physician experts. In addition, HHS could use its authority to ensure that systems achieve greater degrees of usability and interoperability. Both will be important issues to consider as the Meaningful Use Stage 3 regulatory proc-

¹AAFP Policy Confidentiality, Patient/Physician Relationship, 2013, <http://www.aafp.org/about/policies/all/patient-confidentiality.html>.

²Blackwelder, Reid, AAFP letter to Karen DeSalvo, January 15, 2015, http://www.aafp.org/dam/AAFP/documents/advocacy/health_it/interoperability/LT-ONC-HITPlan-011515.pdf.

³Rachel Franklin, M.D., *Fam Pract Manag.* 2013 Jan-Feb;20(1):21-24.

⁴Medsape EHR Report, July 14, 2014, accessed online: <http://www.medscape.com/features/slideshow/public/ehr2014#24>.

ess moves forward. Under current proposals regarding Stage 3, physicians will face more complex requirements, and some will be attesting for the first time. Also, new certification requirements will be in place, which will require costly upgrades to their EHRs. In addition to these challenges of achieving Stage 3, there is uncertainty on what will be required to successfully participate in the Merit-Based Incentive Payment (MIPS) approved as part of the *Medicare Access and CHIP Reauthorization Act* (MACRA). Given these challenges and uncertainty, a strong consideration of delaying Meaningful Use Stage 3 is needed until the MIPS regulations are written and approved.

Although MIPS adjustments will not go into effect until 2019 and Meaningful Use penalties will sunset in 2019, implementing the new law presents an opportunity to address numerous HIT priorities. Currently, ONC is reviewing both the proposed rule for Meaningful Use Stage 3 and the EHR certification requirements. New standards will be in place that will harmonize Meaningful Use, Physician Quality Reporting System (PQRS) and the Value-Based Modifier.

MACRA also requires HHS to establish metrics by July 1, 2016, for measuring how hospitals and providers progress in moving toward the goal of widespread interoperability of EHR systems. The new law requires the administration to submit a report to Congress if this goal has not been met by December 31, 2018. In this report, HHS would be required to make recommendations for achieving this goal, such as adjusting payments and decertifying certain EHR technology. MACRA also requires the Meaningful Use Program to require attestations by eligible hospitals and physicians that they have “not knowingly and willfully taken action (such as to disable functionality) to limit or restrict the compatibility or interoperability of the certified EHR technology.” Finally, HHS is also required to submit a report to Congress (within 1 year from the date of enactment of MACRA) on methods to aid providers in comparing and selecting certified EHR technology. This new policy is a welcome change to help harmonize requirements with new Medicare policies. While physicians and hospitals work to prepare for a myriad of policy and regulatory changes focused on patient care coordination, the administration and Congress should strongly support Meaningful Use Stage 3 delay.

Question 2b. Continually, physicians call for the all-or-nothing nature of the program to be rethought. Why are rulemakers so hesitant to adjust this rigid mandate?

Answer 2b. AAFP officials have been informed that there is limited executive branch authority to relax certain Federal standards. We urge Congress to authorize the Centers for Medicare and Medicaid Services (CMS) to allow for partial credit for achieving components of Meaningful Use by eligible professionals. Congress should also encourage HHS to incorporate more flexibility into the requirements.

Question 2c. Are there any additional resources, other than additional incentive payments, that the Federal Government should provide to increase physician participation?

Answer 2c. Any changes that would make EHR/Health IT use less burdensome would increase physician participation. While eligible professionals are penalized for not performing health information exchange under Meaningful Use, HIT vendors are not. Eligible professionals are dependent on their HIT vendor to be interoperable and support health information exchange. We believe that vendors should also see penalties if they are not interoperable. We would urge Congress to explore how vendor financial penalties could be used to further interoperable HIT.

We urge Congress to request that current Medicare documentation policies, which were developed in an era of paper records and fee-for-service, be updated to reflect the new era of electronic records and value-based payment.

We would urge Congress to consider funding additional research into the science of practice for primary care with the purpose to better understand how best to design, implement, and use HIT in practices focused around the new goals of value-based payment.

During the hearing, Senators mentioned a desire to “reboot” the *Health Information Technology for Economic and Clinical Health Act* (HITECH). The AAFP agrees with that sentiment, particularly regarding Clinical Quality Measures (CQM). It is an AAFP principle for physician performance measurement that the purpose of performance measurement should be to identify opportunities to improve patient care so that these programs lead to better-informed physicians and consumers.⁵ Our policy on electronic health records is such that we believe every family medicine practice should leverage health information technology, such as EHRs and related tech-

⁵ Stream, Glen, Letter to Margaret Tavenner, April 5, 2013—http://www.aafp.org/dam/AAFP/documents/advocacy/health_it/emr/LT-CMS-ClinicalQualityMeasures-040513.pdf.

nologies needed to support the patient-centered medical home.⁶ These capabilities can support and enable optimal care coordination, continuity, and patient centeredness, resulting in safe, high-quality care and optimal health of patients, families, and communities. Physicians remain concerned that the current CQM fail to reflect why HIT is meaningful for facilitating care coordinate and improving health outcomes. The CQM should be updated to improve the clinical discipline that the measures evaluate, rather than meeting an arbitrary reporting requirement imposed by either the quality improvement program or a vendor data submission process.⁷

Question 3a. The goal of HITECH was to improve patient care while decreasing costs—has there been a change in the cost to healthcare because of HITECH?

Answer 3a. The evidence is unclear if HITECH has changed healthcare costs. New research, however, does suggest that it can help facilitate team-based systems that have shown to produce modest reductions in healthcare spending.⁸ In addition, a study published in the *Annals of Internal Medicine* indicated that physicians who implemented a medical home and used electronic health records experienced improved quality scores compared to physicians who used paper records.⁹

Indeed, we know that the potential exists to lower costs and improve quality. A study to further evaluate the HITECH's impact on healthcare costs would be beneficial. Furthermore, we need an infrastructure to establish a research agenda around the science of practice (i.e., what makes for an effective and efficient work environments and system designs).

Question 3b. Since EHRs have become more common place, are there any metrics of public health improvement being observed?

Answer 3b. The AAFP cannot report specific public health improvements at this time, but the Center for Medicare and Medicaid Innovation (CMMI) is examining patient-centered health innovations and the use of technology.¹⁰ For example, its Comprehensive Primary Care initiative is engaging 500 practices and 2.5 million patients. During a recent meeting, health experts observed that programs are lowering costs and improving health outcomes, including reductions in mortality rates.¹¹ Further, there are two observations worth highlighting. First, electronic records are capturing crucial patient data that is not being extracted. Second, technology is lagging behind reforms in healthcare delivery. As I mention in my testimony, technology still holds tremendous potential for health delivery. CMMI may possess evidence to demonstrate public health improvements.

The AAFP also is concerned that the discussion about practice transformation has been limited to technology. HIT is a tool for increasing access to services. We should focus on how to improve the capabilities of the physician's practice. For example, quality improvement efforts should mean looking for ways to engage patients in their healthcare rather than simply pushing for the adoption of patient portals. Practice transformation requires thinking about workflow, personnel, content and the technology that supports those elements of the sociotechnical system. For example, using HIT to promote more telehealth services, such as e-consultations, online health evaluation and coaching and tele-visits hold tremendous potential for improving health outcomes.

Question 3c. What can government do to further the goal of using this technology to decrease costs?

The Federal Government can help decrease health costs by continuing to align financial incentives with value-based services that are time-intensive but rely on or utilize health technology. Essentially, the healthcare community should consider how to make basic healthcare more accessible to the patients. The AAFP applauds Congress' support for alternative payment models within MACRA.

As implementation moves forward, HIT will be essential for physicians. Telehealth helps increase access without compromising care. Policymakers should con-

⁶Stream, 2013.

⁷Ibid.

⁸Porter, Shari, AAFP News, April 18, 2014, "Modest Changes Can Lead to Better Quality, Lower Costs in Health Care." Accessed online: <http://www.aafp.org/news/practice-professional-issues/20140408continuityofcare.html>.

⁹Lisa M. Kern, M.D., MPH; Alison Edwards, MStat; and Rainu Kaushal, M.D., MPH, *Annals of Internal Medicine*, *Ann Intern Med.* 2014;160(11):741–49. doi:10.7326/M13-1798.

¹⁰Laff, Michael, AAFP News, Panel Considers Health Care Innovations in Technology, Payment, April 28, 2015, <http://www.aafp.org/news/practice-professional-issues/20150428innovation.html>.

¹¹Ibid.

sider ways to eliminate barriers to telehealth services, particularly for primary care services to address chronic health conditions, like diabetes, and for certain patients who lack transportation to followup medical appointments.

We are pleased that Section 106(c) with MACRA requires the Government Accountability Office (GAO) to draft two reports to evaluate and report on telehealth programs, barriers, potential healthcare outcomes and patient monitoring technology. The evaluation may provide some valuable input into the ongoing debate about HIT, the value of these services is well-documented. We urge policymakers to push for expedited GAO review. Physicians need concrete policies to eliminate barriers, particularly for primary care services.

Question 4a. What are the biggest barriers inhibiting nationwide interoperability?

Answer 4a, Achieving interoperability requires the ability to exchange information in real time, but the ultimate goal is to achieve optimal care coordination for patients.

The biggest barrier to achieving interoperability and care coordination is the system of incentives. The financial incentives for HIT vendors are misaligned. Instead of promoting interoperability, vendors focus on locking in practices, which will find it too expensive and burdensome to change EHRs after a current system has been installed. In addition, ending the current reliance on documentation requirements for Evaluation and Management services from the paper era could produce positive results. These regulations lead to bloat in the EHR, which interferes with patient care and interoperability. They decrease the signal-to-noise ratio in the patient's record and exchanges of health information, where the signal is the clinically relevant information. The requirements are administratively burdensome and are not helpful in today's practice environment. We urge Congress to communicate that message to CMS.

Our position from the onset has been that true interoperability will not be achieved without fundamental changes in healthcare payment reform. We are excited to see the acknowledgment of this position by both the private sector and CMS. A good example of the latter is the recent announcement by Secretary Burwell on the desired deployment of value-based payment by CMS. Also, MACRA supports payment reform that incentivizes value-based care. We believe that payment reform is the keystone to a nationwide interoperable healthcare delivery system.

HITECH incentives helped accelerate the adoption of HIT through incentives. In 2013, 59 percent of hospitals and 48 percent of physicians had at least a basic EHR system, respective increases of 47 percentage points and 26 percentage points since 2009, the year HITECH was signed into law.¹² As of June 2014, 75 percent (403,000+) of the Nation's eligible professionals and 92 percent (4,500+) of eligible hospitals and CAHs had received incentive payments.¹³ As we examine healthcare interoperability, we must turn our focus on ways to support care coordination across health sectors and among stakeholders.

While eligible professionals are penalized for not performing health information exchange under Meaningful Use, HIT vendors are not. Eligible professionals are dependent on their HIT vendor to be interoperable and support health information exchange. We believe that vendors should also see penalties if they are not interoperable. We would urge Congress to explore how vendor financial penalties could be used to further interoperable HIT.

Question 4b. What is the biggest barrier blocking providers from sharing information with each other? What is the biggest barrier blocking patients from sharing their information with different providers?

Answer 4b. The biggest barrier for physicians is often their practice's HIT systems. Physicians often purchase a system that they believe will be an effective means of communication. It is difficult to know if the system will work and communicate across diverse platforms until after physicians invest the time and money into an EHR. The investment and costs for moving data that has been warehoused into a new system also create significant barriers for physicians who want to change vendors.

In its letter to HHS regarding the nationwide Interoperability Roadmap, the AAFP highlighted this concern and recommended a process to collect real-world feedback of certified electronic health record technology in use. ONC should create a resource to accept complaints from users when real world use of certified technology does not allow for the interoperability required by certification criteria. This

¹² Office of the National Coordinator for Health IT, Annual Report to Congress, October 2014, http://www.healthit.gov/sites/default/files/rte_adoption_and_exchange9302014.pdf.

¹³ Ibid.

feedback would be used to inform the certification testing tools and to inform ONC of bad actors as far as the interoperability is concerned.¹⁴

Question 4c. Is ONC's nationwide Interoperability Roadmap a reasonable guide to widespread interoperability?

Answer 4c. Overall, the Interoperability Roadmap is a good framework for advancing this important issue. The AAFP agreed with ONC on several points such as the principles for an interoperable health ecosystem. The AAFP also agreed with the plan's recommendations for establishing common clinical data sets. Further, there also was consensus about the nationwide privacy and security framework.

The AAFP, however, identified several areas that need improvement. First, AAFP strongly urged ONC to address workflow and documentation requirements. Also, AAFP expressed concerns about the lack of a detailed short-term plan for how its goals would be achieved. In addition to interoperability, standards need to address the real-world environment in which HIT systems are utilized.¹⁵

Question 4d. The lack of enforceable, consistent standards has been an industry concern. Does the 2015 Interoperability Standards Advisory fill the void? If not, what else can/should the Federal Government do to ensure a single set of standards is used within the industry?

Answer 4d. The AAFP has dedicated significant resources over the last decade to support the achievement of healthcare interoperability. We have worked on key clinical and transport standards and participated in the national policy dialogs. Our position from the onset has been that true interoperability will not be achieved without fundamental changes in healthcare payment reform. We are excited to see the acknowledgment of this position by both the private sector and CMS. A good example of the latter, as stated previously, is the recent announcement by Secretary Burwell of the desired deployment of value-based payment by CMS. We believe that payment reform is the key to a nationwide interoperable healthcare delivery system.

Question 4e. Patient matching is a consistent concern raised by industry. How can government and industry ensure that patient data can be reliably shared across care settings?

Answer 4e. Proper patient identification is essential for wide-scale interoperability. The support of consistent, unambiguous patient identification is needed. According to a 2014 *Health Affairs* study, only 40 percent of physicians reported having electronic exchanges of any sort with other providers. To further break down the numbers, only one of seven physicians shared data with providers outside their organization. Privacy concerns and incompatible technology systems were cited as the two primary reasons for the slow growth of information exchanges.

Question 5. Physicians consistently voice concerns with product usability. What can be done to foster user-centered design rather than technology built to meet regulatory and billing mandates?

Answer 5. There is a discipline of industrial and systems design that includes the human factors that could be applied to healthcare and HIT. Support is needed to establish an infrastructure to study the science of practice, which would include user-centered design.

On a separate track, we must continue to make progress on real-time interoperability. The AAFP has been active in efforts to develop standards for packaging of data; e.g., Continuity of Care Record (CCR), and Consolidated Clinical Document Architecture (C-CDA). Additionally, the AAFP has worked on the development of standards for the transport of data (e.g., Direct Project). These efforts must continue alongside CMS' efforts to make claims data available.

As outlined in the testimony, EHR usability is an area of significant concern. Often, physicians must sort through pages of documentation to access information that is often not relevant to patient care. The Medicare Documentation guidelines are out of date and structured around billing data versus patient information. Amending these standards would change how EHR systems are created. In addition, physicians should have significant flexibility to delegate requirements to qualified staff as members of the healthcare team.

To change product usability, the AAFP recommends the following: (1) Incentivize value net documentation; (2) Support more research into the science of practice by supporting research in the application of industrial and systems engineering to healthcare; (3) Simplify regulatory requirements that have been created over many

¹⁴ Blackwelder, AAFP letter to Karen DeSalvo, January 15, 2015.

¹⁵ *Ibid.*

years which require significant effort by providers and vendors to modify and expand the work of providers without positive impact on patient care, quality or cost.

Some key areas of regulatory simplification include the following:

- Elimination of requirement dictating who within the care team (i.e., physician, nurse, medical assistant, patient, etc.) can and cannot perform certain tasks. With the support of HIT, the roles in the care team can change, and team-based care is needed to be efficient and effective.
- Elimination of documentation requirements that were designed for cost control and not for supporting care delivery.
- Ease external reporting requirements. We have heard from many members about the hours of extra work needed to report for Meaningful Use. We also heard about the added checkboxes and restricted workflows in HIT just to ensure the external reporting is performed.
- Harmonize programs. Each Federal program is created in a silo yet they have overlap in goals and requirements. It is a struggle for practices to understand the varied regulations and rules. These programs need to be integrated to ease the administrative burden to understand and comply with these multiple programs. We appreciate the changes included with MACRA, but harmonization needs to be a systemic, ongoing and serious endeavor.

Question 6. A lack of a “business case,” both for vendors and providers, is often cited as a hindrance to information sharing. What can be done to create the “business case” to generate interoperability?

Answer 6. The best business case for interoperability would be the creation of a system in which physicians can see notable improvements in clinical efficiency, patient care, and revenue. Physicians’ major priority is to provide high-quality patient care. The creation of an interoperable system that facilitates patient visits and supports meaningful data exchanges across different platforms would benefit physicians and their patients. Two-thirds of physicians work in a small or solo practice. Helping these small practices implement best practices and maintain financial viability would also be an important return on investment.

EHR adoption requires a high initial investment and ongoing maintenance fees. The costs combined with the regulatory burdens are creating a highly diminished sense of return on investment at this time. If Congress and the administration aligned physician payment with technology-driven and high-value care, it would certainly represent a strong business case for many primary care physicians. Doing so would require stronger interoperability standards and systems that complement physicians. workflow.

Question 7a. Stakeholders often voice concerns that the electronic health record product as certified is quite different from the products deployed in individual care settings. How can we ensure that the certification program delivers capable technology not just upon initial testing but once deployed in the field?

How can we create transparency in cost, satisfaction and vendor responsiveness?

Answer 7a. The AAFP recommends a quality rating system to create greater transparency in cost, satisfaction, and vendor responsiveness. In addition, field testing would help ensure that only interoperable products are being utilized. Also, we strongly recommend that policymakers establish penalties for vendors that do not meet quality and interoperability standards.

Question 7b. Does ONC have the proper resources to employ enhanced testing capabilities relative to the Certification Program?

Answer 7b. No, it is our view that ONC lacks sufficient resources to employ enhanced testing relative to the Certification Program. This is an issue that Congress must address.

SENATOR BURR

Question 1. Please expand on the suggestion in your testimony that physicians not be charged by their vendors for accessing their own patients. data. Is this occurring for existing patients, new patients, or both?

Answer 1. In my testimony, I mentioned that a patient’s data should not be restricted because of the vendor’s business practices. Concerns about these practices apply to both new and existing patients within a physician’s panel. We have heard of members being required to pay to have their data extracted from the EHR if they wish to use that information in other information systems. Recent analysis indicate that because the market for creating new electronic records is saturated, vendors require physicians to pay a range of different fees to access their patients’ data.

Question 2. According to a warning the FBI issued to healthcare providers last year, the healthcare industry has the highest volume of cyber threats and the slowest response time. What are your suggestions of steps that could be taken to make this information more secure?

Answer 2. Patient safety is of the utmost concern to physicians. To address this issue, physicians need access to best practices and the highest quality support to protect patient data. To respond to the FBI's concerns, the AAFP recommends ONC and other entities focus on assisting providers rather than penalizing those that happen to get breached. Physicians and hospitals want to avoid data breaches and are willing to implement reasonable safeguards.

SENATOR CASSIDY

Question 1. As a physician, I have concerns that mandated "Meaningful Use" of health information technology such as EHRs, while providing useful medical data, has complicated physician-patient encounters and distracted the physician from what they have been trained to do—provide patients with personalized care and give patients their undivided attention.

In over 46 States and in a variety of settings—emergency rooms, hospitals, urgent care clinics, and practices including OB/GYN, cardiology, orthopedics, and oncology—medical scribes are used as a means of significantly reducing the healthcare practitioner's burden of entering data into the EHR. The scribe accompanies a provider into the exam room and documents the physician-patient encounter into the EHR in real-time and at the point of service. This relationship allows the physician to spend more time delivering care directly at the patient's bedside and less time in front of a computer screen navigating EHRs. The use of a scribe allows a physician to focus on the patient and think clinically, not clerically. One of the unintended consequences of the ACA is that ED volumes have risen, some argue this is due to access to care issues. Scribes could help provide greater access to appropriate levels of care. Has adoption of EHRs altered the physician-patient encounter?

Answer 1. The AAFP shares your concerns about the negative impacts Meaningful Use and poor HIT implementation has had on the patient-physician relationship. The organization is currently undertaking a study to measure this impact on patient care by Meaningful Use. We are hopeful to have results to share in mid to late summer of 2015.

The AAFP has heard of the positive impacts of scribes. One concern we have is that this is treating a symptom and not the underlying problem. Hiring scribes or re-tasking clinical support staff would increase the cost of practices. We would like to see reforms in the documentation requirements to update those requirements from an era dominated by paper records to one leveraging HIT. That said, we also think that practices should have the ability to determine the best personnel to perform the work (within the constraints of State law). Federal requirements that dictate who can and cannot perform tasks do not support a team-based approach to care and these unnecessary requirements must be eliminated. Team-based approaches are needed to achieve the Triple Aim™ and to help with the shortage of primary care.

Question 2. A recent study of using scribes in a cardiology clinic in St. Paul, MN, found that scribe-use produces improvements in physician-patient interaction and results in large increases in physician productivity. Specifically, patients seen per hour increased by 59 percent, from 2.2 patients per hour to 3.5, and the amount of time that physicians interacted with patients increased. Based on your clinical experience incorporating EHRs into your practice, do you agree that a physician could deliver care to more patients per hour if they did not have to navigate an EHR while also examining a patient? If the provider is seeing more patients per hour then are they driving greater access to care?

Answer 2. Currently, the EHR does not work well with the work flow of a practice. The note created has more to do with "bullets on billing" than sharing meaningful clinical information with other providers. Some practices do use scribes with an extra expense to the practice and overhead. While this may be an option for large-margin consultation practices, it may not be a viable business option for small primary care practices with smaller margins per visit. If one is employed by a healthcare system, the extra expense in personnel has to be justified to the bottom line of the practice.

SENATOR MURRAY

Question. Since 2009, physicians and hospitals have made an unparalleled investment in HIT. In Washington State, providers have received over \$500 million in

HITECH incentive payments to help with the cost of adopting electronic health records. Yet many providers are reporting that the cost of implementing HIT doesn't end with installation in the hospital or clinic. Is the AAFP aware of providers who have paid substantial sums to connect their electronic health record with other systems? How commonplace are these fees? Are they a barrier to helping providers and families make full use of electronic health records?

Answer. Health data ultimately belongs to the patient, not to EHR vendors, and an EHR vendor should not be permitted to "hoard" patient data in order to gain a business advantage.

There is typically an interface fee, which is in the neighborhood of \$5,000, and some also charge a service fee requiring a monthly or yearly payment. A practice's current vendor holds a monopoly over interoperability for the practice. That monopoly is preventing reduction of the price of connectivity. More study and transparency around these costs are needed and this vendor "lock" should not be allowed.

SENATOR WARREN

Question 1. Today, 90 percent of hospitals have certified that they meaningfully use electronic health records. And in some areas, hospitals and providers have taken the next step of creating regional health information exchanges to share patient information. This sharing has enormous benefits to patients. A 2014 study performed by University of Michigan researchers found that Emergency Departments that were connected to a regional health information exchange ordered fewer duplicate tests—patients in these Emergency Departments were 59 percent less likely to have a redundant CT scan, 44 percent less likely to get a duplicate ultrasound, and 67 percent less likely to have a duplicated chest x-ray compared to patients who went to hospitals that were not connected to a regional health information exchange. We've made real progress, but we can't get the full value of electronic health records until hospitals and providers from around the country can exchange patient information with each other.

To what extent would expanding these small regional systems to a nationally interoperable electronic health record system reduce duplicative tests and how much money could that save our healthcare system?

Answer 1. With most healthcare being delivered in a local or regional manner for the vast majority of patients, extending to a nationwide exchange likely would not dramatically impact those duplicative costs like a regional exchange does. A model more like Direct Exchange would support those cost reductions without the large expense of maintaining a nationwide health information exchange.

Question 2. It is important that HHS is developing data standards for providers covered by the Meaningful Use Incentive Programs, but not all providers are covered by these standards and not all providers receive incentives for setting up Electronic Health Records. For example, nursing homes, independent laboratories, and behavioral health providers are exempt, and many of these providers have no electronic records system at all.

Answer 2. The AAFP has been vocal in its advocacy for the need to develop data standards. It is clear that the amount of health data will continue to grow geometrically. Ultimately, this data will be most useful if it is standardized, i.e., encoded in a standard vocabulary (in the way that SNOMED CT and CPT are standard codes for diagnoses and procedures, respectively). The task of fully standardizing health data, however, is a monumental one and represents a very long process that will be achieved incrementally.

Until a national consensus on data standardization emerges, at a minimum, EHR vendors should be required to use open application programming interfaces (open APIs). Open APIs facilitate the move toward interoperable health records by allowing developers to assist providers and patients to access and interpret health data that otherwise would be inaccessible. The committee's leadership in this area is critical—we cannot wait for data to be fully standardized before achieving interoperability. Health data ultimately belongs to the patient, not to EHR vendors, and an EHR vendor should not be permitted to "hoard" patient data in order to gain a business advantage. Of course, a mandate for a vendor to have an API does not redirect the business drivers against interoperability and subsequent data hoarding.

Question 3. Is the ability to exchange information electronically with labs, residential care facilities, and behavioral health providers important to improving patient outcomes?

Answer 3. Exchanging information among numerous stakeholders is a goal the AAFP shares with ONC.¹⁶ Having accurate information helps with care transition when patients are discharged from the hospital. In addition, it helps coordinate drug prescriptions and lab work. Many family physicians are using health information technology to partner with their subspecialists to integrate and improve patient care, including behavioral health providers.¹⁷

Health information exchanges (HIE) allow family physicians to join with local subspecialists and hospitals to create medical neighborhoods that provide seamless healthcare transitions and a more effective healthcare foundation. These HIEs represent a model for effective interoperability and continuity of care. Managing chronic health conditions require a behavioral health approach. HIT programs are helping promote the integration of primary and behavioral health, an important priority for patient-centered health improvements.

EPIC SYSTEMS CORPORATION,
VERONA, WI 53593.

DEAR SENATOR ALEXANDER AND THE HONORABLE MEMBERS OF THE HELP COMMITTEE: I thank you for the opportunity to testify on March 17th during the HELP Committee's hearing entitled, "America's Health IT Transformation: Translating the Promise of Electronic Health Records into Better Care." Below are responses to the questions you sent me following my testimony.

Please do not hesitate to contact me at peter@epic.com, 608-271-9000, if I can be of any further assistance.

Sincerely,

PETER DeVULT,
Vice President.

RESPONSE BY PETER DeVULT TO QUESTIONS OF SENATOR ALEXANDER, SENATOR BURR, SENATOR ROBERTS, SENATOR CASSIDY, SENATOR MURRAY, AND SENATOR WARREN

SENATOR ALEXANDER

Question 1a. With the rapid digitization of health data, is the industry effectively protecting personal health information?

Answer 1a. The healthcare industry shares the cyber-security challenges that have affected other industries, such as banking and retail. We believe that healthcare, and every other industry, is at the beginning of an intensifying cyber-threat era that will require strong public-private partnership to ensure that we are protecting patient information.

Healthcare data is much richer than financial or credit card information. For example, it can include Social Security numbers, illnesses, medical vulnerabilities, medical device information, birthdays, addresses, email and employment information and income data for customers and employees. In addition to data theft, there is also the threat of intentional disruption of *medical devices*.¹ Malicious altering of electronic health record data could threaten lives.

The expanding value of healthcare data on the black market alongside increased hacker sophistication has made 100 percent effective cyber security in healthcare elusive. As we have seen in the recent attacks on *Premera Blue Cross*² (11 million

¹⁶Stream, Glenn, AAFP Letter to Farzad Mostashari, M.D., ScM, April 18, 2013, http://www.aafp.org/dam/AAFP/documents/advocacy/health_it/interoperability/LT-ONC-InteroperabilityHealthInfoExchange-041813.pdf.

¹⁷Arvantes, James, AAFP News, Health IT Forges Medical Neighborhoods as FPs Collaborate with Subspecialists, August 6, 2013, <http://www.aafp.org/news/practice-professional-issues/20130816hietechnology.html>.

¹Healey, Pollard and Woods, "The Healthcare Internet of Things: Risks and Rewards" Atlantic Council in partnership with Intel Security <http://www.mcafee.com/us/resources/reports/rp-healthcare-iot-rewards-risks.pdf>.

²Finkle "Premera Blue Cross breached, medical information exposed" Reuters March 17, 2015 <http://www.reuters.com/article/2015/03/17/us-cyberattack-premera-idUSKBN0MD2FF20150317>.

records), *Anthem*³ (80 million records), and *Community Health Systems Inc.*⁴ (4.5 million records), we are an industry under attack by sophisticated domestic and foreign State-sponsored hackers.

According to the Identity Theft Resource Center, about 44 percent⁵ of all registered data breaches in 2013 targeted medical companies. Between 2013 and 2014, the number of breaches increased 60 percent⁶—almost double the increase seen in other industries—according to PricewaterhouseCooper’s (PwC) Global State of Information Security Survey 2015.

Question 1b. What additional resources would be valuable in encouraging organizations to prioritize health data security?

Answer 1b. We encourage membership in the Health Information Trust Alliance (HITRUST) which is the most active cyber threat intelligence and incident coordination center in the industry.

*HITRUST*⁷ is a group of healthcare, business, technology and information security leaders helping to ensure the security of personal information. Their *programs*⁸ help healthcare organizations understand current and probable threats, prioritize their cyber security efforts and share best practices for cyber threat defense and response. HITRUST is a federally recognized cyber Information Sharing and Analysis Organization (ISAO) and has partnered with the U.S. Department of Health and Human Services to conduct *cyber threat briefings*⁹ and *preparedness exercises*.¹⁰

HITRUST is best known for their *Common Security Framework (CSF)*¹¹ which is now in its 7th major release. It is the most widely utilized approach by healthcare organizations and third-party risk assessments—adopted by 83 percent of the hospitals and 82 percent of the health plans. The Common Security Framework provides organizations with the needed structure, detail and clarity relating to information security tailored to the healthcare industry. The framework, along with sound risk management practices, harmonize with the requirements of existing healthcare standards and regulations including Federal (HIPAA, HITECH), third party (PCI, COBIT) and government (NIST, FTC).

Standards Incorporated Into the CSF

- HIPAA: Security, Breach, and Privacy Rules
- ISO/IEC 27001, 27002, 27799
- CFR Part 11
- COBIT 4.1, COBIT 5
- NIST SP 800–53 Revision 4
- NIST SP 800–66
- NIST Cyber Security Framework
- PCI DSS version 3
- FTC Red Flags Rule
- JCAHO IM
- 201 CMR 17.00 (State of Mass.)
- NRS 603A (State of Nev.)
- CSA Cloud Controls Matrix v1
- HHS Secretary Guidance
- CMS IS ARS
- MARS–E v1
- IRS 1075
- Texas Health and Safety Code (THSC) 181
- Title 1 Texas Administrative Code (TAC) 390.2

³Abelson and Goldstein, “Anthem Hacking Points to Security Vulnerability of Health Care” *The New York Times* February 5, 2015 Industry http://www.nytimes.com/2015/02/06/business/experts-suspect-lax-security-left-anthem-vulnerable-to-hackers.html?_r=3.

⁴Bosshart, “Data Breach Notification” *Community Health Services* <http://www.chs.net/media-notice/>.

⁵Li “The Next Cybersecurity Target: Medical Data” *The Atlantic*, March 2015 <http://www.theatlantic.com/technology/archive/2015/03/the-next-cybersecurity-target-medical-data/388180/>.

⁶Harries, “The prognosis for healthcare payers and providers: Rising cybersecurity risks and costs” December 2014 <http://usblogs.pwc.com/cybersecurity/the-prognosis-for-healthcare-payers-and-providers-rising-cybersecurity-risks-and-costs/>.

⁷<https://hitrustalliance.net/>.

⁸<https://hitrustalliance.net/content/uploads/2015/03/HiTrustKeyPrograms.pdf>.

⁹<http://hitrustalliance.net/cyber-threat-briefings/>.

¹⁰<http://hitrustalliance.net/cyberrx/>.

¹¹<http://hitrustalliance.net/common-security-framework/understanding-leveraging-csf/>.

Question 1c. Is the government offering proper guidance and/or resources to inform industry decisionmaking relative to data security?

Answer 1c. The government could substantially improve private-private and public-private cooperation by changing the current approach to health information security. More coordination is warranted, as opposed to more regulation, penalties, or the prospect of unlimited liability for those organizations whose data is breached. Much like the *Patient Safety Act*,¹² we need to create a safe environment where groups who follow best practices can openly share safety issues so the whole industry can learn and aren't publicly and financially devastated by an attack.

Congress could create a better environment by (1) encouraging providers and health information technology vendors to adopt the *HITRUST Common Security Framework (CSF)*, (2) creating a protected place to disclose breaches (*HITRUST or AHRQ*¹³), (3) declaring attackers who breach a CSF compliant organization to be a common enemy and beyond reasonable control, and (4) removing the legal liability of *HITRUST* CSF compliant organizations that are breached.

Question 1d. Is threat information readily shared throughout the industry? Or with other industries?

Answer 1d. Yes, threat information is shared through *HITRUST*. Other organizations also receive threat information, publish recommendations and standards like the National Institute of Standards and Technology (*NIST*)¹⁴ and the combined effort of the International Organization for Standardization (ISO) and the International Electro-technical Commission (IEC) to support a family of mutually supporting information security standards (*ISO/IEC 27000*),¹⁵

- *If so, is the information useful?*

Answer. We have found participation in *HITRUST* very useful.

- *If not, what incentives could be offered for organizations to share threat information with other organizations?*

Answer. Eliminating liability and fines for CSF-complaint organizations would encourage the sharing of threat and breach information.

Question 2a. Half of the Nation's physicians have chosen not to participate in the Meaningful Use program to date. How can this change?

Answer 2a. Simplicity and flexibility are the keys to encouraging participation.

Over 70,000 physicians have participated in Meaningful Use (MU) using Epic's software, which is evidence that widespread participation is possible with good support. However, while our customers are on track in their attestations, portions of MU are burdensome and go beyond the definition of the meaningful use of an EHR. For many, especially those in smaller practices, the administrative costs outweigh the returns.

On April 10th, we were encouraged by the Centers for Medicare & Medicaid Services (CMS) *Proposed Rule*¹⁶ with Meaningful Use changes for 2015 through 2017. As summarized by *HIMSS*, "the new rule is attempting to reduce reporting burden, eliminate redundant and duplicative reporting, better align the objectives and measures of meaningful use, and focus Stages 1 and 2 of the Electronic Health Record (EHR) Incentive Programs on advanced use of EHR technology. Most importantly, this proposed rule would change the Medicare and Medicaid Incentive Program reporting period in 2015 to a 90-day period aligned with the calendar year rather a full-year reporting period."

Question 2b. Continually, physicians call for the all-or-nothing nature of the program to be rethought. Why are rulemakers so hesitant to adjust this rigid mandate?

Answer 2b. We can't say what has caused their hesitation, but from the looks of the *Proposed Rule*, they are trying to adjust the program to provide more flexibility and simplicity.

Question 2c. Are there any additional resources, other than additional incentive payments, that the Federal Government should provide to increase physician participation?

Answer 2c. No. We do not believe additional resources are necessary. The resources that are already in place should evaluate the existing Meaningful Use re-

¹² <http://archive.ahrq.gov/news/newsroom/press-releases/2008/psact.html>.

¹³ <http://www.ahrq.gov/>.

¹⁴ <http://healthcare.nist.gov/>.

¹⁵ <http://www.itgovernance.co.uk/iso27000-family.aspx#.VTfd6JMyy9Q>.

¹⁶ <https://s3.amazonaws.com/public-inspection.federalregister.gov/2015-08514.pdf>.

quirements, eliminating those that have not been shown to improve patient care or decrease healthcare costs in proportion to the additional effort they require.

Some requirements in Meaningful Use are not core to the individualized care of the patient, or in some cases apply an inappropriate one-size-fits-all approach. Although requirements are designed with good intentions, a number of them do not add value to the provider workflow. In some cases, Meaningful Use creates complications that inhibit usability and provider efficiency.

CMS could also move to reimburse telehealth workflows and coordinated care beyond specific advanced payment programs such as Accountable Care Organizations (ACO), both of which necessitate the meaningful use of an EHR to be successful.

Question 3a. The goal of HITECH was to improve patient care while decreasing costs—has there been a change in the cost to health care because of HITECH?

Answer 3a. We have observed numerous examples statistically and anecdotally of our electronic health record system (EHR) reducing costs, increasing quality and access, and improving efficiency. This is caused by provider and patient adoption which was seen before, during, and after HITECH, both domestically as well as in countries that are not under Meaningful Use regulation.

Examples include:

- The University of Iowa Hospital & Clinics saved \$9.5 million by using EHR decision support to reduce unnecessary blood transfusions.
- Lakeland Healthcare in St. Joseph, MI, used their EHR to reduce their average cost of care by \$1.6 million.
- Sentara Healthcare in Virginia used EHR medication safety tools to avoid 117,400 potential med errors and saved \$14.7 million.
- Kaiser Permanente achieved an estimated \$1 billion in savings from reduced office visits and lab tests.

HITECH reduced costs by increasing automation; Meaningful Use on the other hand has probably increased costs in certain domains by increasing software development, physician documentation, and reporting burdens.

Question 3b. Since EHRs have become more common place, are there any metrics of public health improvement being observed?

Answer 3b. Yes, we have observed numerous examples of our EHR enabling improved population health. MetroHealth, a safety net health system in Cleveland, OH, increased immunization compliance 54 percent over baselines and reports this data to the Ohio Impact Statewide Immunization Information System and the CDC.

Essentia Health in Duluth, MN, uses Epic and home monitoring scales to prevent congestive heart failure (CHF) patients from being readmitted. Their 30-day readmission rate for CHF patients is less than 2 percent, compared to a national average of 25 percent.

Reliant Medical Group in Massachusetts uses our EHR for a rigorous diabetes management program. Their diabetes control is up 6 percent while costs per patient are \$1,200 less than the average Massachusetts ACO.

Question 3c. What can government do to further the goal of using this technology to decrease costs?

Answer 3c. The government could simplify the Meaningful Use program to spur adoption and reimburse coordinated care and telehealth workflows which necessitate this technology.

It has also been widely accepted that utilization costs will be reduced in tandem with payment reform. Likewise, health information exchange, which can reduce duplicative healthcare utilization and adverse medical events, can best be incentivized by value-based reimbursement arrangements (cf. Accountable Care Organizations) as opposed to fee-for-service arrangements.

Question 4a. What are the biggest barriers inhibiting nationwide interoperability?

Answer 4a. There remain four main barriers to increased nationwide interoperability:

- **Technical capabilities:** Not all providers are technically ready to exchange records. With so many eligible providers not participating in Meaningful Use, especially those not affiliated with large practices or integrated delivery networks, they likewise do not have systems that are Meaningful Use certified, or are not on the required version of that software, and therefore are incapable of robust health information exchange.

In contrast, 100 percent of Epic EHR users are live with our Care Everywhere patient exchange platform, and 89 percent are interoperating with providers on other vendor platforms.

- **Payment models:** The move to value-based payment models where providers are compensated for coordinated care will likely increase the use of interoperability capabilities.

- **National Rules of the Road for information sharing:** Neither technical capability nor economic or clinical incentives can overcome the lack of a universally adopted national “rules of the road” and governance framework. In this absence, individual providers or healthcare organizations must forge individual data sharing agreements with each other, which may take months of legal discussion between the two entities.

This problem was recently acknowledged in the ONC’s Interoperability Roadmap. We are pleased that ONC has recognized *Healthway*¹⁷ as a potential convener on the issues of national rules of the road and governance.

Healthway’s *Carequality*¹⁸ initiative is the broadest collation of public-private healthcare stakeholders that include the United States’ largest active exchange networks as well as smaller networks like CommonWell. In early April this year, Carequality released their *national trust framework*¹⁹ to accelerate national interoperability. In mid-April, *11 exchange networks*,²⁰ including Epic, agreed to rollout the national interoperability framework to connect over 200,000 physicians. (CommonWell has been participating in the Carequality initiative but did not elect to be one of the early rollout participants.)

Question 4b. What is the biggest barrier blocking providers from sharing information with each other? What is the biggest barrier blocking patients from sharing their information with different providers?

Answer 4b. In addition to those items identified above, Stage 2 being delayed from 1 year to 90 day reporting has delayed interoperability by 9 months; creating hardship exemption allowing organizations to attest to Stage 1 instead of Stage 2 which required interoperability caused further delays.

If we simplify Meaningful Use to encourage more physician participation and reduce hardship exemptions and program delays, we would be on the doorstep of broad interoperability, enabling the healthcare ATM for patient records.

Question 4c. Is ONC’s nationwide Interoperability Roadmap a reasonable guide to widespread interoperability?

Answer 4c. Yes. The core of the ONC Roadmap provides a reasonable guide to widespread interoperability. ONC should avoid over-regulation in this emerging space and instead encourage support of existing public-private partnerships that will foster creativity and lead to competition for low-cost, widespread interoperability.

Question 4d. The lack of enforceable, consistent standards has been an industry concern. Does the 2015 Interoperability Standards Advisory fill the void? If not, what else can/should the Federal Government do to ensure a single set of standards is used within the industry?

Answer 4d. Yes, assuming ONC focuses on the exchange of patient health information among providers. ONC should not mandate specific architectures, technologies, or design approaches, as these would inhibit innovation, openness, and competition. The industry has already coalesced on reasonable standards that allow providers to share records and continues to develop more robust standards and capabilities.

Question 4e. Patient matching is a consistent concern raised by industry. How can government and industry ensure that patient data can be reliably shared across care settings?

Answer 4e. A single, national patient identifier would be the best approach to addressing this issue. The industry has done reasonably well navigating the challenges of patient matching given the lack of such an identifier.

Question 5. Physicians consistently voice concerns with product usability. What can be done to foster user-centered design rather than technology built to meet regulatory and billing mandates?

¹⁷ <http://healthwayinc.org/>.

¹⁸ <http://healthwayinc.org/carequality/>.

¹⁹ <http://healthwayinc.org/carequality-news/carequality-introduces-trust-principles-for-secure-interoperability-among-u-s-data-sharing-networks/>.

²⁰ <http://healthwayinc.org/carequality-news/carequality-launches-national-framework-for-inter-network-interoperability/>.

Answer 5. Much of what the market is experiencing is not actually due to a lack of user-centered design. Rather, physicians are increasingly frustrated by regulatory requirements that dictate their workflows. Physicians we work with in other countries routinely express shock at the documentation requirements created to meet the regulatory and billing rules of the U.S. healthcare system.

Fewer regulatory and billing mandates would lead to more satisfied users.

Question 6. A lack of a “business case,” both for vendors and providers, is often cited as a hindrance to information sharing. What can be done to create the “business case” to generate interoperability?

Answer 6. The current Meaningful Use incentive for interoperability in Stage 2 was not a sufficient step to encourage the adoption of interoperable electronic healthcare records systems. It required the technical capability to interoperate without changing the incentive structure that hinders it. Payment reform is the instrument that is needed to alter this incentive structure.

As we move from process measures to outcome measures, methods to compensate providers for coordinating care across organizations will further increase the demand for and use of interoperability.

All of Epic’s customers have the technical capabilities to interoperate with other systems above and beyond what is required by the Meaningful Use program.

Question 7a. Stakeholders often voice concerns that the electronic health record product as certified is quite different from the products deployed in individual care settings. How can we ensure that the certification program delivers capable technology not just upon initial testing but once deployed in the field?

Answer 7a. We may not be in the best position to answer this question. This is not feedback we’ve received about our software, although we have heard it about other vendors. Our customers are leading the Nation in EP and EH attestations. We ensure all customers have the capable MU technology deployed.

Question 7b. How can we create transparency in cost, satisfaction and vendor responsiveness?

Answer 7b. This is already being done by impartial industry reviewers, such as KLAS, which survey healthcare organizations to evaluate vendors in many areas including user satisfaction, vendor responsiveness, and cost transparency.

We fully disclose our costs prior to purchase and our users report high levels of satisfaction, as reported by KLAS, which ranks us #1 in health information exchange and highly for responsiveness and avoiding “nickel-and-diming” (cost transparency).

Question 7c. Does ONC have the proper resources to employ enhanced testing capabilities relative to the Certification Program?

Answer 7c. Yes, we believe so.

SENATOR BURR

Question 1. Please provide some insight into how products certified as being interoperable are not interoperable in every sense of the word. Why would an electronic health record, in many cases in which a doctor or hospital has already made a significant investment and that is certified to be interoperable, require additional interfaces with other health care providers outside of their facility?

Answer 1. A purchaser of a certified EHR as certification is performed today should have the technical capabilities necessary for interoperability. The purchaser may still wish to contract for assistance in configuring the interfaces. Typical configuration may include initial setup, consent workflows, and implementation of State or local data sharing requirements. Additionally, a purchaser may need to contract with other third parties for connections to healthcare information service providers (HISPs), State or local HIEs, to obtain and load provider directories, or for certificate-granting authorities which enable secure authentication of parties exchanging healthcare information.

Question 2. Will we reach a point in which the significant investments already made in health IT will realize lower costs? Or will the maintenance costs associated with EHRs prevent the overall cost savings from ever being realized?

Answer 2. Yes. The vast majority of our EHR customers already report savings and lowered costs. As mentioned above, they experienced this before, during, and after HITECH. Former Kaiser CEO, George Halverson said that he attributed nearly \$5 billion of savings a year to their Epic and other IT projects. Sentara’s CIO, Burt Reese attributes over \$53.7 million in savings in 2011 alone. Hawaii Pacific CIO, Steve Robertson, attributes Epic to saving their health system from bank-

ruptcy. For Epic customers that may need more return on their investment, we have several programs to help assess their system use and create targeted plans to realize more savings.

In our customers' experience, the overall savings and benefits of our EHR exceed their long-term maintenance costs. This is one of the reasons that many customers have moved to Epic's acute care EHR, but none have gone the other direction. For example, Cooper University, in New Jersey, chose Epic to lower their long-term maintenance costs. They calculated that by year three after implementation, the system will have paid for itself, saving the health system over \$700,000 per year in IT savings alone.

Question 3. In Dr. Wergin's testimony he states that,

"HHS should use its authority to strengthen certification requirements to advance interoperability requirements and improve EHR functionality."

In what ways could certification requirements be improved?

Answer 3. Certification requirements as they exist today are adequate. Increasing these requirements will not result in better EHRs; the market will reward better functionality over time but only if it is not artificially distorted by burdensome regulation. As we discuss in previous answers, simplifying the Meaningful Use program will encourage broader adoption which will lead to higher levels of interoperability. We recommend that any EHR requirements mandated be specified at a high level while the design of EHR functionality be performed by the software developers and their clinical customers.

SENATOR ROBERTS

Question 1. In your testimony, one of the reasons you cited for Epic not joining the CommonWell Alliance was the requirement during early stages of CommonWell's formation for members to sign a Non-Disclosure Agreement. At the time of the hearing, were you aware that CommonWell does not currently require members to sign a Non-Disclosure Agreement?

Answer 1. We were asked to sign an NDA with CommonWell after it was created and announced publicly. To the best of my knowledge, an NDA was still required at the time of my testimony. According to a Politico article published after my testimony, CommonWell changed that requirement.

Question 2. Does Epic require any of its clients, business partners, or participants in the Care Elsewhere network to sign Non-Disclosure Agreements? If yes, please explain why Epic believes those Non-Disclosure Agreements are necessary.

Answer 2. No. We do not now and have not ever required a non-disclosure agreement for the use of Care Everywhere, our patient record exchange platform.

Question 3. Another reason you gave for Epic not joining the CommonWell Alliance was a concern about whether CommonWell data could be sold. Has Epic ever voiced that concern to CommonWell or its representatives? Did Epic receive any assurances that data could not be sold, and if yes, why did Epic nonetheless voice those concerns to the committee?

Answer 3. In my testimony, I expressed concerns about the transparency of CommonWell's business practices.

Information relating to CommonWell has been reported in the media. This includes their *launch*²¹ when they were presented as a repository-based model, their legal designation change and their *changing membership requirements*.²² CommonWell has released statements about not selling "personal health data." CommonWell doesn't actually have patient data to sell. However, RelayHealth, the sole contractor for the transport of patient data in the CommonWell network, which was recently ordered to *stop selling the VA's data*,²³ has historically monetized the information transported through its infrastructure. Other CommonWell members, like Cerner also have a history of selling de-identified data or data products. Epic does not.

CommonWell's monetization strategy is still unclear although the CEO of McKesson, the parent company of RelayHealth, expressed enthusiasm for betting on CommonWell and RelayHealth to "pay off" during an *earnings call*²⁴ ("So there's

²¹ <http://www.healthcare-informatics.com/news-item/report-epic-wasn-t-invited-alliance-six>.

²² <http://www.politico.com/morninghealth/0415/morninghealth17818.html>.

²³ <http://www.amsus.org/wp-content/uploads/2014/05/June-2014-Minutes.pdf>.

²⁴ <http://seekingalpha.com/article/2891376-mckesson-mck-q3-2015-results-earnings-call-transcript?page=8&p=qanda&l=last>.

a bunch of interesting places that we're placing bets, including CommonWell Health, that we think will pay off.")

We believe that competition in the industry to provide low cost and successful exchange is important and we feel we can offer more to our customers and their patients through open standards and connected networks.

One network will not solve all interoperability problems for all healthcare's stakeholders just as one bank can't solve all financial problems or one cellular networks can't connect the world. Networks (e.g., CommonWell, Epic's Care Everywhere, eHealth exchange, State and Federal HIEs) require a cell phone or ATM-like framework, a "network of networks" to get data moving smoothly through the systems.

Epic's Care Everywhere exchanges with all CommonWell founders today (e.g., Cerner, McKesson, Allscripts, Athena, Greenway, etc). CommonWell is also participating with Epic in the Heathway's Carequality initiative that has just released an interoperability framework—the ATM-like framework for healthcare. Epic is one of the first 11 organizations to pilot the rollout which will exponentially change the number of records exchanged in the United States.

We fully expect patient records to flow across a wide variety of open, standards-based networks including CommonWell and Care Everywhere.

Question 4. Your testimony focused a lot on Care Everywhere, Epic's interoperability tool for providers who use Epic. Your testimony indicated that for Care Elsewhere, the interoperability tool for Epic clients to share information outside of Epic systems, Epic charges on a per member per year basis. What is that cost? What is the median number of members for Epic clients who participate in Care Everywhere? What other fees might be involved to join and exchange information on Care Elsewhere, such as licensing fees, maintenance fees, consulting fees, or hourly labor fees, including instances when a client needs operational or technical expertise beyond what is included in Epic's standard contracts?

Answer 4. At the time of my testimony, the charge was \$2.35 for a record exchanged on the network. Since then, we have eliminated fees for Care Everywhere exchanges until at least 2020.

Those costs were small and experts have told us we were one of the least expensive in the industry.

Epic charges a standard hourly labor fee for building a Care Everywhere connection, whether that is the initial connection to the Care Everywhere network, a single connection to the eHealth Exchange or an HIE, or directly with another vendor's system at a different healthcare organization. The number of hours required to establish these connections varies widely based on the capabilities of our customer as well as the capabilities of the organization or vendor on the other side of the connection. Our goal is for such labor to be reduced as closely to zero as possible as the industry gains experience in building these connections.

Care Everywhere is one of the largest exchange networks in the United States. Its participants include 320 healthcare organization comprising over 1,000 hospitals and 23,000 clinics. Every group that is live on our electronic health record system is live with Care Everywhere. Our customers rank us No. 1 for Health Information Exchange in KLAS surveys.

Question 5. In a March 5, 2015, ONC Health IT Policy Committee Interoperability and Health Information Exchange (HIE) Workgroup meeting, Epic's President, Carl Dvorak, advocated for CMS to create a nationwide record locator service. Why should CMS spend government funds to stand-up such a network, when CommonWell Alliance already has a record locator service? Do Care Elsewhere, eHealth Exchange, or any other HIEs have record locator services?

Answer 5. Carl Dvorak made the observation that CMS has the knowledge of all of the places a patient has been seen for services covered by Medicare and Medicaid and that as a result of this, healthcare providers could easily locate such patients' records if that knowledge were made available. The standard way to make that knowledge available would be through a record locator service (RLS). Other payors could easily do the same for the patients they cover.

CMS doesn't need to set up an RLS, but they should provide an open data set so that another group could create an RLS to inform networks of where patients have received care (e.g., Care Everywhere, eHealth Exchange, State HIEs, CommonWell) and regulate pricing of open record locator services so search costs do not inhibit exchange.

The largest record locator service in the United States is *Surescripts*. They have a master patient index of over 230,000 patients, span 700 electronic health record providers, 93 percent of all pharmacies and over 900,000 health professionals. We

recently *announced* our connection to their RLS services which can exponentially expand our network's effectiveness to close the information gaps in care transitions.

CommonWell's RLS service is new and has been described by CommonWell staff as currently supporting a small number of initial organizations and their patients.

SENATOR CASSIDY

Question. As a physician, I have concerns that mandated "meaningful use" of health information technology such as EHRs, while providing useful medical data, has complicated physician-patient encounters and distracted the physician from what they have been trained to do—provide patients with personalized care and give patients their undivided attention.

In over 46 States and in a variety of settings—emergency rooms, hospitals, urgent care clinics, and practices including OB/GYN, cardiology, orthopedics, and oncology—medical scribes are used as a means of significantly reducing the healthcare practitioner's burden of entering data into the EHR. The scribe accompanies a provider into the exam room and documents the physician-patient encounter into the EHR in real-time and at the point of service. This relationship allows the physician to spend more time delivering care directly at the patient's bedside and less time in front of a computer screen navigating EHRs. The use of a scribe allows a physician to focus on the patient and think clinically, not clerically. One of the unintended consequences of the ACA is that ED volumes have risen, some argue this is due to access to care issues. Scribes could help provide greater access to appropriate levels of care.

I'm curious about how your products are being used by medical professionals in the "real world." Are EHR capabilities being fully maximized in the marketplace today? Or do the EHR products and platforms that you (and your competitors) offer have robust features enabled that users are not currently employing (such as coding, ICD-10 modules, Population Health Management and Care coordination)? After all, there's a limit on the amount of attention a physician can give the EHR vs. the actual patient during an encounter. As professionals that have been expertly trained in EHR use, would you agree scribes could enhance the degree to which useful features that currently sit fallow due to a physician's capacity to do only so many things at once, are utilized?

Answer. Our customers have found scribes to be beneficial in certain settings such as the Operating Room or when documenting certain procedures in real time such as placing a stent into an artery of the heart.

In general however, the use of most of the EHR features by clinicians themselves is still very important.

SENATOR MURRAY

Question. Providers are reporting difficulty achieving meaningful exchange of electronic health information across electronic health records produced by different vendors. In other cases, providers report that creating interfaces between electronic health records produced by different vendors involves paying substantial fees to vendors. Why does it cost so much to connect electronic health records that have been produced by different vendors? Why is it more complicated to share clinical information than billing information?

Answer. A typical billing transaction includes about 60 well defined fields, as exemplified in the CMS medical claim *form*.²⁵ Fields include time, date, SSN, provider, charge code, diagnosis code, quantity, fee, etc. These are generally consistent across all clinical specialties and rarely change through time.

By comparison, clinical data is magnitudes higher in complexity than billing data. A typical ophthalmology exam might include over one hundred measurements and observations. An EHR that focuses on Bone Marrow Transplant might collect hundreds of data element specific to that specialty. There are more than 120 specialties and subspecialties recognized by the Association of American Medical Colleges. Each of these specialties has many data items unique to its practice and routinely identifies new measurements and data elements to collect. Consider genomics alone adding thousands of new data points and changing frequently with new discoveries. In addition, each specialty shares hundreds more data elements with other specialties.

Flexibility is essential to allow growth and changes in data elements and definitions as our knowledge in medicine grows. The evolution of medicine will require that we continually modify and enhance our ability to share more and more clinical information through time.

²⁵ <http://www.cms.gov/Medicare/CMS-Forms/CMS-Forms/downloads/CMS1500805.pdf>.

Cooperation in the industry is working to standardize more of these elements and to share them fluidly across multiple networks at a reduced cost. ONC is wise to focus on the Core Clinical Data Set, useful to all specialties, as defined in the interoperability road map.

SENATOR WARREN

Question. As you know, our electronic health record systems often have trouble matching a particular scan or a test result to the right patient, and those mismatches endanger patients. As more providers move to electronic health records and data bases contain records for more patients, the risk of mismatching information to patients only goes up. A 2008 RAND Corporation study estimated that even with database management software and personnel dedicated to preventing these mistakes, hospitals mismatch patient information about 8 percent of the time. A 2012 survey conducted by The Council of Health Information Management Executives found that one in five physicians encountered mismatched information that that put a patient at risk at least once over the previous year. Accurately matching health information to the correct patient record is critical to creating an electronic health information exchange that works. How can we reduce these errors?

Answer. There are two kinds of patient matching errors that can occur: false negatives and false positives. A false positive means that you believe you've matched a patient's record but it is in fact the wrong one. The false negative means you believe there is no match when there actually is a matching record. The false positive is typically a much more severe problem. In our experience, false positives have been greatly diminished while false negatives have been significantly reduced over the years by using a few reproducible techniques. These techniques include:

- **Using more durable identifiers.** An example is a person's mobile phone number. While a patient may change her address many times and even her name, she usually retains her mobile number.

- **Searching intelligently for record locations.** Most healthcare is local—searching for a record near a patient's home or work address will usually yield the best results. This does require a searchable phonebook that is indexed by address. This is a cornerstone of Epic's national Care Everywhere platform and could be easily reproduced in other networks.

In our experience these errors have been significantly reduced since the time of the studies you cited.

[Whereupon, at 11:30 a.m., the hearing was adjourned.]

○