Good afternoon, everyone. This is Michael McGinnis from the National Academy of Medicine in Washington, DC. It is my pleasure to welcome all of you to this webinar on Procuring Interoperability: Achieving High-Quality, Connected, and Person-Centered Care. This is the webcast to review the findings and implications of National Academy of Medicine Special Publication, which was the result of an 18-month activity sponsored by the Moore Foundation.

We apologize to those of you who tuned in a couple of months back when Washington, DC was shut down by an unexpected snowstorm. However, we have a very robust attendance today, befitting the importance of the topic.

As I indicated implicitly at the outset, we have had a slight change to the agenda. Administrator Verma from the Centers for Medicare and Medicaid Services was scheduled to do our keynote. We are fortunate that we have Dr. Kate Goodrich substituting for her. Dr. Goodrich is the director of the Center for Clinical Standards and Quality at CMS and CMS Chief Medical Officer. In many ways Dr. Goodrich is the principal client and certainly a very important person to the implementation of the issues that need to be engaged if we are going to move forward on the interoperability front.

Dr. Goodrich has focused her activities on issues that are important to all of us, ranging from simplicity and measurement to seamless interoperability. Therefore, the recommendations and the assessments included in this report are obviously key tools for her and her colleagues at CMS as they move to help us advance the notion of seamless interoperability that leads to an easier work style and a more reliable digital infrastructure. In addition, advances the notion of a measurement enterprise that can be as seamless as possible and its interface with the clinical processes.

Dr. Goodrich’s office at the Center for Clinical Standards and Quality has a budget of about a billion and a half dollars and is responsible for over 20 quality measurement and value based purchasing programs, including the implementation of the new Quality Payment Program and the Improving Medicare Post-Acute to Acute Care Transformation Act.

Therefore, it is very clear that in Dr. Goodrich, we have the perfect person to keynote and launch our conversation today.

Following Dr. Goodrich, you will hear a recorded address from Harvey Fineberg about the need for interoperability. As I mentioned, Harvey is the President of the Gordon and Betty Moore Foundation, the sponsor of this publication. More recently, Harvey was the President of the Institute of Medicine here at the National Academies and prior to that, was Provost at Harvard University. He has spent most of his academic career devoted to the fields of health policy and medical decision-making, both of which are fundamentally dependent on realization of the prospects from CMS. Following Harvey, we will turn to the panel that I mentioned a little bit ago, and we will have a review of the key themes and the participants will share their perspective on key priorities.

The Procuring Interoperability publication has several major chapters, and you see them listed here in the table of contents. Why interoperability is essential in health care, interoperability in the health ecosystem,
interoperability procurement specification strategies, transforming the health IT marketplace, perspectives on the issue and the NAM public symposium, and a procurement implementation action checklist.

The steering committee is the next slide, and they oversaw the development of the publication. The steering committee includes those who are leaders in the field and two of which are here with us today for the panel. Dr. Raquel Bono, who I mentioned is the Vice Admiral at the Department of Defense and Dr. Andrew Gettinger who is the chief medical officer at the Office of the National Coordinator of Health IT. In addition to Drs. Bono and Gettinger, the steering committee included Peter Pronovost, who then was with Johns Hopkins; Michael M. E. Johns of Emory University; Sezin Palmer from the Johns Hopkins Applied Physics Lab; Douglas Fridsma from the American Medical Informatics Association; Julian Goldman from Mass General; William Johnson of WMJ Associates; Meredith Karney from the Center for Medical Interoperability; Craig Samitt of Blue Cross Blue Shield of Minnesota; Ram Sriram from NIST, and Ashwini Zenooz from the Department of Veterans Affairs. Therefore, you see represented in this panel were the major perspectives from both the front line and policy perspectives that are important to achieving interoperability.

The particular focus of the steering committee and this publication was on the issue of purchasing specifications and requirements for interoperability. There are, of course, many ways in which interoperability can and is being addressed, ranging from the development of standards that are necessary to facilitate interoperability on through the agreement among various purchasers in health care organizations and related organizations to use harmonious specifications that will drive interoperability and in effect advance the demand in our marketplace. That was the primary distinction of this report.

Today’s agenda will have us, after we hear the keynote address from Dr. Goodrich and welcoming remarks from Dr. Feinberg, we will engage in a panel discussion. After the panel presentation, we will have a participant question and answer session, so please type your questions into the Q&A box on your Zoom interface. Please provide your name and organization, and if possible, please specify to whom you would like to direct your question.

Again, thank you very much for joining us today, and I would like now to turn the camera over to Dr. Goodrich from the Centers for Medicare and Medicaid Services. Kate, thank you for being with us.

KATE GOODRICH

Well, thank you, Michael. It is a pleasure to be here, virtually with all of you. Isn’t it amazing that the right technology can bring us all together?

Today I want to talk to you about CMS’s vision to transform our healthcare into one that drives better value, lower costs and high quality care for patients through competition and innovation. To achieve this, CMS is focusing on three main objectives: empowering patients, focusing on results, and unleashing innovation to increase access to affordable high quality healthcare.

Now, none of this is possible without interoperability and the seamless exchange of health information. While we have one of the best health care systems in the world, we pay more for that care than any other country. Our actuaries predict that by 2027 Americans will spend almost $1 in every $5 on health care.

For millions of families and businesses, this is a huge problem. It amounts to a cost crisis that will destroy our economy. We simply cannot continue on this path.
For CMS, the solution starts with payment innovation to better align financial incentives for providers to deliver efficient high quality care to get the results we desire. Technology and the sharing of data underpin the entire move to innovative payment mechanisms and healthcare. Without effective open data sharing providers cannot keep patients healthy and without data to track patient progress or understand quality, insurance companies can't tie payment to outcomes and patients can't make informed decisions. Our current health care system is complex, opaque, and difficult to navigate.

However, with interoperability and the seamless flow of data we can change the way health care in this country operates. Patients like me, and the rest of you listening to this webinar, can have access to their health information to make the best and most informed decisions possible. Clinicians can provide high quality, efficient and coordinated care for their patients without repeating tests and compromising safety and quality, which will result in better care and improved outcomes for patients and researchers can access complete and more robust data than ever before, allowing them to identify new innovative personalized treatments and opportunities for preventing deadly and costly diseases.

So how do we make this happen? We have already taken significant steps forward. Last year, CMS launched My Healthy Data, an administration-wide initiative spearheaded by the White House Office of American Innovation under the outstanding leadership of Jared Kushner.

My Healthy Data is about empowering patients by giving them control of their health care data and allowing it to follow them through their healthcare journey. We have made a tremendous amount of progress in just one year. As part of My Healthy Data, we launched Blue Button 2.0, the first developer-friendly open API for Medicare beneficiaries. Blue Button 2.0 allows Medicare beneficiaries to share their claims data with applications and services that help them manage and engage in their health as well as share that information with their doctors and caregivers with the highest standards of privacy and security. It is allowing beneficiaries to not only connect their data to apps, but to enjoy the level of transparency and access that Americans expect in almost every other area of their lives. There are now over 1800 developers with a Blue Button sandbox account and we have about 20 Blue Button apps that are using our API and production. A list of these apps is now posted on medicare.gov so our over 40 million Medicare beneficiaries can easily locate the one that best meets their needs. These applications can assist patients by creating a personal health record that enables beneficiaries to collect their health information from their various providers in one place.

We have also seen onboarding or check-in applications that enable beneficiaries to share their claims history when they check in at a doctor's office or clinic, enabling their clinicians to tailor a care plan with more information about their diagnoses and medications. The possibilities are just endless and we are beginning to see what this data can do once it is made available to patients in an innovative and useful format. Claims data can unlock a patient's complete care record, giving them comprehensive treatment history information on past providers and their prescription drug lists. Access to this information can empower patients like never before. That is why it is critical to ensure patients can access their data easily from any application of their choosing.

However, this effort should not be limited to Medicare beneficiaries and a fee for service program. We want all beneficiaries we serve to have access to their data. Therefore, in February, we made huge strides in our efforts to empower patients by publishing the CMS interoperability and patient access proposed rule. This rule proposes that all health plans doing business with Medicare, Medicaid, and through the federal exchanges share health claims data and other important information electronically with their patients.
With all of those plans on board by 2020, 85 million new patients will have convenient electronic access to their health claims, including cost information that can be aggregated in one place. When combined with the over 40 million Medicare fee for service beneficiaries that have access already through Blue Button, we are looking at over 125 million patients with easy access to their healthcare data at their fingertips. But claims data represents just one piece of the future of seamless information exchange in support of better care.

CMS is also drawing clinical data out of electronic silos and making it available to patients. Last year we finalized a significant overhaul of the Meaningful Use programs that address data in EHR. In fact, the changes were so significant it warranted a name change. In our new promoting interoperability programs, clinicians and hospitals are no longer incentivized or penalized based on just using an EHR. We eliminated thresholds and removed “check the box” measures in favor of scoring based on performance and results around interoperability and giving patients their data.

The days of keeping patient data locked in disparate systems is over and the healthcare system needs to learn this lesson: patient data belongs to the patient. We are doubling down on our efforts to eliminate information blocking practices in healthcare and are instead promoting practices that reward data sharing.

Even with empowered patients, we need our healthcare system to have data sharing and notification abilities across healthcare providers. In our new proposed rule, we are improving the experience for patients and providers when transitioning between the settings. As a condition of participation and Medicare, the strongest lever we have, we are proposing that hospitals must electronically notify providers in a patient’s care team whenever a patient is admitted, discharged, or transferred to another care setting. This is a small step in improving the discharge process for patients and their care teams, but it is a significant first phase of the policies we are proposing.

Looking forward, we want to see a future where it is more than notification at discharge, but where the entire record set will follow the patient. Of course, the success of data sharing relies on our ability to standardize structure and semantics or common meaning of medical terms and our rule took a giant step to making this a reality. By identifying the standard to implement our policies, we’re promoting scalable data sharing, not just an individual patient record from hospital to hospital - but a model that supports the flow of information across the entire healthcare system and we’re encouraging industry to align in this direction, because it’s the future. We know that right now.

The standards provide us with limited data and CMS is committed to no longer sitting on the sidelines, but instead taking an active role in maturing and building standards. Of course, as in everything we do, CMS will double down on our efforts to ensure that patient data are private safe and secure. We must be consistently vigilant to protect our patients and their healthcare information.

With a seamless flow of data, patients can access the information they need to make informed decisions and start to drive down costs. Doctors can provide better care and researchers can unlock cures that will save lives. Health plan providers, EHR vendors, and other stakeholders in the healthcare industry should be aware that the days of information blocking are over. For the last few years, CMS has set the groundwork for ensuring the seamless flow of data. The federal government has already spent over $36 billion on incentive programs to get technology into doctors’ offices and hospitals. Now it’s time for that technology to start working for doctors and their patients to make providing cost effective quality care easier and to empower patients with the information they need.
The future of healthcare is technology. The future of healthcare is electronic information that can be easily shared in a secure and efficient way and the future of healthcare is the seamless flow of data. Years from now when the My Healthy Data initiative will be remembered as a cornerstone of patient empowerment and the policies, we are proposing become commonplace. We will have a health care system where patients have their claims clinical and cost data, all in one place. A fully transparent health system in which patients are in control and they have all the tools they need to make the right decisions for themselves and their families.

We cannot achieve this alone every single part of the healthcare system must be aligned and actively contributing to the sharing of data and the empowerment of patients. It is time to engage the patient in their care. It is time to set us on a course to the future and it is time for all of you listening today to help us get there.

Please review the rule comment on the policies and recommend new ones we are listening and we read and consider every single comment. Working together, we can ensure the reality of patient centered healthcare. Thank you so much.

J. MICHAEL MCGINNIS

Thank you, Kate, for that superb overview of the issues. It is very clear that we have the right steward at the helm for the progress that is envisioned and as possible. So thanks again for your leadership and your remarks that give us a substantial measure of optimism moving forward.

Moving from the principal audience, if you will, for the special publication on Procuring Interoperability to the principal sponsor, Harvey Fineberg from the Gordon and Betty Moore Foundation.

HARVEY FINEBERG

Hello, I am Harvey Fineberg, President of the Gordon and Betty Moore Foundation. I am very pleased to have this opportunity today to speak with you about this important special report and it’s follow on action toward gaining interoperability for healthcare. Today we are awash in a sea of information and a wealth of data, but we have a poverty of insight and a lack of ability to do what we should be able to do with all of that information available.

The essential problem is that thee data that arises in one context or with one provider or is given directly to a patient in a different way does not necessarily communicate, connect, and become available in other contexts or other care. If we want health data to do its job for the patient, the information has to be available when it is needed, where it is needed, and in a form that can be used.

The essential idea of interoperability is very simple. Regardless of who generates the data or where it is obtained, it should be available for the patient, wherever that patient is seen.

Even beyond the individual patient, health data provides a deep resource for policy analysis and potential improvements in diagnosis and treatment that would otherwise escape notice.

It is very exciting to me to have been able, through the Gordon and Betty Moore Foundation, to support the work that led to this important Special Publication from the National Academy of Medicine. Their document outlines the ways in which individual caregivers and providers of all types can act to make
healthcare information more interoperable. The simple way to do that is to introduce requirements in procuring healthcare information systems that make that information operable, available, and transferable to others - to other providers and to patients.

We are seeing some very important progress on the part of government, which is taking action through CMS and through the Office of the National Coordinator to establish standards and to set forth requirements that would make this data available.

Now providers of all kinds can do even more. They can step up to the national need for interoperability by making their data accessible and by setting the standards for healthcare information providers to make their systems interoperable. I am very excited to see this gathering take place, because a report is only as good as the action which follows on it. There are many important ideas and directions contained in this report. I hope that through today’s discussion, and through actions that can be taken and should be taken afterward that we will see real progress in America to make health data available when and where it is needed. I congratulate each of you for participating in today’s discussion, and I look forward to learning the results and the follow on actions from today’s deliberations.

J. MICHAEL MCGINNIS

Thank you, Harvey, for your support, as well as for those words of wisdom related to the need and to the potential for this publication. We now turn to a panel of those involved in the activity.

First up will be Claire Wang. Dr. Wang is the Vice President for Research, Evaluation, and Policy at the New York Academy of Medicine, a counterpart to ours at the National Academies. She, as I mentioned earlier, was the principal staff person working here with us on the development of the Procuring Interoperability report. Prior to that, she was Associate Professor of Health Policy Management at Columbia University. It is a pleasure for me to welcome Claire back to the virtual venue of the National Academy of Medicine, and we look forward to hearing your remarks.

CLAIRE WANG

Thank you, Michael. It is a pleasure to provide a brief overview of this special publication and it was a true honor to serve as the project director for this report during my time at the National Academy of Medicine.

As Michael and Kate mentioned, even though a vast majority of the healthcare providers in the United States certify electronic health records and we have made great progress in data exchange standards, interoperability is still lagging – because we’re not just looking to transmit records electronically from point A to B – we’re looking for clinically meaningful interoperability that streamlines workflow to provide enhanced value and more helpful care for patients.

This publication focuses on one aspect of enhancing interoperability: procurement. It is about how health systems can work together to acquire health IT in a more strategic and coordinated fashion and collectively leverage the demand side power to transform the health IT marketplace so that interoperability will be a default and not the exception.

As you see here, this project kicked off in December 2016 under the leadership of Peter Pronovost, Sezin Palmer, and Mike Johns – co-chairs of the steering committee. The Committee included experts representing corporations, health systems, insurers, professional societies and government agencies. We
undertook this exploration through consultations conference calls and literature review. You will hear from two of the committee members – Raquel Bono and Andy Gettinger later during this webinar.

One important aspect of the consultation was a January 2018 public symposium, with more than 70 leaders joining us, as well as the expertise of many experts. This Special Publication represents not only a summary of the issues, but also a roadmap for moving forward. Although there are various ways to describing interoperability, we consider three levels - facility to facility or the macro-tier, intra-facility or the meso-tier, and point of care, or the micro-tier.

To transform healthcare, interoperability is required across all three levels. Even though we have seen great progress at the macro-tier, many providers still rely on paper or fax to exchange information with another facility. Some receiving clinicians still find it difficult to get a full picture of the patient’s function, care, and history.

At the meso-tier and the micro-ear, significant portions of the data exchange still depend on manual entry by clinical staff into medical devices. Commonly used devices use proprietary interfaces, which are not operable or do not integrate with other systems at all. This is a series threat to patient safety and care quality.

Here we envision a fully interoperable system. When the patient changes hands across providers, including public health and social services, this system allows for continuity of care. At the meso-tier, better integration of various IT systems allow workflow integration and risk management. And at the point of care, the micro-tier connectivity and non-proprietary interfaces can support more efficient modular upgrades to components that are plug and play. Providers can also augment in-person encounters with better telemedicine, mobile health technology, and patient portals.

The use of open APIs across all tiers will allow developers to build tools for patient engagement, care coordination, and more, which empowers patients to be a partner of their own care and a marketplace that is innovation-friendly and patient-centered.

The steering committee identified five action priorities for health system leaders: commit, identify, collaborate, specify, and assess. First, providers will start by recognizing interoperability as mission critical. Then, it is critical to build the accountability structure, including an interoperability steering group to execute and monitor the procurement of interoperability, which must be managed as part of a long-term business strategy, rather than many uncoordinated, one-off purchase decisions.

Then the steering group will need to systematically identify a set of goals and priority use cases to achieve better interoperability, not just within one hospital but also among entities involved in a patient’s care. Leaders should actively partner with other providers, payers, and vendors to align resources in their procurement strategy. Partnerships have allowed buyers to exercise collective power in shaping interoperability quality and cost industries, ranging from banking to aviation. Healthcare needs to do the same.

Next, it’s important to specify through these steps specific infrastructure needs and how to build capacity so we can translate our interoperability needs into clear, detailed, and specific technical requirements in the RFP, so that there is no latitude in vendor interpretation.
Finally, we need to establish metrics to monitor short term and long-term progress so we can learn and improve over time.

Working with the Johns Hopkins Applied Physics Lab, we developed this technical appendix, which provides further guidance and details on key elements. It also includes example interoperability specification language and use cases from the defense industry.

Of course, procurement is only one of the factors at play. Technical, cultural, and political barriers continue to exist. So the committee also discussed the rules for government agencies, private payers, and health IT vendors as well as the need to eliminate the practice of information blocking.

We hope to see the special publication spark further dialogue and action - because our patients depend on it. Thank you so much.

**J. MICHAEL MCGINNIS**

Thank you, Claire, for that superb overview of a complex set of assessments that you stewarded on behalf of the committee. Thanks for your good work in that respect.

We are now turning to one of the report authors and members of the steering committee. Vice Admiral Raquel Bono is the director of the Defense Health Agency at the Defense Health Headquarters in Falls Church, Virginia. She leads joint Integrated Combat Support agencies supporting the Army, Navy, Air Force and Marine Corps medical services to provide a medically ready force to support combatant commands in both peacetime and wartime. Vice Admiral Bono. Thank you for being with us and thank you for your service and leadership on this committee.

**VADM RAQUEL BONO**

Thank you, Mike and I appreciate this opportunity to participate in the webinar. I am glad that we were able to get this back on schedule after the snowstorm. I appreciate also the comments from Dr. Goodrich and from Harvey Fineberg. I could not agree more with the drive for why we need to do this and what the opportunities are. That is why I participated in this project and to reflect on what we are doing in the Defense Health System.

Just for everyone's overview, as Defense Health Director and Defense Agency Director I oversee the delivery of health care to over 9.5 million beneficiaries in the United States, as well as internationally. These patients are active duty, their family members, and retirees from the Army, Air Force, Navy, and such. Part of the perspective that I would like to bring to you is via one of the ways we approached interoperability in the sharing of data.

Within our military health system, we have about 50 inpatient hospital facilities and we have over 300 clinics again distributed across the United States and internationally. The importance of being able to share data about our patients from the battlefield back to the clinics, back to the hospitals, and across different countries is extremely important to us. We realized that we had an opportunity to try and approach this in a very enterprise and a broad way and in a way that was also responsive to some of the challenges that we were seeing going on in the healthcare sector in the civilian space.
What I would like to highlight for everybody is to very briefly talk about the enterprise approach we took in our focus on interoperability and how we applied that to the procurement of our digital and technological equipment that supports the collection and gathering of data and the sharing of data. The one other thing that I would like to share is what became a driver for us was paying attention to cyber security in the security of our systems and our devices. We are a little bit more sensitized to this because we are oftentimes an attack source for other countries and individuals who are trying to get into our systems. It is also important to understand that part of our perspective on cyber security is also driven by our own need for looking for data outside of our own systems, and I will let you figure out what exactly that means.

The exciting thing that happened since this report was published is that both DoD and the Department of the VA have both agreed to use the same electronic health record. The same instance of an electronic health record – so not a version that’s a DoD version and another that’s the VA version. We will be using the exact same version. To put that into perspective, while the DHA has about 9.5 million patients, the VA also has about 10 million patients of their own, and they also have a very broad network of hospitals and clinics. We have not only come together on the same electronic health record, but we are also looking at how we’re procuring medical devices and other devices that will sit on that network and interface with the data exchange of our patients, to be accessed and stored in a similar way.

Our effort toward interoperability is really driven by the fact that not only are we a very large health care system, but the other part of that is that we purchase about 60% of our health care from the private sector and we have about a billion dollars a year in medical device procurement. And so part of our approach to this is setting those requirements for our procurement – that 1, they need to be interoperable, they need to be interoperable between the VA and the DoD, and they also need to be interoperable with our new electronic health record. Finally, it has to meet our cyber security profile in order to interface on that and in with all of our life cycle management. We want to know that these medical devices and apps and programs that we’re using to collect and share data will interface with the single data repository that we will be using between the DoD and the VA.

So that’s a very broad overview of how we’ve approached interoperability and some of the efforts that we’ve used to leverage our procurement capability and setting the requirements for procurement as we move forward in our partnership with the VA, as well as with the private sector, who provides, as I mentioned before, 60% of our health care to our military beneficiaries. I look forward to the questions and the conversations afterward, and I thank you for your time and attention.

J. MICHAEL MCGINNIS

Thank you, Raquel, again, both for your contribution to the publication and for this very encouraging announcement on the commitment of the VA and the DoD to ensure a common electronic health record is used, in one fell swoop ensuring interoperability for 20 million plus citizens around the country and the leadership that you’re providing with your broader purchasing strategies will also do a great deal to advance the issues engaged in the publication. So thanks again so much.

We are now turning to Kim Chaundy. Kim is from Geisinger Health System. She joined the health system in November of 2010 as the operations director of the Keystone Health Information Exchange, which is one of the oldest and largest operating health information exchanges in Pennsylvania. The exchange connects over 50 healthcare organizations and serves over 4 million patients. Kim is also the director of
Geisinger’s IT integration system support team and in an ideal position to reflect on the importance of the issues identified in this publication Kim. Thank you very much for being with us.

KIM CHAUNDY

Thank you, Mike, and thank you to my colleagues. I agree about all of the statements that have been made so far and the commitment that everyone is taking for such a good cause - interoperability.

Geisinger has taken a stance in many different ways in regards to interoperability and I think a lot of us have mentioned some of those direct attributes of how important it is to have the patient engaged in that effort, as well as to have the community engaged.

Geisinger has about 8 hospitals and 89 practice sites that we are servicing now in two different states. We are servicing 6 million patients and our commitment to making sure that we can have a unified delivery approach with our EMR system did not end there. We also found very early on that it was important to bring in the community and to capture the community data so that when our patients are being served in our community, their care members are the care team members have access to the data when and where it is needed.

I am also super excited to be able to offer different types of interoperability approaches from both Geisinger’s perspective and from the health information exchange. One major opportunity we are seizing is notifying providers or case managers when a patient is admitted or discharged from a hospital setting or an ED setting. We are pushing direct results into EMR systems so providers don't have to worry about going out and looking forward or remembering that it was ordered, if it was ordered. We want to make sure that we are allowing the providers to have time with the patient and have access to the data, even if it was performed outside of their setting.

We are also making sure that we can collaboratively work with population health management tools so that the interoperable approach to where the data needs to go is working on behalf of how we can help treat and prevent illnesses. In the future, we also are very, very committed in keeping it as a priority, with all of our ongoing contracts and making sure that all new contracts are following the standards on making sure that the requirements are drilled through and the workflow processes are identified, so that we can be assured that when we are connecting to devices, the data is going to flow accordingly and fluently.

Our goal is to make sure we connect all the care continuum to their patients and make sure wherever the patients go the reports and the results are going there before they get there. It is also critical to be connected to the nationwide exchange, as well as being able to serve as a hub. Like I said, we are very, very committed of making sure that anybody served in our service line or service area will be assured that their providers have access to their data when they go back home. I look forward to many more discussion points and questions thereafter. Thank you.

J. MICHAEL MCGINNIS

Thank you, Kim. Now, we turn again with thanks to Bill Gregg from HCA. Another organization which has important potential to take important steps to foster interoperability. William Gregg is the chief clinical transformation officer and vice president of clinical informatics at HCA. Since joining HCA, he has served as a clinical business owner of clinical informatics and Information Management health information exchange and clinical decision support. Bill’s primary focus is on system level integration of technology,
information processes to support transformation of clinical care, and our rapidly changing healthcare landscape. Bill, thank you very much for joining us.

**BILL GREGG**

Thank you very much. I really appreciate the opportunity. And you know, I couldn’t agree more with the statements from all the participants so far and I just kind of wanted to go through a little bit about what HCA is doing right now. HCA’s motto, our value statement, is that we are committed to the care and improvement of human life. And we believe very strongly that data or lack of data shouldn’t get in the way of that and we’ve embraced wholeheartedly that idea of data liquidity. Because the lack of data is often what gets in the way of ending the cost curve and bending the other changes that we need to do.

As was mentioned earlier, to really be able to make healthcare sustainable and to provide that high quality and safe product that we all want it to believe and want it to be. At HCA, we really believe it is as critical as this. This report is putting forward that all of us need to do this together. If each of us tries to do it on our own, it is going to pit one organization against another, but when we all join forces and try to do it from the same common playbook, that allows us to start to compete, not on hoarding data or moving data and in ways that might constitute information blocking, but allows us to really compete on the merits of what we’re providing to our patients and really puts the patients at center of care, which we believe is the right direction.

HCA represents about 5% of US healthcare - 185 hospitals, hundreds of clinics, and almost 35 million encounters annually. We have tried to approach interoperability by covering all the tiers that are described very well in the report. I would also add specifically that we have been a big supporter of the Center for Medical Interoperability and working in that micro-tier as we really look to try to get interoperability with our devices. We believe it is a significant burden on our clinical workforce to manually enter data and takes them away from spending time directly on patient care. One of my favorite quotes, which is from a particular paper by Cantwell McDermott, that was put in the report was the exhausting litany of clerical tasks that we give our clinicians. I do not think that can be underemphasized. That is such a big piece of what we need to do to free up that workforce to actually provide care for our patients.

So we’ve been a big supporter, not only in the technical side, but also financially. We have been building an internal health care infrastructure which has allowed us to have semantic interoperability across our enterprise. That is really helped to move data where we have control over it because we’re both the source and the destination. One of our bigger challenges, and we’re hopeful as the future goes on, is in that macro tier. Really, the challenges with semantic and syntactic interoperability, as we move data, both inside and from outside sources as well as outside of our organization. One of the things that we’ve tried to do is to set up a community exchange partnership and what that allows us to do is to create a round trip when someone refers a patient to us, or a patient moved from one organization into ours. We automate the sending of data back to them. It does not require a human being to intervene and I think that goes to what is in the report about really trying to automate those processes and really getting it very workflow centric. We’ve got to be paying attention to that, where we don’t burden our clinicians, any more than what they’re already trying to do.

But I would add that, you know, as we look at exchanging that data and in both within HCA and other organizations I’ve talked to around the country, the onslaught of this data is intimidating. I think the biggest challenge going into the future will be the signal to noise ratio – we know that more and more
information is not better information for our clinicians and that's why it's so key that we have this level of interoperability. We are going to be tasked more than ever with having to sift the signal from the noise and make sure that the right information, the important information, is brought to the attention of our clinicians and I believe that's part of our solemn responsibility as people in informatics and as healthcare leaders around the country. But, just kind of as an overview, you know, HCA is very supportive of this program and really looks forward to its implementation and is excited about the prospects for improving healthcare around the country.

J. MICHAEL MCGINNIS

Thank you, Bill, for that very clear expression of commitment and potential for progress. We're now going to turn to Andrew Gettinger for our last panel comments.

I'd just like to remind folks that you can submit your questions via the Q&A section on the webinar, and please indicate which of the participants you’d like to direct your question to. I will also offer them the initial opportunity to ask a question of their fellow panelists before we move into the general listening community.

Dr. Gettinger serves as Chief Clinical Officer for the Office of the National Coordinator of Health IT and is also a professor of Anesthesiology Emeritus at the Geisel School of Medicine and adjunct professor of computer science at Dartmouth. His extensive experience in the field of health information technology includes leading the development of the electronic health record system at Dartmouth and he was subsequently a senior physician leader during Dartmouth’s transition to a vendor based EHR. He’s been a good colleague of ours throughout much of our work on the digital infrastructure, Andy, thank you for being with us.

ANDREW GETTINGER

Congratulations to you, to Claire Wang, and to the rest of the group. I'm going to talk a little bit about book ending what Dr. Goodrich started with. The ONC is very excited about enhancing the infrastructure and setting some of the federal requirements that will enable interoperability. A lot of our thinking was influenced by the work of this group, and we're thankful for that.

Just as CMS has a proposed rule, we have a proposed rule as well. And we are very interested in responses to some of the ideas that we’ve brought forward. I'm going to concentrate on just a couple of them. Actually, some of them have already been referenced so I'll start with information blocking. One of the problems with interoperability is information hasn’t flowed as expeditiously as we want it to and we were charged with defining what the circumstances were when it is legal or appropriate to not have information flow. We identified seven exceptions where it’s appropriate in our proposed rule. We’re hoping that others will look at those to validate the ones that are reasonable.

Now, the information blocking provisions are actually pretty expansive. They apply to health care providers, health information exchanges and networks and health IT developers because Congress heard from many stakeholders that each of those groups participated either directly or indirectly in circumstances that were defined as information blocking. By the way, there are dramatic consequences for folks if they are found in violation of the information blocking prohibition.
I'm going to turn now to what we used to call CCDs. The common clinical data set. That is what OFC requires of Certified Health IT developers to be able to share. We have renamed it as US CDI – the US core data for interoperability and have added some really important elements. One is provenance - one of the challenges with information is knowing where it originated so requirements around provenance of that information will help. We will also require all the clinical notes be able to be interoperable. In the demographics, we've added address and telephone number. Many of you know that we struggle at times to identify our patients and telephone number in particular is emerging as a very strong component of more reliable identification. Finally, we have also added pediatric vital signs. Again, some of our infants and children who have different kinds of vital signs than adults had not been adequately addressed. More importantly, we're going to do an annual update of this information, so we expect to expand this core data for interoperability, which is required to be machine readable. So electronic health information has to be exportable, has to be machine readable, and that will enable us to get away from faxes, printed papers, and other things that make this information up particularly useful.

The last thing that I want to comment on is this construction of open API's without special effort. You've already heard Dr. Goodrich talk about Blue Button 2.0. So, Apple, not to focus on just one, but Apple has used an open API technology called FHAIR and made that available to individuals patients to have access to their electronic health record.

This is the first of what is, we believe, is a very substantial contribution to interoperability with the patient in control of where that information flows. I've very briefly tried to point out three or four of the elements of our proposed rule. The rule is 700 plus pages long, so you can imagine that there are lots of details that I didn't get to, but I'm going to stop there and turn it back over to you.

J. MICHAEL MCGINNIS

Thank you very much, Andy, and thanks to each of our panelists for really wonderful presentations and for your contribution throughout the process. We do have many questions, as one might imagine, given the level of interest nationally and the robust attendance we have on this webinar, but first I'd like to give the opportunity to any of you who might have questions for your colleagues.

Then we'll move on. You can still ask questions later on. One question comes to picking up on an item that you mentioned, Andy, and that is patient access. The question is addressed to VADM Raquel Bono. How do you see open notes or clinical notes included in a universal type patient portal, where patients might have access to these important notes.

VADM RAQUEL BONO

Well, I was primarily speaking from the procurement part and setting requirements. One of those requirements will be for the patients to have access to their data and to their clinical notes across the entire spectrum of care. So whether the patients start out in the DoD and eventually transition to the VA, they would be able to have access to those notes. So thank you for giving me the opportunity to respond to that.

J. MICHAEL MCGINNIS
The next question is addressed to Kim Chaundy. What are some metrics your organization has developed to measure success? What do you see interoperability success looking like for the organization and for its role in the region?

**KIM CHAUNDY**

So the measurements that we are really playing close attention to are the number of results that we can file directly into EMR systems and automating processes for work efficiencies on a daily manner. We are looking where the data is going and where it’s coming from, and we look to increase the amount of data flow throughout the community to allow the providers and the patients have access to it. I forgot to mention this earlier, but not only are the providers getting access to it, but the patients are getting access to it as well. Thank you for the question.

**J. MICHAEL MCGINNIS**

I should open up the questions to the other members of the panel the opportunity to respond to either those two questions as well if you wish.

**ANDREW GETTINGER**

I just wanted to comment on the right to access. This information is embedded in not only our regulations, but in the office’s civil rights regulations. So I think this notion that patients will have full access to all, not only their protected health information, but their electronic health information which is a broader category that we’ve defined is clearly going to be in our future.

**J. MICHAEL MCGINNIS**

Thank you very much. Let’s move to a question for Bill Gregg. Who should take the lead on the interoperability roadmap? Actually, that sounds like a question that’s implicitly for each of the panelists. So, Bill, would you like to start off, and then we can turn to others who might be able to reflect on this question? What do you think might be needed as next steps to move along the path to full scale interoperability throughout the nation?

**BILL GREGG**

Yeah. It’s really a tough question. And I don’t know if I can answer exactly who, but I think it’s the notion really us trying to work from a common playbook. So that what an individual organization is asking for isn’t coming from just that organization. I would go back to the perfect example in that micro tier of the Center for Medical interoperability. They’re supporting all provider organizations and saying, look, here’s how we’re going to get to the manufacturers. We don’t want to stop any manufacturer from doing things, but we do want to get everybody to kind of play by the same rules. We want everyone to compete, but we don’t want to be at odds with each other and be counterproductive. There’s got to be a way that we can organize these things together, and I think the Center is a good example of that, in that they are working in that micro-tier. But, you know, some kind of an impartial organization to spearhead that effort,
and allow any provider organization to be a member would allow us to start to think about these things in a common way.

**J. MICHAEL MCGINNIS**

Thank you. Kim, would you like to reflect on what you think the next steps might be for expanding the national profile of interoperability?

**KIM CHAUNDY**

I support the comment that was just made 100%. We all need to come to the table with open minds, knowing that in the center of everything we’re doing, it’s directed for the patient and the patient’s care. We need to create the opportunity for all systems and everyone to follow the guidelines and make interoperability easy and accessible. I think it’s going to take us above and beyond what we can do for this nation.

**J. MICHAEL MCGINNIS**

Thank you very much. We’ll turn to Andy Gettinger again for a variation on that question. You can address it specifically, what you think the key next steps are. But there’s a question here that’s directed to you that’s relevant, and that is with all the different standards that are being used today, a national best practice or recommended standards for specific items would go a long way, as well as recent, reproducible, scalable data interoperability between systems and vendors. Is this something that’s under consideration?

**ANDREW GETTINGER**

It’s wonderful when you represent the government and you can point out things that we’ve already done that address the question. So for the past number of years, ONC has categorized the various standards that are available for interoperability. For those who are on the phone, healthIT.gov/ISA. That stands for the interoperability standards advisory, and each year we put out an assessment of the standards that are available that should be in the US to facilitate and promote interoperability. They are proposed at the end of the year. So they’re under consideration, then they’re adopted at the end of the year and it’s been a very successful initiative. What it does is reflects the maturity of the standards as they’re being proposed, and also the updating of standards, as different uses of the standards come to common use.

**J. MICHAEL MCGINNIS**

Thank you, Andy. The next question is for VADM Raquel Bono and is focused on the relationship between the DoD and the VA and asks what do you think has made the relationship or the harmonization of the two systems successful to date? How do you see the role of procurement practices and ensuring that it goes the next several miles to completion?

**VADM RAQUEL BONO**

Harmonization is a really nice word. It’s probably more aspirational. But there is a shared goal. I think this actually does speak to what happens when you ask who needs what or who should take the lead on this. It’s probably not so much a question of who as it is a question of what. I think that’s actually what has
galvanized the VA and DoD. It’s the what. The what for us is how do we create or how do we integrate our systems of care, so that the patients that we share have access to their data and that the people who are taking care of them also have access to that, so they can make those informed decisions so that we’re able to support our patients from really truly cradle to grave. I like the comment about data liquidity and being able to have that go seamlessly. That’s a big part of it is the understanding that we’re designing the system for the patient. But in terms of how we do we sustain that, I think that’s a really good point. We are learning that as we set the requirements when we aggregate our demand signals from the VA and DoD in terms of our medical devices. As I mentioned, from the DoD side, we are looking at a billion dollars a year that we procure in medical devices and we find that when we are working with the VA and we’re looking at similar categories of medical devices. We aggregate our ability to procure those types of devices that are interoperable, that interface with our electronic health records and that meet our cyber security profile and because both VA and DoD are also getting into that space of purchasing healthcare from the private sector, we also feel that there is some way we can aggregate our demand signals with that relationship as well. Thank you.

J. MICHAEL MCGINNIS

Thank you. This last question is to each panelist. I say last because we’re not going to have time to go through too many more once we go through each of the panelists. It asks if CMS will mandate that all EHR systems use a single system, a system agnostic file type for EHR and allow patients to request their files directly from EHR manufacturers. In your opinion, this is what is required? It’s a complicated question, but if you could answer as simply as possible on what you feel might be a leverage point in order to drive greater commonality among vendors. Let’s just go down the list.

VADM RAQUEL BONO

I think that would be helpful. I don’t think it’s the only thing. As I’ve mentioned earlier, the what has to be clearly defined and there has to be a collective effort. I think that CMS being able to set some standards would help. Even some regulatory help from ONC might be needed. But certainly there needs to be a collective effort on this and I think CMS being able to help define some of that might be one aspect that would be needed on the collective efforts.

KIM CHAUNDY

I think that’s a fabulous question. I think it’s a very complicated question to answer, but from a preference standpoint, I would love to see that we are all pushed to the standards and everyone really following the nation in one effort to make sure that the patient can get access to the data and that there’s no data blocking, as well as getting access into other EMR systems. So I really look forward to the thought of this coming together.

BILL GREGG

I mean, I definitely agree. You know, we want to have patients have access. Maybe I’m answering this in too technical of a way. But I think that individual EHR, you know, it’s going to be a big task for them to change the way they fundamentally represent things within the system. At least if they put the bare minimum in, that they should be able to translate it in a kind of a Rosetta Stone way to that common standard so that when the patient sees it, they really don’t know that there was any difference. Getting them to change the fundamentals of their EHR at the core level of the code is a huge ask, and I think we
have to do it in steps. But I definitely think the end result needs to be the same, where it's that true data liquidity where the data is available for care, for patient access, for all those things.

ANDREW GETTINGER

I agree, it's a great question and I don't know if Kate is still on the phone, but she and I are leading a joint ONC/CMS initiative to reduce clinician burden. One of the proposals that we've brought forward in that report, that is going back to Congress, is actually to establish some standard way of presenting the data within the HER, and I would extend that to within the patient portal. Not to change the underlying intellectual property that the EHR developers have, but to reduce the cognitive burden that I think many clinicians feel as they approach an HER. Some have to use different EHR when they go from their office setting to a hospital setting. And in the analogy, it's like getting into a car and being able to drive a car, you basically know there's going to be a steering wheel, a gas pedal, and a brake, and they're going to be in the same space, but the interior of the car could be very different. Likewise, you can drive from California to DC and generally know what the traffic laws are going to be because there's a relatively uniform code of traffic laws, although in some states you don't understand what a blinking green light is versus a blinking yellow light. So we're proposing, and it's had some mixed reviews, a degree of standardization and a process to get there. I agree with Bill. It's not going to happen overnight and it will require a substantial retooling of our existing health IT.

J. MICHAEL MCGINNIS

I'm afraid we're out of time for additional responses. I want to thank each of our panelists. Claire Wang, VADM Raquel Bono, Kim Chaundy, William Gregg, and Andrew Gettinger for really super contributions and obviously as well to Harvey Fineberg and to Kate Goodrich.

I will note that we will be following up this publication with a convening of senior leaders from health systems and health information officers to talk more specifically about possible next steps, building on the your answers to the questions and the questions themselves. If there are other elements that those in the audience would like to see the National Academy of Medicine take on in that respect, please send them to us. Thanks to all, and to be continued.