EXAMINING THE STATUS OF VA'S ELECTRONIC HEALTH RECORD MODERNIZATION PROGRAM

HEARING

BEFORE THE

COMMITTEE ON VETERANS' AFFAIRS
UNITED STATES SENATE

ONE HUNDRED SEVENTEENTH CONGRESS

SECOND SESSION

—————

JULY 20, 2022

—————

Printed for the use of the Committee on Veterans' Affairs

Available via the World Wide Web: http://www.govinfo.gov

—————

C O N T E N T S

————

JULY 20, 2022

SENATORS

WITNESSES

Panel I

Panel II

APPENDIX

PREPARED STATEMENTS

(III)

QUESTIONS FOR THE RECORD

EXAMINING THE STATUS OF VA'S ELECTRONIC HEALTH RECORD MODERNIZATION PROGRAM

WEDNESDAY, JULY 20, 2022

U.S. SENATE,
COMMITTEE ON VETERANS' AFFAIRS,
Washington, DC.

The Committee met, pursuant to notice, at 3 p.m., in Room SR–418, Russell Senate Office Building, Hon. Jon Tester, Chairman of the Committee, presiding.

Present: Tester, Murray, Brown, Blumenthal, Hirono, Sinema, Hassan, Moran, Boozman, Cassidy, Tillis, Blackburn, and Tuberville.

OPENING STATEMENT OF CHAIRMAN TESTER

Chairman TESTER. Good afternoon. I want to call this meeting to order. We are a little bit quick but this is a very, very important hearing and there is going to be, I believe, participation by everybody but two on this Committee, at least. If they are free they are going to be here. They have indicated they want to be here.

I want to thank our panels for being here. There are two panels today and I want to thank the first panel. The second panel will get thanked when they get up. And I want to acknowledge the hard work of dedicated VA employees, including those on the front lines using the new EHR.

For nearly two years they have done all that they can do to provide health care to veterans in the middle of a pandemic and for some five States with new electronic health records that has been a challenge. We know this program faces real problems, and we need to work together to make sure the needed improvements are done today, not tomorrow.

Today the VA notified our Committee that the planned deployment of the new EHR in Boise, Idaho, scheduled for this Saturday, would be delayed, and I will tell you that I support that decision and I believe additional improvements are needed to ensure any future deployments are safe and successful. We need to know what is working and what is not, and we need to listen to local VA administrators and employees about what they are saying.

It is not just the unknown queue problem. It is pharmacy, behavioral health, financial systems, referrals, and much more that needs to be fixed. The patient safety is always job one. Converting VA over to this new EHR system from VA's existing VistA system

is a huge undertaking and it requires meaningful engagement with stakeholders, honest communication, and solid training.

Two days ago, VA third-party independent analysis of the new estimated full cost of the program was briefed to Congress. The estimate reveals that the cost is going to be $50.8 billion over 28 years. This should serve as a wake-up call to everybody, including the folks at VA, Oracle, Cerner, and, of course, us, Congress, because we have a lot of work ahead of us.

The new analysis shows, among other things, that VA did not factor in the cost to mitigate the decreased productivity to the VA workforce when the EHR was first at use at a facility. Other missed costs would include increased community care usage, surged staff to help facilities, long-term cost to maintain the new EHR.

As of April of this year, Cerner, now called Oracle Cerner, has been paid about $2.8 billion for a product that, quite frankly, is not up to snuff. Since the Cerner purchase, Oracle officials have been candid about the challenges with the program and have said that they are dedicated to addressing its problems, and they said they would do it on their dime. That is something that I intend to hold them to.

I should note a Senate-confirmed Under Secretary for Health has not been in place since 2017. That is roughly the entire life of the EHRM program. Dr. Shereef Elnahal was nominated on March 10, 2022, and this Committee reported that nomination of unanimously on May 4, 2022. But Dr. Elnahal's final approval by the full Senate has been blocked by one—one, one—of our Senate colleagues that does not even sit on this Committee.

The critical challenges that EHRM program faces today is just one more reminder of why our colleagues in the United States Senate need to quit playing politics, quit running for President, and confirm Dr. Elnahal.

And with that I will turn it over to you, Ranking Member Moran, for your statement.

OPENING STATEMENT OF SENATOR MORAN

Senator MORAN. Chairman Tester, thank you, and good afternoon to our panel and to you and other Committee members. I want to welcome the witnesses to provide testimony today on what seems to be a recurring difficulty, the Electronic Health Record Modernization program. There is no doubt that the project faces substantial delays and cost overruns. The question is, what is needed to make the system function safely and effectively and why is the VA not getting it done?

The Chairman and I sent a letter listing 36 fixes that are needed. Chairman Tester and I requested a response, and we need to see much faster reaction response.

The Institute for Defense Analyses has estimated implementation over 13 years at nearly $39 billion. They have also estimated sustainment at over $17 billion. Altogether, that is a $40 billion, over the cost estimate VA has been operating under. Until Monday we were not aware of how large the cost overrun truly is.

The Office of Inspector General has issued 14 reports, including two new ones last week, sounding alarms about many aspects of

the effort. We can see in the five medical centers where the system is being used that it is not sustainable for VA in so many respects. VA already considers the system unsafe to roll out in large, complex medical centers, and the path to make it safe is still unknown.

I hope today that we can have a frank discussion about the reality of the situation. Veterans and VA employees expect and deserve no less.

Mr. Chairman, I thank you for conducting this hearing.

Chairman TESTER. Thank you, Senator Moran, and now we are going to turn to our first panel. We are going to hear from VA officials who together share the responsibility for managing the very aspects of the EHRM program. Dr. Terry Adirim, who is the program's Executive Director, is accompanied by the Honorable Kurt DelBene, Assistant Secretary for Information and Technology and Chief Information Officer; Michael Parrish, Principal Executive Director for the Office of Acquisition, Logistics, and Construction and Chief Acquisition Officer; and Dr. Gerard Cox, Assistant Under Secretary for Health for Quality and Patient Safety at the Veterans Health Administration.

Dr. Adirim will provide a statement. Hopefully it will be close to five minutes. Please know that your entire statement will be part of the record, and you may proceed.

PANEL I

_____

STATEMENT OF TERRY ADIRIM
ACCOMPANIED BY THE HONORABLE KURT DELBENE;
MICHAEL D. PARRISH; AND GERARD R. COX

Dr. ADIRIM. Thank you. Chairman Tester, Ranking Member Moran, and distinguished members of the Committee, thank you for the opportunity to testify today in support of VA's initiative to modernize its electronic health record, and as you said, Senator Tester, I am accompanied here by my VA colleagues. And this panel demonstrates VA's EHR modernization program is a department-wide effort, and I am appreciative of the continued collaboration with these experts.

Additionally, I look forward to continuing to work with you and your staff to ensure that we are successful. We appreciate your support during this challenging journey.

I want to start out by saying that we are committed to full transparency about our deployment efforts. Further, as a physician, an expert in health care quality and patient safety, I take patient safety, risks, and harm very seriously, and I work closely and collaboratively with the VHA experts who review and analyze these incidents.

We acknowledge that the first deployment at Mann-Grandstaff in Spokane, Washington, was problematic. The events that occurred during the first several months after go live in Spokane that resulted in any degree of harm to veterans was unacceptable. We are unequivocally committed to providing safe, effective, high-quality care to veterans.

Our health system has made great efforts into becoming a highly reliable organization with the number one goal of zero harm to vet-

erans, and my focus, as Program Executive Director, is on proactively instituting measures to reduce risk to patients and not wait for reports of harm to make it to my desk.

VA learned from this experience, conducting a department-wide strategic review that identified patient safety and other areas for improvement. Our charge has been clear: create a single, seamless, integrated health record for military service through veteran status. This complete record within a single system allows those who care for our nation's veterans to keep pace with the future and increasingly complex demands of VA's health system.

Our nearly 40-year-old legacy system has served us well but it has reached the end of its lifecycle, and given its limitations it needs replacing. As Secretary McDonough has said, this is a leap forward we can and must get right, and we will.

I was brought on board to get this effort back on track. With my background as a practicing physician and health care system leader, most recently within the military health system, I bring the perspective to this project as an end user and someone with knowledge and experience deploying a new EHR within a large, complex health system. I have spent the last almost seven months since my arrival to VA assessing what did not go well in Spokane and planning for doing it better. With a new senior leadership team in place, close collaboration and communication across the Department, and better-engaged site leadership and staff, VA now has a more informed approach to deployment.

I will be blunt. In hindsight, Mann-Grandstaff was not ready to adopt a new electronic health record. Planning was inadequate and lacked a thorough assessment of the site's readiness. And most importantly, in October 2020, VA medical centers were still being seriously impacted by the COVID pandemic. This was not the fault of the personnel at Mann-Grandstaff. In fact, they have worked hard to continue to care for our veterans under difficult circumstances and should be commended.

But that was nearly two years ago. Today the EHR modernization program reflects many valuable lessons learned from Mann-Grandstaff. While we are planning to move forward with other deployments we are still very much engaged with our past sites, closely monitoring and assessing for user experience and adoption. We know, from other health care systems, that full adoption and return to baseline operations can take six months or more. This is complex work and therefore we expect challenges.

VA is committed to resolving our challenges and has already taken a number of important steps to address them. This includes pressing Cerner to make the needed changes within the system to ensure better stability and to accelerate installation of the capability enhancements our medical personnel need to do their work more effectively and efficiently.

I want to be clear. Our top priority is and always has been patient safety. In fact, due to concerns at our first deployment site, patient safety and risk reduction activities have been incorporated into every aspect of the deployment effort.

Of course, we know that some level of risk will always be present—that is the nature of health care—and we will continue to prioritize measures that mitigate as much of that risk as possible.

But what we are doing is working. I see it in the metrics and I hear it from people within the enterprise. As in any large deployment effort, we expect to experience bumps along the way, but we are now organized to respond rapidly.

Chairman Tester, Ranking Member Moran, and members of this Committee, thank you for the opportunity to testify today. We are happy to respond to any questions you may have.

[The prepared statement of Dr. Adirim appears on page 43 of the Appendix.]

Chairman TESTER. To the second. Pretty good. I appreciate that. I appreciate your opening statement. And I will tell you, I do not think there is anybody on this Committee who has been associated with this effort that has not known that there were going to be some bumps along the way. I think it is all our responsibilities to make sure those bumps are minimized, so I appreciate your opening statement, Doctor.

Dr. Cox, you are the top person at VHA on patient safety and quality. I am going to make a statement and you tell me if you think you agree with me. The unknown queue feature in the Oracle Cerner EHR was not working well, and it created incidents of patient harm. Would you agree with that?

Dr. COX. Thank you, Mr. Chairman. I would. I would like to underscore what Dr. Adirim said in her statement that VA is absolutely committed to providing safe, effective, high-quality care to veterans. The events that occurred at Spokane that led to harm of any type to any veteran are unacceptable. They are a disservice to those veterans, their families, and to our hard-working frontline clinicians.

Chairman TESTER. Thank you. Has the unknown queue issue been fixed?

Dr. COX. There have been strategies put in place to monitor that queue and to make sure that the orders that were initially lost or not located at Spokane for several months are now identified and dealt with on a daily basis. I do not think I would say that a permanent fix is in place, and I would defer to Dr. Adirim to elaborate on whether there are other actions that need to be taken.

Chairman TESTER. If you can, or I will have a follow-up. Either way you want to go.

Dr. ADIRIM. Sure, Senator. The unknown queue is not something really to be fixed. It is a feature of the Cerner software. It is the way that it is designed, and people can talk about whether they think it is a good design or bad design.

What happened during the Mann-Grandstaff deployment was poor communication, there were training failures as well—nobody was specifically trained in using this particular feature—and the process was not put in place. Since then, the part of the system which caused people to put in orders that could not be filled, the location part has been reconfigured. A process has been put in place and is communicated very clearly, and staff is trained specifically in using the unknown queue.

Chairman TESTER. And so let me follow up, to either Dr. Cox or Dr. Adirim. Do you feel today that the incidents that could poten-

tially create patient harm due to the unknown queue will not happen again?

Dr. COX. I will take that, Dr. Adirim. I feel that we have done everything possible to reduce the risk of any additional harm to any veteran. That is, we have learned from the lessons that our own frontline clinicians brought forward at Spokane and now know where the vulnerabilities are and how to take steps to prevent similar things from happening at additional sites.

Chairman TESTER. So if something were to happen moving forward it would be not necessarily something that would be caused by the program but something caused by the people that are running the program? And, you know, Tillis is sitting here thinking, God, that is the way it is all the time anyway. But the truth is it is something that would be caused by personal error, not because the program was designed in such a way that files were going somewhere where people did not know they were going.

Dr. COX. Mr. Chairman, when we think about problems with health information technology products, including electronic health records, we think about a range of causes, and contributing factors often include people, process, or technology, and usually some combination of the three. So all of those factors can contribute to error.

Chairman TESTER. Okay. Could you walk us through the broader list of concerns VHA is monitoring with the new EHR, let me tell you, like pharmacy, behavioral health, referrals, broader hospital operations, and kind of walk us through what you are doing to solve those issues?

Dr. COX. Yes. I would be glad to. The unknown queue is a problem with where orders go, as you pointed out, and issues regarding provider orders are just one of nine or ten categories of issues that we are monitoring and putting mitigation strategies in place to address.

You mentioned a couple of others, questions regarding pharmacy, behavioral health and suicide flags, identification, medication management, ambulatory care, and there were four or five others. So for each of those, we call them domains, of issues that have resulted in patient safety concerns, we assembled teams a year ago, each led by a subject matter expert in that particular area. So for example, the pharmacy domain team is led by a pharmacist. And those teams, working side-by-side with the frontline clinicians at Spokane and each subsequent site, and with Cerner, and with EHRM program office personnel and people from the VISN and people from Central Office, are collaborating daily to address those issues, to reduce the possibility of any harm related to any of those areas, and to put mitigation strategies in place, immediately if possible, or if not possible immediately then to work with the Cerner Corporation to produce a long-term fix.

Chairman TESTER. And very quickly, who has oversight of those people that you just talked about? Is it you?

Dr. COX. I have oversight of a patient safety team that is led by the National Center for Patient Safety. That is one of the 16——

Chairman TESTER. So let me make this more clear. The pharmacy folks, if there are problems and they do not find them who has oversight over them?

Dr. COX. There is a pharmacy program office, as I am sure you know, but I would say that ultimately it is all of us working together that have to take responsibility.

Chairman TESTER. Okay. Senator Moran.

Senator MORAN. Thank you, Mr. Chairman. There may be an answer from you but maybe the witnesses could help me understand. One of the reasons that Senator Tester and I worked to get Dr. Remy's nomination in front of this Committee and before the Senate and confirmation was because we believed that his presence would be helpful in this issue of electronic medical records. The Chairman just mentioned another nominee that is pending. We worked to get Dr. Remy in place, and I am surprised by his absence today. Is there a reason that the four of you are here as compared to him and others?

Dr. ADIRIM. To be honest I really do not know, but Mr. Remy is very deeply involved. In fact, I meet with him daily on this issue and he knows all of these issues and how we are trying to resolve them.

Senator MORAN. I am certainly appreciative of Dr. Remy. This is not intended to be any criticism of him whatsoever. It is just odd to me that he is not included in this panel, and I am sure as a result of my question I will soon hear from him as to why that is.

Dr. Adirim, the new estimate to implement Cerner is 13 years and $33.6 billion plus $5.3 billion for infrastructure. Does the Department of Veterans Affairs expect Congress to increase its funding or will the VA be reallocating or cutting internally to find that money?

Dr. ADIRIM. Well, Senator, we are planning right now to deploy this within the 10-year time frame. However, due to some of these delays and changes in the schedule we are doing some contingency planning with regard to extending the schedule. We do not anticipate that the cost is going to be that much more, but we may need to, if we extend, have to ask for more money.

Now, the life cost estimate that was done by IDA is really a different estimate than the cost for deployment. That takes into consideration a number of factors that do not have to do necessarily with the program and the deployment itself. So we are taking action to look for ways to be more efficient with the attempt to reduce costs. However, to answer your question, we are going to try and stay within the 10-year planning time frame.

Senator MORAN. If you stay within the 10-year planning period and there is still additional dollars necessary, would that be an additional budget request from the Department of Veterans Affairs?

Dr. ADIRIM. If we do need to extend beyond the 10-year deployment schedule then that may be the case.

Senator MORAN. The letter that I referenced in my opening statement in which we listed 36 fixes—that letter is dated June 27th—how much will that cost and is it included in those new cost estimates?

Dr. ADIRIM. Sure. That list of 36—I am hoping to get clarification for some of them—it depends on what that particular item is. A number of them are what is called "capability enhancements," meaning that they are above and beyond the base contract or the

commercially available system. Some of these get at how VA may have some uniqueness in how they want to deliver health care.

So pharmacy, for example, is one of those capability enhancements. Actually, we put on contract seven enhancements to pharmacy. That is above and beyond the base of the contract. So it depends on which item you are talking about.

Senator MORAN. Most of the fixes in that list of 36 will not happen until after March 2023, when Seattle is supposed to go live with Cerner. Does it make sense to bring Seattle online in the absence of those fixes being completed?

Dr. ADIRIM. I tend not to call many of them fixes. They are really enhancements to the way that VA health system wants to use the EHR to deliver its health care. And if you think of it that way you can understand why it is above and beyond the commercial product.

The ones that are most important to the health system are the pharmacy enhancements and the suicide flags. With regard to the pharmacy enhancements, three of the seven changes that VA would like, the pharmacy community and the clinician community have identified top three that are the most important to them, that will solve a lot of issues for our practitioners.

So those top three we have already started the contracting process. The ball is now in Cerner's court for telling us when those can be delivered. And we are hearing from them that it will likely be February. So, you know, we do not have the final milestones but we are working on that right now and should have that estimate very soon.

Senator MORAN. Thank you. Mr. DelBene, I just have a few seconds that I do not have left. During your confirmation hearing, I asked you to describe the CIO's role and how you intend, with the cooperation from others at the VA responsible for EHR. I asked you how you were going to get us to the point we need to be. What are your thoughts today?

Mr. DELBENE. Thank you for the question. I think at the time I said that it is not my direct responsibility on the EHRM program. But I have been involved in working with the technical people that are on the program to use the knowledge that I have from my long-term experience in the field to kind of identify those places where I see the rocks that maybe others do not see. One of the things you have to do in a program like this is to be incredibly rigorous about seeing every issue along the way and tracking them to ground.

And we are really doing all the work we can to have a performance monitoring program, a plan for their remediation efforts across the board, which are quite extensive, and making sure they actually come to fruition, and then giving the feedback to the program officer to say, given where the program is in terms of stability, this is what we would recommend in terms of the technical readiness, for instance, to go further in the deployment. So, I am trying to stay as deeply involved as I can.

Senator MORAN. Thank you.

Chairman TESTER. Senator Brown.

SENATOR SHERROD BROWN

Senator BROWN. Thank you, Mr. Chair, and Senator Moran thank you, Ranking Member. Before asking questions I want to call out and thank the frontline employees in Columbus, Ohio, for their dedication to VA's mission, providing high-quality care to veterans in a timely fashion, Doctors Arensman and Cooperman, the frontline doctors, nurses, pharmacists, and administrative staff, who have worked day in and day out since April 30th to make a seamless transition from VistA to Oracle Cerner's PowerChart. The team still has significant concerns about pharmacy issues and system latency.

OIG has reported on many patient safety, interoperability, and readiness concerns since the initial go live in October, a year and a half ago. My colleagues have already raised last week's OIG report, regarding the unknown queue patient safety and patient harm. The fact that end users were not trained on this feature prior to go live is unacceptable. During briefings with staff at the Chalmers facility in Columbus, the Chalmers Wylie facility in Columbus, my office heard about two other queues, the VA needs scheduling and the Virtual Room.

Dr. Cox, if you would, walk us through why the VA needs scheduling queue could pose patient safety concerns, especially for behavioral health problems.

Dr. COX. For behavioral health problems or for any clinical service that a veteran needs, if the scheduling queue is not working properly or if it is not providing answers back to the clinicians scheduling those consults and referrals, then there is a risk that the veteran may not get the service that they need.

Senator BROWN. Dr. Cox, prior to Columbus go live they increased the number of community care referrals to plan for the decreased productivity of switching, in those days, Cerner. This created a backlog in community care referrals. They are still working through some delays regarding scheduling.

Do you have concerns regarding patient care or safety when more veterans are referred out into the community because of the EHRM deployment, especially since community providers also have a long wait time?

Dr. COX. Thank you, Senator. Yes. So there is an expected decline in productivity for several months after any hospital takes on a new electronic health record, and VA and the Veterans Health Administration indeed did plan for that. One of those strategies is to rely on community partners.

But you are absolutely correct. Particularly in many areas of the country where the availability of services in the community is not as great as that in the VA, sometimes veterans end up waiting longer.

Senator BROWN. So, since that day in October 2020, since the go live date, how many degradations or outages of the EHR system have there been? That is for Mr. DelBene. I am sorry. Mr. DelBene, that is for you.

Mr. DELBENE. I believe 48 in total, of which I think 24 were degradations, versus outages.

Senator BROWN. So, half and half.

Dr. ADIRIM. There were a smaller number of outages.

Mr. DELBENE. Right.

Senator BROWN. Twenty-four is half of 48. Okay. These are because of issues mostly on Oracle Cerner's side?

Mr. DELBENE. When we talk about an outage we are talking about the core software being unavailable if it is an outage, or degraded in service, if it is a degradation. Now some of that degradation could be a design flaw and some of it could be the way it is configured. So, whether it is a software flaw per se, it is a mix in that degradation space in particular.

Senator BROWN. Overwhelmingly on Cerner's side?

Mr. DELBENE. Yes. Absolutely.

Senator BROWN. How are you working to address Oracle Cerner server issues then? Walk through that with me, Mr. DelBene, please?

Mr. DELBENE. Yes. There are a number of places. If I step back there are a number of places where the stability has been an issue. The first, is around change control, and there we are getting very rigorous in terms of how we look at how they are doing testing, how they are doing change control. The second, is around how much capacity they have in the system, and we are pushing them to increase the capacity as more DoD people come on and VA people come on.

The third is around particular functional problems in every place and getting those resolved. The fourth, is around resiliency. A lot of the problems have been where the system was designed to be resilient, but did not perform in a resilient way, so a piece failed, and it is supposed to fail over to another piece of capacity and it did not. And so, we are pushing them to get those problems solved.

And then the final area is around disaster recovery. If the entire thing went down, do they have another site that is fully available and deployed that they could switch over to?

And so, we are pushing them to have an engineering plan across all those dimensions.

Senator BROWN. So, it is pretty clear where the shortcomings have come from, and the failures have come from, not frontline employees, in Columbus, or for that matter in Spokane or Walla Walla or Roseburg or White City, but from Cerner, or now Oracle Cerner.

My question, Dr. Adirim, to you is will you recommend to the Secretary to stop the rollout to future health facilities until these patient safety concerns are addressed and fixes are in place?

Dr. ADIRIM. I think we have already done that. So today we held what we call a go/no-go decision with Boise, the VA Medical Center, and using what we know and our checklist for what needs to be in place to be successful and safe, we worked with the VAMC director as well as the VISN director, and on this particular call we had VHA leadership in order to discuss what the pros and cons and how we should move forward.

So today we made the decision that the system just was not in a place, because of the latency, as you described, as well as other pieces that were not in place for us to be confident that we could have a successful deployment. And that is the change in the deployment strategy that I was able to bring to this particular program.

With regard to the bigger medical centers, we presented to the Secretary that we were not quite ready to go to larger, more complex sites because of the system stability issues that Mr. DelBene has described, and we wanted to give Cerner more time to address those issues before going to the larger medical centers.

Senator BROWN. And last comment. Thank you for that. These fixes need to be addressed before the rollout, before the rollout, when you talk to the Secretary.

Dr. ADIRIM. The system stability issues, yes, absolutely.

Senator BROWN. Thank you.

Chairman TESTER. Senator Tuberville.

SENATOR TOMMY TUBERVILLE

Senator TUBERVILLE. Thank you, Mr. Chairman. Thank you for being here today and your help with our veterans. Dr. Adirim, a Columbus VAMC town hall concluded, among other things, that the Cerner implementation had significantly impacted pharmacy service. We talked about that. However, pharmacy staff still remain dedicated to providing the highest level of care possible to our veterans.

What steps is the VA taking to ensure pharmacy service continues to support veterans while Oracle moves forward with Cerner's electronic health record rollout, especially given the complications at Columbus?

Dr. ADIRIM. Thank you, Senator, for that question, because there is actually a little bit of good news here. As I mentioned, we have really pushed to get the pharmacy enhancements in place to help reduce the burden on our pharmacy community and our clinician community, and so that is progressing pretty well.

But the other thing that I did after the town hall—and I meet frequently with Drs. Cooperman and Arensman—they have been super helpful with the program, by the way—we have contracted with an FFRDC, MITRE, to look at the workflows at pharmacies, starting the first one, to determine where there are areas where we can create efficiencies and improvements for our frontline providers while we wait for these pharmacy enhancements to be put in place.

Senator TUBERVILLE. Has the average time for a pharmacist to complete orders in Cerner decreased, and if so by how much?

Dr. ADIRIM. I do not know the specific numbers, but what we do know is that when you do deployments that when you first are using the system there is a period of time, and we call that a period where you are learning to adopt the system, where it may take more time to perform those tasks. And then over time, as you learn the workflows better and you become more confident in the system, that time goes down.

Now I do monitor the metrics on a part of the system called "Lights-On." We call them adoption metrics, to determine how the clinicians, including the pharmacists, lab, and so on, how they are doing with their turnaround times and their work. All the sites have improved since they have gone live, so that is good.

Senator TUBERVILLE. And in your testimony you confirmed that over 50 percent of the Department of Defense's electronic health record rollout has already been completed, with 100,000 active users. Meanwhile, the VA has rolled out EHR to five sites. What

is causing the difficulty at the VA rollout not seen at the DoD over the same modernization effort?

Dr. ADIRIM. No, that is a really good question, and actually to be precise it is five sites but there are 22 community-based outpatient clinics, 52 remote sites, and we have about, a little over 10,000 users. So we are making a little bit of progress.

DoD had similar issues at their start, their initial operating capability, a lot of bumps, same complaints, and they pushed through it and made changes and improvements to the system. And this is all before we began our deployments. But there are some areas where VA prefers—or I should not say prefer, but provides care in a different way that is better—around pharmacy is one of those areas—that DoD does not do the same thing.

For example, VA has mail order pharmacy internally, and they want to be able to communicate between the pharmacy system and the patient chart, versus DoD that does not have that same functionality requirement. There are other examples like that, but they experience the same instability issues as we do with the system. And so we are working with them, closely, through the Federal EHR Modernization office as that governance piece for the two departments, to work on making those improvements and pressing Oracle Cerner to make those changes that we need for a stable system.

Senator TUBERVILLE. You know, where the VA maintains a 10-year implementation timeline, along with a total of $16 to $18 billion cost estimate, of which $6 billion has already been spent, you know, the Institute for Defense Analyses estimates that at least 13-year implementation timeline and a cost estimate of nearly $39 billion.

What is the VA doing to ensure the 10-year implementation timeline holds, especially when the new electronic health records is only at five medical centers so far and will likely not expand any more this calendar year?

Dr. ADIRIM. Yes, no, it is a struggle, and we are looking for places where we can achieve efficiencies. We want to get the system to a place where, what some of us call the core EHR and the core package of training, change management activities and all of that, so that we can take it across the enterprise in waves much more quickly. And clearly we are not there yet. We are still in initial operating capability, making all those changes and enhancements that we need to do in order to do that.

DoD was able to do that. They got to a point where they could take the deployment through waves, and I want us to be able to achieve that.

With regard to the lifecycle cost estimate, comparing that to what our budget is, is really comparing apples to oranges, and here is why. That is a lifecycle cost estimate so it is a 25-year horizon as well as including a risk premium in there. In case certain things do not happen it is going to cost more. They also include reductions in operations that may be of cost. So it is really difficult to compare that. I work with a deployment budget, and we are doing everything that we can to ensure efficiencies within that budget.

Senator TUBERVILLE. Thank you.

Senator MORAN [presiding]. Senator Hirono.

SENATOR MAZIE HIRONO

Senator HIRONO. Thank you very much. This is for Dr. Adirim. You noted in your testimony that this same system has been successfully implemented at DoD sites across the country, which should have given the VA kind of a blueprint to follow and some lessons learned, but we are having major problems, including this queue situation, unknown queue, where all these orders go out to someplace and nobody knows where. It is very unusual how that could have happened but there you go.

So have VA and DoD not been working together to avoid the kind of big problems that resulted in, as was acknowledged, harm to veterans?

Dr. ADIRIM. No, that is a great question, and I think, too, we did take some of the lessons learned from DoD. I brought a number of those lessons over to VA over the last several months in our change and deployment strategy, which includes close attention to leadership at the local site and collaborating and really integrating within the health system. But DoD is different than VA. VA is larger, more complex, and the way that care in some areas are delivered is different. So there are differences between the two.

Now with regard to working together, we do, and we do a lot of this togetherness through the Federal EHR Modernization office. I probably interact with that office at least a couple of times a week, and we have to work jointly—you are exactly right—because anything that we need to do to the system, configuration changes, the pharmacy enhancements, for example, have to also be agreed upon by DoD, which they did, by the way.

So we do work with DoD. They are, as you acknowledge, much further ahead in their journey than we are, and I do believe that we should be learning from—actually, I like to say learning from other people's mistakes.

Senator HIRONO. Well, there was a time when I recall good news, when DoD Secretary Gates and VA Secretary Shinseki said that they were going to work together to integrate these record systems because we are, after all, dealing with that one person, whether that person is in active service or transferring to VA status, and it is that one person and the health record should be. But after something like $1 billion, nothing much happened to integrate these two systems, and we continue to have these issues.

Then I am told that, for example, the VA Pacific Islands Health Care System, which includes Hawaii, is anticipating that 40 percent of their current orders will not transfer to EHR. I do not understand that either. Which means what? I do not know. Then somebody has to actually physically, manually input these orders?

Your faces tell me that this is news to you.

Dr. ADIRIM. Yes. We will have to dig into that, and I promise you we will. But just so you know, the system that we are implementing is the same instance as DoD, so it is the same EHR that DoD, which they call MHS GENESIS.

Senator HIRONO. So what I am hearing is that there is going to be significant staff time needed to physically or manually input information into this new system, and already we are having chronic staffing shortages. So how is all of this supposed to happen?

For example, can you contact the VA Pacific Hawaii Island System and find out what problems they are having with inputting whatever they need into the system? I do not know what kind of steps VA has taken to assess the potential impact to veterans of information getting into the system, therefore delay in their care. It just seems like yet again we are faced with a rollout that is not rolling out very well.

Dr. ADIRIM. Well, the VA medical centers in that area are not scheduled to be deployed any time soon, and we need to look into what their specific concerns are and try and help them. But the data migration that we have done in the other sites has been a pretty ambitious, fairly successful—actually, very successful—for all the sites that we have deployed so far.

So we need to look into that issue and understand what their concerns are.

Senator HIRONO. We certainly will follow up with you. Thank you.

Senator MORAN. Senator Tester. I am sorry. Senator Tillis. One of the T's.

SENATOR THOM TILLIS

Senator TILLIS. That is the second time today I have been confused with Senator Tester. They thought I voted when he did. But I thank you all for being here.

The first thing I want to get to is reporting going forward. You know, we passed the Electronic Health Care Transparency Act, which is regular reporting from the VA on this project. It is a quarterly report, I think 30 days within the end of the fiscal quarter. But honestly, I think it would be helpful to you as we go through this, go through the implementation, to think about a framework that gives us more timely feedback than that. That is minimally what we expect, but if you think about your program office, you think about some of the test problem reports you are dealing with, some of the cutover decisions, those sorts of things, it is a natural outgrowth of a competent project management office, and I am assuming we have gotten one.

So it would be helpful for us to sit down and see whether or not we can get something on a more frequent basis that then the report that we have required now almost becomes incidental because we are getting that information more frequently. I do not think you want 90 or 100 days to lapse before we get an update on some of these things. And I think it is also important to give us an idea of when you have, like the unknown queue, reach out to us, update us quickly, tell us what the remediation factors are versus having to come before the Committee in the future.

So that is just some friendly advice for you in terms of how to address the spirit of the Transparency Act but maybe front-end load some of that information so that we can understand it.

When you are talking about the lifecycle costs I do not necessarily want you to break it down here, but I understand what you are talking about, what are the core implementation costs versus the ongoing costs of operations. I think it would be helpful to communicate back to the Committee for the record exactly what

15

that breakdown is so that we do get to an apples-to-apples comparison on costs going forward.

Mr. DelBene, you mentioned resiliency. In the underlying contract with Cerner was that already negotiated what the service-level agreements needed to be for backup, recovery, resiliency, and are they meeting those requirements right now?

Mr. DELBENE. Thank you for the question. Yes, it was. I think three 9's, or 99.9 percent uptime is what was expected. And I believe there is a schedule in terms of the disaster recovery piece, but I believe, generally speaking, think about it as four hours to be able to come back to service with the core functionality if there is a disaster.

Senator TILLIS. Okay. Have there been any of the contract milestones or service-level agreements where they have not satisfied their contract?

Mr. DELBENE. Yes. They have not. There was a period of time of several months, and others can give you the exact dates, of when they were not meeting that three 9's reliability.

Senator TILLIS. What are the contractual ramifications for them if they fail to hit the SLAs, service-level agreements?

Mr. DELBENE. I think I would pass that to my contracting expert, Mr. Parrish.

Mr. PARRISH. Well one, I am proud of everybody speaking acquisition-ese needs, but there are financial impacts for failing to meet the levels. It is on a graduated scale, and we can get you a copy of that, Senator.

Senator TILLIS. Yes, I think that would be helpful, particularly so that everyone here understands that there is a motivation on the part of Cerner to achieve the SLAs. I assume that there were financial consequences or other contractual provisions. I think it would be helpful to communicate that to the Committee as well.

I think it is also important, again, not necessarily for this, but there is more of a standard, roughly speaking, more of a standard approach in DoD, in their implementation. I can understand why, if you take a look at the scheduling system that we want to implement in the VA, that is a hairball because of the various VISNs and the various health care facilities and various methods that they use to augment their scheduling baseline. Was there a lot of variability in the way they dealt with electronic health records across the VISNs or health care centers?

Dr. ADIRIM. Just so you know, I came from DoD, and when they were having their issues I was asked by the then Assistant Secretary to help oversee their, what they were calling "get well plan."

The implementation at VA mirrors what DoD did. VA has learned from what DoD went through. For example, they found that they had some stumbles because they did not have the sites on what they call the Med-COI, the network, prior to six months before deployment. We learned from that. We do that 13 to 32 months beforehand. So that is just an example of some of the ways that we have mirrored what they do.

The other way that we have done it, on the functional side, is that they have clinical communities. We have clinical councils, which are frontline providers from the various services that make decisions about workflows and requirements and how they want to

deliver care. They have the same thing. And, in fact, when I created the organizational chart for the Office of the Functional Champion, in April, I called DoD and asked to see their organizational chart. It is not exactly the same but it is similar. So every which way that I can, where they have had success or where they have had fumbles, we have been able to work with them to make sure that we do whatever they did right and avoid whatever they did wrong.

Senator TILLIS. Okay. My time is up. The only other thing I would ask that you all submit to the Committee is whatever your remediation plan is for the various issues that the OIG found in the report. I am assuming that you have got a project plan that you are executing. That would be very helpful to see, number one, if you agree with the findings, and if you disagree, where you do, and if you agree with the findings what specific remediation strategies have you implemented. And if you could submit that for the record I would appreciate it.

Dr. ADIRIM. We would be very happy to, and I want to make sure—and I think you are aware—that we meet monthly with the Eight Corners staffers on any topic that they want to talk about and any information they need. We also push out information when we have outages or things like that. We push information to all the Eight Corners. So you all should be getting that information.

Senator TILLIS. Thank you.

[VA response to Senator Tillis appears on page 101 of the Appendix.]

Senator TESTER [presiding]. Senator Blumenthal.

SENATOR RICHARD BLUMENTHAL

Senator BLUMENTHAL. Thank you so much, Mr. Chairman. Thanks for having this hearing.

I was around when we heard from then Secretary Gates and Secretary Shinseki, going to be done within a year. Interoperability, right over the horizon. And not just interoperability but state-of-the-art, first class, recordkeeping and availability. But it was not just them. In fairness to them it was just about every Secretary of DoD and the VA after them, year after year.

So I just want to tell you, you are guaranteed immortality, because you are going to be part of a case study, I am sure, either at a business school or school of public administration, or a law school, or many of them, not you personally but your agencies, and maybe you personally. If you can get it right you would be the hero in this story. Because my own thinking about this has gone from disbelief to anger to humor to simply outrage.

And I will tell you what really troubles me most deeply in the documents that I have reviewed is the reports that, and I am quoting, "senior staff gave inaccurate information to OIG reviewers of EHR training," and that is in the July 2022 report. So you can get things wrong, but to give inaccurate information to the inspector general I think is a step beyond in terms of lack of accountability.

So I would like to know from each of you whether you know of inaccurate information that has been given to the Office of Inspector General.

Dr. ADIRIM. I think I will take that. So that is something that happened last year. When I came on board it is clear we provide all information that is requested of us to our oversight bodies. I understand the importance of oversight, and it is regrettable that anybody would submit information that was not accurate.

You know, anything that has been asked of us we provide, and I have, in fact, issued a letter to all of our staff that says that we expect timely release of information to the IG and that everybody is free to speak to the IG, if contacted.

Senator BLUMENTHAL. Have you identified the senior staff who gave inaccurate or untimely information to the OIG?

Dr. ADIRIM. I am aware of the staff that was involved with that, yes.

Senator BLUMENTHAL. Have they been held accountable?

Dr. ADIRIM. They have been held accountable, yes.

Senator BLUMENTHAL. How?

Dr. ADIRIM. I am happy to discuss HR issues with you one on one. I do not publicly talk about employees. But we have followed all the recommendations of the IG in that report. Hopefully we will be able to report that to them soon, so that they can close that out.

Senator BLUMENTHAL. My understanding is that this system will not be operable in Connecticut until 2026. Is that correct?

Dr. ADIRIM. We have not finalized our schedule from 2024 to 2028 just yet. It is going through the approval processes right now. So we have not published that. We currently have a schedule from now to the first quarter of fiscal year 2024.

Senator BLUMENTHAL. Well, I am just looking at the report that was given to me. "VA does not plan on commencing the deployment of the system until 2026, at the earliest, in VISN 1," which includes VA Connecticut.

Dr. ADIRIM. Oh. You are correct. I stand corrected. That is the infrastructure readiness piece. Because the infrastructure has to be in place well in advance of implementing the EHR, we are about two-thirds of the way done, I think, with the infrastructure pieces. So we are going to follow the implementation of the EHR to where infrastructure is ready for it.

Senator BLUMENTHAL. Well, I am not an IT expert. I am about as far from it as you could possibly get. But it strikes me that four years from now, even two years from now, there is going to be a whole new world of software and hardware and stuff that is going to make all this system a lot less efficient and effective than it should be.

Mr. DELBENE. Let me address that. One of the things we have identified in the system is the architecture that exists is somewhat dated at this point. It is more of a traditional client-server architecture as opposed to a multi-tiered cloud capacity system, which is how we would design it today. And we are working with Oracle Cerner to get them to do a roadmap for us as to how they would migrate to a more modern architecture.

The second thing I would probably say is that as we roll out the infrastructure you do not want to do it too far in advance so that

you can take advantage of improvements in the infrastructure itself and the components as they come.

Dr. ADIRIM. And I would save that question for Oracle Cerner because they are the ones who are responsible for the software, the updating of the software. That is a really good question.

Chairman TESTER. And they are on the next panel. Senator Blackburn.

Senator BLUMENTHAL. I can take a hint, Mr. Chairman.

[Laughter.]

SENATOR MARSHA BLACKBURN

Senator BLACKBURN. Thank you, Mr. Chairman, and Senator Blumenthal is a lot more tech savvy than he is making out to be. I can attest to that.

Ms. Adirim, am I saying your name properly? It has been pronounced so many different ways.

Dr. ADIRIM. Thank you so much for asking. It is A-DIR-im.

Senator BLACKBURN. A-DIR-im. Okay. Well, that is great. In your testimony you paint a very rosy picture, and you use phrases like "sustained success." We are very busy and we are productive. But OIG testimony paints a very different picture of where VA is with this. They even noted that the program created significant risk and caused harm to multiple veterans when they were referring to VA leadership, and saying that leaders exhibited a lack of care and due diligence. Every time we have a hearing about the EHR rollout and modernization program we kind of get the same story. VA says, "We are on the road. We have got a plan," and OIG lays out all the issues and the problems.

From April 2020 to July 2022, there have been 14 reports with 68 different recommendations, and I assume you have seen every one of these. Now six of these recommendations are over two years old, and they still have not been implemented or addressed.

So what actions is VA taking on the recommendations that OIG has pointed out, and why have these recommendations been languishing and not acted upon?

Dr. ADIRIM. Thank you for letting me clarify a number of issues. I do not think we paint a really rosy picture. What I do want to say, at the outset, is that this is doable, and what is in those reports we take seriously. We do review them. We report out on them, especially on the recommendations.

Senator BLACKBURN. But you do not implement.

Dr. ADIRIM. Some things are more longer-term, take more time to implement. But the IG reports look retrospectively. They are from when we first went to our first site in Mann-Grandstaff. We take those recommendations, from our stakeholders, where we have issues, and we apply them to our new way of moving forward with our deployments.

We have had four, what a lot of people would say, successful deployments. Do we still have things that we need to work on? Absolutely. But we——

Senator BLACKBURN. All right. And then let me move on with this because time is limited. Now Senator Blumenthal asked you about the two employees that had misled OIG and you said you

cannot discuss that. I would like to know if they have been removed from their positions.

Dr. ADIRIM. Senator, the IG report says that they did not commit any wrongdoing. They provided information that was inaccurate and had to be corrected.

Senator BLACKBURN. Okay.

Dr. ADIRIM. And action has been taken to hold them accountable for——

Senator BLACKBURN. Leadership is important, and accountability is important, it seems.

Dr. ADIRIM. Absolutely.

Senator BLACKBURN. DoD has completed 50 percent of their EHR rollouts, and you mentioned earlier that you would like to be able to move for that. But the perception is, and what it seems to us, is you have an unwillingness of employees who are willing to get trained and move forward and to pick up this task. And as you can see there is really bipartisan frustration with the fact that this implementation is on schedule. You have got five completed deployments, and you are a long way from hitting your benchmarks. But there does not seem to be a definable plan for how you are going to do that.

And it appears that DoD employees are doing the job, but VA employees are not doing the job. And regardless of what you say about technologies or changing technologies, what you have to have is people that are capable to implement what is now your legacy system, the Cerner system, in order to move to something that is going to be a next-generation system. And we would like to see a timeline for how you plan to achieve that.

And my time has expired. Mr. DelBene, I have a question for you. I am going to submit that to you for the record.

Chairman TESTER. And we would appreciate a timely response on that. I would say that the DoD did get a three-year head start on the VA on these electronic records with Cerner.

Dr. ADIRIM. May I respond to that, Senator?

Chairman TESTER. Yes, if you want to go ahead and respond to Senator Blackburn, not to me.

Dr. ADIRIM. Okay. Not to you. To Senator Blackburn. So DoD and VA are very different situations. This is really hard work. VA has had a system for almost 40 years that people were used to, and was created by physicians and frontline providers. DoD had three systems that they needed to integrate, and everybody knew that they had to move forward with a different system. So I think from a change management standpoint we were in different places.

This is going to be a huge lift for us to help our frontline providers to use a new, more modern system. It is a very different system. And we understand that and we want to help them with that.

Chairman TESTER. Senator Murray.

SENATOR PATTY MURRAY

Senator MURRAY. Thank you. As you all know, I have spent the last few years cautioning the VA against moving forward too quickly with implementation of this EHR program before the facilities and the system were ready to go. A year ago we held a hearing about the EHR program with Secretary McDonough where I raised

those concerns, and in the 12 months since then I have heard even more concerns, from the staff on the ground in Spokane about how this faulty system is making their jobs unacceptably difficult.

Now we have some more inspector general reports substantiating many of their concerns, and equally disturbing has been VA's lack of transparency and cooperation with the IG.

Just this month, I met with veterans and providers in Spokane to hear about their experiences with the Cerner system, and frankly, I was pretty outraged by what I heard. There continues to be flaws with the EHR that risk patient care and safety, and VA's written testimony does not match what I heard from the providers.

I do not want to hear rosy picture, minimizing the concerns. I do not want to hear any of that. VA might have inherited this program, but you own it now, and VA owes our veterans a system that works and that puts patients first. And I have said it before. VA cannot roll out this system anywhere else in Washington State until the issues with this system are resolved and the inspector general's recommendations are implemented by the VA and closed by the inspector general. And the focus right now has to be fixing this in Spokane.

Now I want to ask you, Dr. Adirim, you answered in regard to someone else's question a few minutes ago about how many outages there had been, and you said 24 outages and 48 performance degradations, or Assistant Secretary DelBene?

Well, the Spokesman-Review printed an article just now, just yesterday, that they have a document that suggests those numbers underestimate the true frequency of disruptions in the system. The document they say they have included more than 180 incidents classified as degradations, down time, and full or partial outages that have affected the system users just since September 2021. Do you know why that might be, Dr. Adirim?

Dr. ADIRIM. I really do not know what document you are talking about. We have ways of determining what are degradations and outages directly, so I really cannot explain that document that I have not seen.

Senator MURRAY. Well, I am happy to see if we can get that for you, but there appears to be a huge discrepancy between what the VA is publicly saying and how many are reported. So we need an answer back to that.

Dr. ADIRIM. Sure.

Senator MURRAY. I also want to say, you know, I have been really concerned about the EHR's impacts on patient safety, including the well-documented instance of veterans getting the wrong medication or having their medication stopped. Now we have a report from the inspector general on another example of patient safety risks, this unknown queue. The IG has documented that despite having received evidence of patient harm as early as December 2021, the Program Executive Director told the House Veterans Affairs Committee in April 2022 she did not believe there was evidence the system had harmed patients or that it will, going forward.

Now as I just said I talked to veterans who have suffered serious harm—I have talked to them personally—as a result of the EHR failures. I have talked to providers, personally, who are doing dou-

ble the work to make sure they meet their patients' needs while navigating this system. I continue to insist that facilities like Spokane keep their over-hires to manage this workload.

So Dr. Cox, is it responsible for VA to continue rolling out this program with its existing flaws and its inadequate workarounds when there have clearly been instances of patient harm and when monitoring patient safety reports could become unsustainable?

Dr. COX. Thank you, Senator Murray. I would like to say that like you I have traveled to Spokane—I did twice last year—and got firsthand from those hard-working clinicians and frontline staff a demonstration of the challenges and the struggles that they were facing. And I believe we owe them a debt of gratitude, because the first step in solving any problem is to know about it.

Senator MURRAY. No one is suggesting that they do not deserve a huge debt of gratitude. They are working incredibly hard there. My question to you is, is it responsible to continue to roll this out?

Dr. COX. I believe that because of the dedication and the vigilance of those clinicians at Spokane, who have reported issues and raised them to our attention so that we could begin to work on them and mitigate them and ultimately provide permanent solutions to them that we have been able to anticipate where we need to put additional safeguards in place to reduce the risk at Walla Walla, at Columbus, and at the two sites in Oregon that have gone live since then.

The only way that this system is being used effectively, I believe, is because, as you said, our dedicated employees are putting in double time, double checking, triple checking things to make sure that the care that they intend to deliver to veterans is, in fact, delivered. That is not the way it is supposed to work. So we are hearing that from our employees, just as you have heard from them directly, and we are taking those concerns seriously and working shoulder-to-shoulder with them.

Senator MURRAY. You believe that the system should continue to be rolled out?

Dr. COX. I believe that we have taken sufficient steps to build additional safeguards, knowing where the vulnerabilities are, based on the experience at Spokane, to reduce the risk of additional harm or to reduce the likelihood of similar problems occurring at other sites.

Senator MURRAY. I am way over my time, Mr. Chairman. Thank you. But I do want an answer back on the number of outages.

Chairman TESTER. Dr. Cassidy.

SENATOR BILL CASSIDY

Senator CASSIDY. I am sorry I came in late. So a couple of questions I may address that have already been addressed. When was this project originally scheduled to be completed, and what is the projected completion date now?

Dr. ADIRIM. The original 10-year time frame, the contract was signed in 2018, so it is a 10-year project, 2028. We are currently looking at the schedule—not looking at it—we are completing the schedule for a 10-year time frame but we understand we are going to need to have contingency plans, since there have been a couple of periods where we needed to move the schedule to the right.

Senator CASSIDY. So that is without specificity.

Dr. ADIRIM. Right.

Senator CASSIDY. Ballpark, do you think it will take 5 extra years, 10 extra years, 20 extra years, 2 extra years? What is a ballpark of the extended time frame?

Dr. ADIRIM. Senator, I cannot be specific right now.

Senator CASSIDY. I am not asking for specificity. I am asking for hand grenade, almost there. Do you see what I am saying?

Dr. ADIRIM. So a total wild guess, I would say one to two years. I do not believe that once we get this right and we are able to take this to scale, and able to do it——

Senator CASSIDY. How are we doing now—I am sorry to interrupt—how are we doing now? How many facilities were scheduled that had implementation as of this date, originally?

Dr. ADIRIM. We have pushed into 2023.

Senator CASSIDY. No, but how many—just period.

Dr. ADIRIM. Sure.

Senator CASSIDY. By this day we expected to have ten sites up and running. We expected to have eight sites up and running. We expected to have six. How many were expected to be up and running by this date?

Dr. ADIRIM. I am not sure of the number pre-pandemic, but the schedule that I was given we should have had about two or three more sites.

Senator CASSIDY. And pre-pandemic, what was it?

Dr. ADIRIM. I cannot answer that question.

Senator CASSIDY. Gentleman, anybody know?

Mr. PARRISH. Senator, I think we could take that for the record and get back with you on what the original plan was.

Senator CASSIDY. That sounds like a pretty basic question, but sure, if it takes going to the record.

I ask because the Coast Guard, using the same program, has now completed, despite the pandemic, and DoD, despite the pandemic, has now completed. They are up to 72 sites. Now you said earlier they had a three-year running start. Okay, I will grant you that. But they are on schedule. And frankly, if you are telling me that you are two years too late, I do not mean to offend but I am thinking you are probably five years off.

> **VA Response:** Based on deployment timelines produced in 2018, it was projected that the EHR would be deployed at 39 sites by July 2022. VA executed a re-baseline of the program schedule in June 2022 (https://www.ehrm.va.gov/deployment-schedule).

My folks back home are telling me it is going to be 2025 before they are scheduled to get it in southeast Louisiana. Now maybe they were always on the tail end of when they were going to get deployed, but the fact is that seems, bumping up, you know, you are pretty far along by then.

Why has the Coast Guard and DoD done so well and VA done poorly, because the pandemic affected all three.

Dr. ADIRIM. Right. The difference is that DoD—and I recall speaking to my colleagues, even though I was not working for the government at the time—they already had that core EHR that they were doing——

Senator CASSIDY. We had a core EHR within the VA.

Dr. ADIRIM. No, no.

Senator CASSIDY. We had the VistA system, which had variations, but nonetheless is a core EHR that VA physicians have been using for quite some time.

Dr. ADIRIM. Right. I misspoke. DoD was further along by the time the pandemic came. They were able to do wave after wave. And so when the pandemic hit they were not just starting their journey. VA was.

I believe, in hindsight, that decisions were made about where to deploy, how to deploy were perhaps not the best decisions, not decisions I would have made.

Senator CASSIDY. So what is the current means of communication between DoD, at what level? Because I learned at some point long ago that unless it is at a secretarial level we would not expect the sort of cooperation between DoD and VA that would be necessary in order to have complete integration of the two systems. I am concerned about that because a lot of health issues occur within six months of separation, and the average time to get an appointment at the VA is six months. So you would obviously want better communication along those lines.

So my question is, at what level of authority is the communication between DoD and VA occurring as regards to integration of the two systems?

Dr. ADIRIM. That is at the Deputy Secretary level. The leadership of the Federal EHR Modernization Program report directly to the two Deputy Secretaries.

Senator CASSIDY. So for what it is worth I am told by a previous DoD Secretary and separately by a previous VA Secretary, if it is not at the secretary level you do not have the same authority to make things work.

So let me ask, maybe they were wrong. How is it progressing in terms of the integration between the VA and DoD for record interchange?

Dr. ADIRIM. There are two different ways that records are interchanged. There is the Joint Longitudinal Viewer, so our practitioners in VA have access to——

Senator CASSIDY. But they are looking at a PDF of the records.

Dr. ADIRIM. Right. That is exactly right.

Senator CASSIDY. That is a cumbersome system——

Dr. ADIRIM. Yep.

Senator CASSIDY [continuing]. Which is a system you have to log into separately. Correct?

Dr. ADIRIM. Yes. Well——

Senator CASSIDY. We were told that there was going to be seamless integration so that I am on my Cerner and without logging into another system I would be able to access DoD records, or vice versa.

Dr. ADIRIM. Right. When we deploy to more sites that is definitely going to happen.

Senator CASSIDY. At the sites where you are now how is that going?

Dr. ADIRIM. They have access to DoD records. All their dated information——

Senator CASSIDY. Through the legacy system, not through——

Dr. ADIRIM [continuing]. Has been migrated into the——

Senator CASSIDY. It is the legacy system, not the Cerner system.

Dr. ADIRIM. Into the Cerner system. It is pretty unique. All the data has been migrated.

Senator CASSIDY. So let me ask because I am almost out of time. In fact, I am but he is being forbearing. Of the four or five places you have deployed, they can log in through Cerner and see a patient's record while she or he was in the DoD.

Dr. ADIRIM. Correct. Yes.

Senator CASSIDY. You were going to say something, sir?

Mr. DELBENE. Yes. We may miss the fact that underlying the system, the records are in the same database. So, at that point just moving that particular site to the Cerner system allows that kind of transparency as well, and those systems are connected at the beginning of that deployment.

Senator CASSIDY. So, I can see insulin dose given over time longitudinally, whether or not it started in DoD and it is completed in VA.

Mr. DELBENE. Correct.

Senator CASSIDY. Thank you very much. I yield. Thank you, sir.

Chairman TESTER. Thank you, Senator Cassidy. I have got one really quick one and then we will get to the next panel, and it goes to you, Kurt DelBene. You know very well that I thought, and I still do think, that you are an incredibly talented person when it comes to IT. But, the truth is that with this new analysis that has come out it shows that this is going to cost $50.8 billion over 28 years.

It would seem to me, as a layman, that most of the money and most of the cost should be up front, Okay? In other words, the money you are spending right now, getting the records straight, by the time they get to southeast Louisiana it should be pretty well tricked out and it should not cost that much to get there, or to Montana. Pick your spot.

So, tell me if that is correct, and tell me if, in this analysis that was put out by the Institute of Defense Analysis, if this $50.8 billion over 28 years, what percentage of it is over the next 3 years, number one, or next 10 years, and what percentage goes in the last 18, and is there any way we can bring down costs?

Mr. DELBENE. It is a great question. I do not necessarily think I am in a position to defend the specific analysis that was done by IDA. What I would say——

Chairman TESTER. But, you are in a position of knowing IT like I know the back of my hand.

Mr. DELBENE. Yes, I know IT fairly well. I do think there is a lot of up front cost. I think you get to a point where—first I would say we do not have the up front cost as much on the development of the system from scratch. There are a bunch of integrations we had to do which have a cost associated with them. Once those are established, we will go into a stabilization and a sustainment mode for those. So, I do think you are right that the costs will be higher up front and then will tail down.

I think eventually we will get to a point where we will be able to reduce the costs on the existing system. I think people have

tended to think that is earlier than it will be because there are a lot of systems connected to the old VistA system and CPRS that will have to be sustained and connected in. But, I think you are generally right.

As far as what they put in their estimate there is a bunch of risk analysis. There is an estimate that is pretty far out there about what the long-term sustainment cost will be. But, I do think you are absolutely right. They are going to have an up front cost, it is going to tail down, and our deployments will get better.

In terms of how we reduce the cost, I think it is about patterning and getting a pattern established so that the sites that are longer or farther out there in the schedule, they are using equipment that we already have integrations for. The training we get honed into a more repeatable process. Everything we do we get more repeatable and it will just become rote for us to deploy to additional VISNs and additional sites.

Chairman TESTER. Thank you all for being here. I appreciate it. This conversation will continue, and I hope it is both directions so that we can help you do your job and we can ultimately help the veterans who need help. So thank you very much. You are dismissed. You are certainly welcome to stay for the second panel.

And I will introduce the second panel as we are getting set up here. First David Case, who is Deputy Inspector General from the VA's Office of Inspector General, who is going to discuss the oversight efforts related to VA's EHRM. And I would like to commend the IG and the entire staff for their tireless work examining these issues over the last several years.

Then there is also Mike Sicilia, who is Executive Vice President at Oracle. It is important we have Oracle at the table because Oracle is the company that recently acquired Cerner, and we look forward to hearing from you. We will start out with Mr. Case. David, the floor is yours.

PANEL II

————————

STATEMENT OF DAVID CASE

Mr. CASE. Chairman Tester, Ranking Member Moran, and Committee members, thank you for the opportunity to discuss the Office of Inspector General's oversight of VA's EHRM program. Our oversight is focused on helping improve the program so veterans receive the highest-quality health care and providers are not having to do extra work to minimize the impacts on veterans.

When I appeared before this Committee in July 2021, we had issued five reports examining the new system. Today, we have 14 reports. This year, we released reports about the experiences at Mann-Grandstaff. We found significant issues with medication management, patient care coordination, the trouble ticket process, and an absence of EHR metrics. We also found VA and DoD must do more to develop an interoperable health record and that VA lacks a reliable and comprehensive integrated master schedule.

I want to turn to the two reports we published last week. First, the unknown queue report addresses orders that providers write for patients to receive tests or other services. This EHR requires

a provider writing an order to match the order to a certain delivery location. But, if a provider selected an option that did not match the order to the correct delivery location, then the order would go to the unknown queue. Most problematically, the provider was never informed the order was not delivered.

Cerner leaders told they had no knowledge that VA was told about the unknown queue before go live. During our exit conference, we were provided Cerner documents noting a VA leader had approved of its use, but that official told us they had no awareness of it. This is reinforced by the fact that there was no training on the unknown queue, no planning for it, and its existence was unknown at Mann-Grandstaff. As one VA clinician noted, "We stumbled on the unknown queue."

In 2021, VHA patient safety experts identified 60 safety concerns with the new system and the unknown queue was one of the three highest risks. During 2021 and 2022, Cerner and VA took actions to minimize the unknown queue, but every site that goes live will need to monitor and manage their unknown queue, and we have concerns about the adequacy of the current mitigation plan.

Unfortunately, VHA patient safety experts identified nearly 150 veterans at Mann-Grandstaff who suffered harm due to the unknown queue from go live through June 2021.

We are concerned with the VA Deputy Secretary's response to our report that is essentially silent about those harms. Acknowledging harm is critical for VA as a learning organization, and patient safety must anchor all health care activities.

Second, we published the administrative investigation resulting from our 2021 review of deficiencies in training on the new EHR. This administrative investigation found OEHRM Change Management leaders provided inaccurate information about training evaluation to us. We concluded this happened due to inadequate care and diligence, not from an intent to deceive.

When we reviewed the training program, VA provided a document entitled "Training Evaluation Plan," but we later learned it had not been reviewed, approved, or implemented. After go live, we asked VA for the raw data they collected, but instead, VA sent us bullet points, saying 89 percent of checks were passed in three attempts or less. We later found a VA email showing a 44 percent pass rate. VA told us they moved from 44 percent to 89 percent by just removing some outliers, but after receiving the data we found VA had removed anyone who had failed the test.

Transparency would have made all the difference. First, VA should have told us how undeveloped their training strategy was. Second, they should have just provided the raw data we requested. This episode is concerning because if we had not dug into their data, it is likely that you, VA leaders, and the public would not have had access to the truth.

In general, we remain concerned by the number of open recommendations from older reports and what appears to be continued challenges with being transparent with stakeholders. There must be considerable attention focused on ensuring VA is ready and resourced for deployments next year at its most complex facilities.

Chairman Tester, this concludes my statement. I would be happy to answer any questions you or other members may have.

[The prepared statement of Mr. Case appears on page 53 of the Appendix.]

Chairman TESTER. Thank you, Mr. Case, and there will be questions.

Mike, would you tell me how you pronounce your last name?

Mr. SICILIA. Si-CEEL-ya.

Chairman TESTER. Si-CEEL-ya. Mike Sicilia, you are up.

STATEMENT OF MIKE SICILIA

Mr. SICILIA. Thank you, Chairman Tester, Ranking Member Moran, and members of the Committee. Thank you for the opportunity to speak with you today.

As you know, approximately six weeks ago Oracle completed its acquisition of Cerner and assumed its EHRM contract with the VA as well as those with the DoD and the Coast Guard. We are excited about this opportunity and we believe strongly in this mission. We consider the EHRM not only a contractual obligation but a moral one to improve health care for our Nation's veterans and their caregivers. We intend to exceed expectations.

In my recent meetings with many of you and other congressional stakeholders your frustration with the current situation was clear. I spent the last six weeks reviewing the issue and working through engineering plans, and I have concluded that there is nothing here that cannot be materially improved in short order.

I want you to understand that Oracle brings an order of magnitude, more resources, and a substantially larger engineering team than Cerner alone. We have already shifted Oracle's top talent to working on the VA and DoD EHR system as the company's combined number one priority.

A war room has been established, led by a team of very senior Oracle engineers. Our war room is conducting a top-to-bottom analysis of the entire system and is already hard at work making a number of improvements that previously were not possible. If something is not working for caregivers or patients, we plan to fix it first and work out the economics later. Patients and providers will always come first and we will not let contract wrangling get in the way.

Oracle's goals are twofold and in this priority order: first, to ensure patient safety above and beyond anything else, and second, to deliver to the VA and DoD the most modern, intuitive, performant, and secure EHR in the world. We intend for this system to be the gold standard.

As we focus on these goals, we know there are undeniable issues that cannot be sugarcoated or ignored. Examining the list of 36, provided to us by the Committee, leads me to bucket these issues into three categories: performance, design, and functionality.

With regard to performance, this is not unusual with commercial EHR systems. The Cerner EHR system is currently running on a dated architecture and technology. Today I am announcing our intention to move the Cerner application to a modern cloud data center within the next six to nine months which will deliver far better

performance and stability for the end user. We will do that once we have permission, of course, from the VA and the DoD in parallel to that effort.

This is the same Generation 2 Cloud infrastructure that under-pins Oracle's customers' most critical workloads in sectors like financial services and utilities. Candidly, we anticipate that this alone will be the single most important change we make in terms of the current system reliability. Moving to a new, state-of-the-art, federally certified and secure Oracle data center will be completed at no extra cost to either the DoD or the VA.

As to design, applications are largely processes and workflows. If the workflow is not intuitive, if it has too many steps or clicks, or if it does not quite meet the needs of end users, let's change those processes and change the design. The case in point is the so-called unknown queue that the Deputy Inspector General just spoke about. We take this report very seriously and agree that further changes are required.

Cerner and VA worked in the recent past to reduce the number of orders going into the unknown queue and to better address those orders that were sent into it. However, we can do even better. We intend to make this process work for the end users and the patients with increased automation and alerts and a workflow designed largely to prevent orders from ever entering the unknown queue in the first place. We believe these changes can be implemented within weeks.

The third category of items on the list are areas where functionality is not yet developed or not yet ready for prime time. Maybe the best example here is pharmacy. My inclination with the pharmacy module is to start over and make pharmacy an example, a showpiece of what is to come. Today, I am announcing that we believe we can have a beta version of the new pharmacy module built and delivered within six to nine months from today.

In conclusion, we recognize this list of 36 could grow as quickly as it shrinks, and other issues will come up that need to be addressed. You can be assured we are triaging all of the issues that we have been made aware of to date and working through them with appropriate clinical and engineering expertise, where needed.

Oracle is excited to be the VA's new partner on the EHRM project. With a little time, we can deliver a world-class EHR for all of the veterans who served our Nation and deserve nothing but the best.

Thank you.

[The prepared statement of Mr. Sicilia appears on page 86 of the Appendix.]

Chairman TESTER. Yes, thank you, Mr. Sicilia. I will tell you, I do not think there is anybody on this Committee that is not rooting for you, if you get this done and get it done right. I do not think anybody on this Committee has been overly impressed with what has happened up to date, and so we have great hopes for Oracle. But as you well know, talk is cheap. Production is what we want to see.

And so I am going to start with you, Mr. Case. For starters, could you just very clearly and simply explain what the IG's unknown queue report found?

Mr. CASE. Senator, this EHR requires a provider writing an order to match that order to a certain delivery location, but if a provider selects an option that did not match the order to the correct delivery location, then the order would go to this unknown queue. Providers did not know this was happening, and we found that Cerner and VA leaders did not train staff about the unknown queue. They did not plan for the unknown queue prior to go live. So four days after go live, at Mann-Grandstaff, someone submitted a trouble ticket, and all of a sudden it started to be revealed to Mann-Grandstaff staff that this unknown queue existed.

We found that VHA patient safety experts identified that one of the most severe safety risks is the unknown queue. It was in the top three. And, in part, that was because it was not easily detectable by the staff. VHA later identified that nearly 150 veterans were harmed by delays in care resulting from this unknown queue.

So, it is the combination of the unknown queue and then the harm that resulted that our report addresses.

Chairman TESTER. And I am going to have you respond to that very similar question about what Oracle has done to help solve this situation in a minute, but I just want to get the timeline down right. Who knew about the unknown queue and when, and how long was that information before it became public so that senior officials in the VA could do something about it?

Mr. CASE. Right. So the first ticket that raised this was four days after go live, October 2020.

Chairman TESTER. October 2020. Okay.

Mr. CASE. Yes, sir. And then, at that point, people at the facility started trying to figure out what the issue was, what went wrong. They discovered, as I recall, 2,000 orders in the unknown queue. At that point, it started to be raised within VA, and a patient safety team went out there in May 2021, meeting Mann-Grandstaff staff.

In June 2021, the patient safety team started to evaluate the potential problems with the unknown queue in terms of patient harm. By November 2021, the Deputy Secretary had received a report about patient harm at Mann-Grandstaff in connection with the EHRM. In December 2021, that same report and that information was provided to Dr. Adirim. So that gives you the timeline of who knew what, when, where.

Chairman TESTER. On November 2021, the Deputy Secretary, was that Remy?

Mr. CASE. Yes, sir.

Chairman TESTER. Okay. And in December 2021 it was Dr. Adirim.

Mr. CASE. Right. She had just joined December 20, I believe.

Chairman TESTER. And you said there were 2,000 orders. I believe I heard—and you will have to correct me, Janko, but there were 150 veterans that were potentially harmed?

Mr. MITRIC. Incidents of harm.

Chairman TESTER. When did they know about that?

Mr. CASE. Yes. So that information was being developed by the patient safety experts. It was available to Deputy Secretary Remy, and also available to Dr. Adirim in 2021, November and December, respectively.

Chairman TESTER. So when they found out about the unknown queue they also found out about the veterans that were potentially harmed.

Mr. CASE. Right. Well, the unknown queue, that information was coming up earlier, Senator. The patient safety team went out there in May 2021. At that time they were already taking steps at the facility to try to address the unknown queue.

Chairman TESTER. Okay. Thank you. Mike Sicilia, what is Oracle's response to this unknown queue bit?

Mr. SICILIA. Well, the situation, as is, is, of course, unacceptable. So what we have done initially is to reduce the number of items that appear in the list. The list is the pull-down that the doctor would select for a place for the order to go. Frankly, there are just too many items in the list and it is not intuitive when most of the items in the list are not relevant to that particular physician. So that has been reduced.

What we are also developing right now is an automatic trigger, and that should greatly reduce the number of orders that show up in the unknown queue to begin with. But we are also developing a trigger to say if something does come into the unknown queue, which we think will be greatly reduced, that physician will be alerted immediately that there is an order that is unassigned. That alert will continue to persist. They will continue to be reminded of this until they rectify the order and assign it to the proper location.

I would say the other thing, just thinking about it logically, the name of the unknown queue is not so great. It should really be the "look here queue," right away because something does not belong here. And these are the types of things, from a system intuitive standpoint that are not very difficult for us to address. And as I said, we plan to turn that trigger functionality over to the VA for testing by August 1st.

Chairman TESTER. Perfect. Coach?

Senator TUBERVILLE. Thank you, Mr. Chair. Thank you all for being here today. I am new at this job. My phone rings off the wall about the VA. My goodness. You know, of course in Alabama we are loaded with veterans and we have got some good VAs, and I appreciate you all's work and your thoughts on this. There will be a lot of people who will be listening and wanting to know what is going on.

We just heard from the VA group and how they plan on staying online and staying within budget and all that. You know, we are talking about a lot of money. We are talking about modernization. And now that Oracle has acquired Cerner you all now own this contract, and I would hope that you would come back quite often and give us some oversight on what is going on and how we can make it better, you know, stay on time and help our veterans.

You know, we have got a lot of people out there, and a lot of the burn pit people are starting to get in line, ready to go. So it is going to be interesting.

Mr. Sicilia, will you commit to providing timely, honest, comprehensive updates to this Committee about what is getting ready to happen and what is going to happen in the future and the problems? You know, we need to hear about the problems instead of after they have happened.

Mr. SICILIA. Sure. Absolutely. I commit to be here myself, in person, at every hearing going forward. At both the Senate and House hearings as well. I will be here. I am ultimately responsible for this at Oracle, and it is my job to make sure that this is successful. So you will hear from me early and often, as you said, I think more importantly to hear from us proactively rather than after something has already happened is the better course of action.

We will also take a look through, you mentioned, the costs and the budgets. I have not had a chance to review the overruns that were potentially presented this morning in great detail, but I do think that moving to a more modern cloud architecture gives us economies of scale that we potentially, at least on the infrastructure side of things, that Oracle would control, have some cost savings that can be realized.

Right now, I would assume that the assumptions are that the technology remains static for a certain period of time, which I frankly do not think is the right approach. We need to continue to evolve this technology, because technology, by default, usually becomes cheaper to operate, not more expensive to operate. And we want to make sure that we can pass those savings on to the government.

So by moving these to modern cloud data centers, of course we will do all of this in coordination with the VA and the DoD, and by looking at modern, stateless web applications, which is how I described the pharmacy application that will roll out, I do think that we will get compressions on the Oracle Cerner cost side of this as we go forward.

Senator TUBERVILLE. Yes. What conversations have you had with the VA on maintaining a timeline, you know, of the cost commitments and of the electronic health records? Have you had good conversations with them?

Mr. SICILIA. We have not yet. I mean, in the first six weeks here I have been focused on making sure that all of the patient safety issues are our first priority, to make sure that the system is meeting the needs of the caregivers and providers. We have not yet gone deep on the timeline.

I will be meeting with both VA leadership and DoD leadership on August 4th in Kansas City, at the former Cerner headquarters, to go through the timelines for moving to modern cloud architectures and to look at the overall deployment scope of both of these things.

So primary focus in my first six weeks has been on patient safety issues and system reliability issues and now we will move into the overall program.

Senator TUBERVILLE. Do you and the VA believe that the current timeline and budget is still manageable?

Mr. SICILIA. I do not have telemetry into the entire VA budget. I can tell you that from an Oracle Cerner perspective we are pre-

pared to deliver on the contractual obligations at the current costs that have been appropriated to Oracle Cerner.

Senator TUBERVILLE. Mr. Case, the OIG testimony describes certain VA leadership having careless disregard for the accuracy and completeness of the information they provided to the IG team and the leaders, lack of care and due diligence resulting in misinformation being submitted to the OIG staff. And, by the way, one was fired for this uncooperative behavior, and failure of leadership, he was not fired but he was just moved to another position. Is that how we do things?

Mr. CASE. Senator, the actions that are going to be taken with regard to these two individuals—and you are correct, our finding was there was no intent, which means there is no crime here—but we did find a careless disregard for——

Senator TUBERVILLE. Was it lack of knowledge?

Mr. CASE. It was a whole mix, a lack of communication, a lack of checking what the data was, a lack of even understanding what data was being produced by the consultant who was working on this. So there were a lot of problems. We wrote our report. Our recommendations were turned over to VA. It is within their purview to decide how they want to hold these folks accountable or whatever actions they want to take. We have no purview or authority to take action or really to recommend action.

So, we have given them the facts, and it is up to the Secretary and those he has designated to take action on this, what action they are going to take.

Senator TUBERVILLE. I got great advice from one of my old mentors years ago, Tom Landry. He said, "Coach, in your business now you are getting ready to move on up. Organization and communication is the key to winning, and if you can't do that you will never make it." And it sounds like we had a little communication and organization problem here.

Mr. CASE. That was certainly a significant part of it, sir.

Senator TUBERVILLE. Yes. Thank you.

Chairman TESTER. Senator Sinema.

SENATOR KYRSTEN SINEMA

Senator SINEMA. Thank you, Chairman Tester, for holding this hearing, and thank you to our panelists for being here and for the service that you provide for America's veterans.

Electronic health record modernization is more than just digitizing paper copies. It is about supporting the military community to ensure they are getting first-class health care. It means that servicemembers no longer have to hand-carry stacks of paper PCS or lose their prescription history. And it prevents forcing veterans to undergo duplicative and invasive procedures. And finally, it helps collect data for research and longitudinal studies to better predict health concerns and get faster treatment. We need to make sure we get this right, and we need to do so in a way that is responsible to the taxpayer.

So my first question is for Mr. Sicilia. I have been told that at one VAMC in Arizona the VA paid more than $2 million for repeat and unnecessary imaging procedures because the electronic records were not compatible. What is the rate of repeat advanced imaging

veterans must undergo due to VA clinicians not having digital access to prior images from a private community provider?

Mr. SICILIA. Well, having been involved in this project for six weeks I do not yet have the exact details on specific cases like that. I am certainly happy to submit a formal reply to you in writing as I work on that with the team.

Senator SINEMA. Thank you. In places such as Phoenix and the Tucson VAMC and the other VISNs where they have a tool for electronic radiology image transmissions, do you have any information about how the rate of repeat imaging and number of unnecessary imaging such as mammograms change?

Mr. SICILIA. Again, I do not have specifics into imaging functionality at this point but certainly happy to provide that to you in writing in a very timely manner.

Senator SINEMA. Thank you. And finally, what are the VA's plans for providing all of the access to electronic radiology image transmission capabilities?

Mr. SICILIA. I can tell you from a system perspective I would defer some of that question to the VA. But the images are part of the electronic medical record and this is a longitudinal system where there is a common database between and among the Coast Guard, the DoD, and the VA. So to the extent that those images are part of the electronic medical record they will travel with that person as they traverse the system.

Senator SINEMA. And to that end, what are the VA's plans for integrating this capability into the electronic health record management system?

Mr. SICILIA. Well, the electronic health record system is integrated with imaging systems. There are a bunch of different imaging systems that are in use throughout the world. I am sure the VA is no exception. But obviously imaging is a big part of electronic health records.

Senator SINEMA. Thank you. I will look forward to that follow up.

[Oracle response to Senator Sinema appears on page 99 of the Appendix.]

Mr. Case, in 2020, 46,000 veterans had their personal information compromised after a cyberattack against the VA. As the VA transitions to its new electronic health record system even more of our veterans' sensitive information will depend on the VA's strict adherence to cybersecurity best practices.

What lessons has the VA learned from previous cyberattacks against its networks as well as attacks against other Federal agencies, and what are you going to do to ensure similar incidents do not compromise the new electronic health record system?

Mr. CASE. Yes. You could look at that issue and it is a significant issue as you have identified, Senator. I think right now we are doing routine inspections at facilities of their cybersecurity and reporting on that in formal reports. We inspect on other compliance by VA with cybersecurity questions. And as this moves forward, VA will be working with the DoD in protecting the records of both veterans and active-duty military personnel.

And, I noted in the testimony from Oracle Cerner that they have plans to make moves into the cloud and into systems that will enhance the cybersecurity of the process and the system.

Senator SINEMA. Thank you. Mr. Case, in the course of investing issues relating to the electronic health records management at the VA did you come across any information indicating that the DoD electronic health record system is limiting health care capacity?

Mr. CASE. We have not looked specifically at that question with regard to DoD. We did do a joint project with the DoD IG but did not address that issue. I really cannot address concerns within the DoD effort.

Senator SINEMA. I would like to follow up on that and find out if there is something that the two agencies can learn from each other as they go through similar transformations.

Do you anticipate an issue arising with cross-communication medical records between the DoD and the VA for transitioning servicemembers?

Mr. CASE. The whole intent of this is to eliminate those problems, and as the system is successfully deployed, we think it will eliminate those problems. But that is the intent of the system. We will monitor that. We do monitor that period of time in other aspects as well. That is a period of time, that six-month window, which is so important that we monitor in a lot of different ways in terms of handoff and efforts to make sure that the transition is done in a way that protects the servicemember turning to a veteran.

Senator SINEMA. Thank you, Mr. Chair.

Chairman TESTER. Senator Moran.

Senator MORAN. Chairman, thank you. Mr. Sicilia, I am testing what you said to Senator Tuberville. I just want to have a better understanding. The cost to implement the Cerner EHR have risen by about $23 billion. The sustainment estimate is $17 billion on top of that, and you expressed previous and again today Oracle's willingness to absorb costs. And so if that is true maybe my question is poorly worded, but how much of this enormous increase is Oracle willing to pick up?

Mr. SICILIA. Well, it is my understanding that the cost estimates are for an overall program implementation, so obviously a piece of that would be a portion. What we are willing to absorb, the cost, and certainly we will work together with VA and DoD, is to move these to modern cloud architectures, FedRAMP, high-certified data centers that are in place for our other government customers today, and to enhance functionality that is within the scope of the current contract. And certainly, if there are things that I think would be minor enhancements or even moderate enhancements that are a benefit to all customers, we are certainly willing to do those at our expense.

I do not believe that going back for a task order or a change order for every little bit of functionality is a way that we should be operating. Obviously, we need to operate here with a far greater level of velocity, and we need to do that across the board in good faith with the VA and the DoD.

As far as exactly how much cost compression there is, I would appreciate if I can get back to you in writing on that as we have

a chance to digest this report, which I just received this morning, on these potential cost overruns. So I have not had a chance to go through that with the team and assess if we can work together with VA/DoD to get permission to move to modern cloud data centers, how much infrastructure compression that brings to the table as well as we rewrite individual modules like pharmacy and how much less expensive that will be to operate the software.

So my intention is to move any potential cost overrun that is associated with Oracle Cerner as close to zero as I can possibly get it.

Senator MORAN. Was Oracle aware of the magnitude of these challenges prior to the purchase of Cerner?

Mr. SICILIA. That is a good question. I would say there are always things that you discover after the fact. You know, we certainly had read the press and we certainly had read things that were publicly disclosed, but there is nothing like owning something to fully understand what is going on.

That said, I will repeat what I said in my opening statement. I firmly believe that everything here is fixable and addressable, and we see it as an opportunity, certainly a challenge, but we also see it as an opportunity to do a much better job for our veterans and their caregivers.

Senator MORAN. And the outcome you believe you can achieve is well worth the pain of getting there.

Mr. SICILIA. I believe so.

Senator MORAN. For the veterans and for the——

Mr. SICILIA. I believe that the VA implementation can become the gold standard for electronic medical record implementations worldwide. We deal with organizations, medical organizations and governments throughout the world, and I can tell you that everybody at this point is far from perfect. However, the vision here, the longitudinal health record, the fact that it is implemented on a common database—which means these records do not have to go anywhere; they all live inside the same house, if you will—gives us a tremendous economy of scale.

The difficulties have been closer to the edge. The difficulties have been with the systems that interact with the providers and their caregivers, and they are easier to address than it is to fundamentally have to rearchitect a program and a system.

Senator MORAN. By the nature of Oracle's business and by your experience is Oracle an appropriate, the right company to make this work?

Mr. SICILIA. Well, we supply infrastructure, large-scale infrastructure systems to the systems that power our Nation's financial services organizations and utilities. Eighteen of the 20 top pharmaceutical companies in the world use our clinical trials management software, and at the height of the COVID pandemic, for example, we had 121 clinical trials running in our clinical trial system for either COVID vaccines or therapeutics.

During the COVID period we built and donated multiple systems to HHS, specifically to CDC and NIH, for COVID vaccine management, for the V-safe post-vaccination safety surveillance system. We built and delivered those systems with stateless web applications at scale, and frankly, they rarely, if ever, had problems.

So I do believe that based upon our years of experience in clinical systems, our over 44 years of experience in dealing with large-scale, hyper-scale type problems and extremely complicated datasets, that we are well positioned to deliver.

Senator MORAN. Within the chain of command at the VA do you know who your primary contact will be who is leading the governance of this EHRM moving forward?

Mr. SICILIA. My primary contact is Deputy Secretary Remy, who I have met with and will meet with again tomorrow as well. I am also in contact with Dr. Adirim and Mr. DelBene as well, as we go forward.

Senator MORAN. And those are the appropriate people for you to be in touch with——

Mr. SICILIA. Absolutely.

Senator MORAN [continuing]. For resolving this?

Mr. SICILIA. Absolutely.

Senator MORAN. And I guess that answers my question.

Mr. Case, my final question. Fourteen reports, 6 recommendations that have been open for longer than 2 years, with 24 total recommendations open for more than 1 year. What in those reports or open recommendations concerns you the most and therefore should concern us the most?

Mr. CASE. Senator, I think the recommendations that flow out of our recent report in March of this year, addressing issues that impact patient safety, medication management, and care coordination are important. I think the recommendations that flow into the training questions are important. We issued a report in November of last year on the lack of training and problematic training in the scheduling system, and last July, we issued a report on training overall at Mann-Grandstaff, which found it to be insufficient. And, those have to be addressed.

So you have patient safety questions, you have training questions, and finally I think there are programmatic issues that have to be addressed. There is no integrated master schedule that will show how this is going to be accomplished in 10 years. And, so without that integrated master schedule and a risk analysis affiliated with that integrated master schedule it is really hard to assess can they get this done, and how fast they can get it done.

Senator MORAN. Thank you, Mr. Case. I always appreciate inspectors general, and I appreciate you and the Department of Veterans Affairs. In those things you just outlined, who is primarily responsible, the VA or Oracle, to meet those most important features?

Mr. CASE. The recommendations are all directed to VA, sometimes different components within VA. Now they will have to enlist, I suspect, in some of these, the efforts of Oracle and perhaps others. But the recommendations are to VA. This is their system, at the end of the day, and especially on program management it is something they have to follow, and they are the ones who have the patient safety experts in-house that can address some of these patient safety questions.

Senator MORAN. So it is not appropriate, it is not fair to suggest this is just Oracle's problems to fix.

Mr. CASE. Well, I would agree it is not just Oracle's——

Senator MORAN. That was a question. I did not ask it—my voice went up.

Mr. CASE. Yes. It is not just Oracle's problems to fix. As I said, the recommendations are directed to VA, and many of these are things that VA has to address, sometimes with the aid of others— consultants or Oracle or others—but they are really, at the bottom, things that VA has to address.

Senator MORAN. Thank you both for your presence today.

Chairman TESTER. Mr. Sicilia, I want just a quick follow up on the Ranking Member's questions today. You said your point of contact with Remy and Dr. Adirim. How often do you meet?

Mr. SICILIA. We have a monthly standing meeting and certainly lots more conversations in between as well. That is with Secretary Remy.

Chairman TESTER. Do you see it as being adequate?

Mr. SICILIA. I think that is the minimum. I would say we will probably move to a more regular cadence. After August 4th, when I meet with VA and DoD leadership combined, I plan to suggest perhaps a different cadence.

Chairman TESTER. Okay. I want to thank you both for your testimony. I do want to close with a statement, assuming the coach does not have more questions.

Senator TUBERVILLE. I would like to ask Mr. Sicilia, what is a good timeline to get you to come back, once you have got your foot in the door, to really give us an idea of what is going on and what we need to do to help you.

Mr. SICILIA. I think we will show significant improvements in the system over the next six months. I think I will be prepared to talk about them in more detail in three to four months.

Senator TUBERVILLE. Thank you.

Chairman TESTER. So there are a lot of things on this Committee we do together, Democrats and Republicans. I would tell you that all the things we do in this Committee pale in comparison by our belief that the inspector general recommendations need to be followed through and taken seriously. And I say that not for this panel but for the previous ones, and I appreciate you guys staying here.

The fact that we have six recommendations that have gone out two years, as the Ranking Member pointed out, and 24 one year, I will be quite frank with you that that is completely unacceptable and needs to be addressed.

The IG are our eyes on agencies. We are not able to go in and do the kind of in-depth investigations that they are, and when they come forward with those recommendations, if they are not followed through there better be a damn good reason why they are not followed through with.

And so I say that saying today was a pretty calm hearing. It is going to get a lot rougher if these issues are not addressed, or if they are not addressed there better be a really good reason why they are not addressed, because quite frankly, it does not matter if it is this area, it does not matter if it is on some other committee—and by the way, Senator Moran and I serve on all the same committees together, and we have the same opinion about IGs, whether it is on this Committee or any other committee, that

their recommendations need to be taken seriously and followed through on, and if they are not there is going to be a come-to-Jesus meeting.

So thank you all. I want to thank the previous panel and I want to thank them for sticking around. I appreciate that. I want to thank Mr. Case and Mr. Sicilia for being here today. The topic of this hearing is technical but it only comes down to one thing and that is VA's dedication to frontline employees who need a stable, working, cutting-edge EHR to allow them to effectively deliver health care on behalf of our 9.2 million veterans in this Nation.

Right now the new EHR is not getting it done. I have great hopes that we are beyond the roughest part and we are going to be moving forward. Look, I will tell you that I think, I hope—I really do hope that the acquisition by Oracle is going to be a game-changer. I hope it is. And if it is then that is going to be good news for our veterans.

We are going to keep this record open for a week. With that thank you all, and this hearing is adjourned.

[Whereupon, at 4:54 p.m., the Committee was adjourned.]

APPENDIX

Prepared Statements

STATEMENT OF TERRY ADIRIM, M.D., PROGRAM EXECUTIVE DIRECTOR
ELECTRONIC HEALTH RECORD MODERNIZATION INTEGRATION OFFICE
DEPARTMENT OF VETERANS AFFAIRS
BEFORE THE
COMMITTEE ON VETERANS' AFFAIRS
UNITED STATES SENATE
ON
"EXAMINING THE STATUS OF VA's
ELECTRONIC HEALTH RECORD MODERNIZATION PROGRAM"

July 20, 2022

Chairman Tester, Ranking Member Moran and other Members of the Committee, thank you for the opportunity to testify today in support of the Department of Veterans Affairs (VA) initiative to modernize its electronic health record (EHR) system. I am accompanied by: Kurt DelBene, Assistant Secretary for the Office of Information and Technology (OIT) and Chief Information Officer (CIO); Gerard Cox, M.D., Assistant Under Secretary for Health Quality & Patient Safety, Veterans Health Administration (VHA); and Michael Parrish, Principal Executive Director for the Office of Acquisition, Logistics and Construction (OALC).

I look forward to continuing to engage with you and your staff to ensure that we are successful and assure you that I am committed to full transparency regarding our deployment efforts. Thank you for your support of this important program.

To that end, I wanted to share with the Committee the EHRM program's progress to date and how it's positioned us for even greater, sustained success. This includes an update on the locations where we've gone live, how we've applied lessons learned to strengthen our deployment approach, and other enterprise-wide efforts to continue to encourage end-user adoption.

As we'll discuss, we've learned a great deal since our first deployment nearly two years ago – and it's allowed for a very busy and productive first half of 2022.

First and foremost, Veterans deserve high-quality health care – that means care that is timely, safe, Veteran-centric, equitable, evidence-based and efficient. VA medical personnel must have the modern tools necessary to deliver that care. As Secretary McDonough has said, VA's EHRM effort is a leap forward that we can do and must get right, and we are.

Make no mistake, this enterprise-wide effort is one of the most complex clinical and business transformation endeavors in the Department's history. But the complexity and challenges associated with this effort should not deter us from modernizing our technology. This is an opportunity for VA to fundamentally transform health care for Veterans through standardization of its operations to deliver consistent, high-quality care wherever Veterans seek it.

The goal of this program is clear: create a single, seamless, integrated health record containing medical information from military service to Veteran status. This will ensure that those who care for our Nation's Veterans have access to a complete health record to provide safe and timely health care across a Veteran's lifecycle.

I am honored to be leading this important effort on behalf of VA and Veterans, and it is my top priority to deploy a system that will enable the delivery of modern, high-quality, care – and to do this in a safe and Veteran-centric manner. Given my background and experience in leadership roles within clinical medicine, academia and Federal Government service, I believe I have unique insight into both the importance of our mission and the details required for successful deployment.

By training, I am a physician specializing in pediatric emergency medicine. I come to VA after serving in leadership roles within the Department of Defense's (DoD) Military Health System, most recently as Acting Assistant Secretary of Defense for Health Affairs.

Throughout my 30-year career, in and out of Government, I continued to practice medicine. I have been through EHR deployments and have used the Cerner EHR system in clinical practice. I am highly familiar with the challenges of learning how to use a new EHR system. I can tell you from experience that there is always a learning curve, easier for some than others, and unforeseen difficulties – regardless of the sector or industry leading the effort. This is not unique to VA.

Implementing a new EHR system in any organization is difficult but implementing one in a health care system as large and complex as VA's is unprecedented. We are transitioning from the current, nearly 40-year-old EHR system, Veterans Health Information Systems and Technology Architecture (VistA), comprised of 130 customized versions, to a single, state-of-the art product with enterprise-wide standardized workflows and configurations. This is momentous change for VA's medical personnel.

The Imperative for Change

The legacy system served us well. However, it does not have the capabilities that a modern EHR offers and is simply incapable of sustaining the current and future demands of rapid innovations in health care. For VA, the EHR modernization effort has become an important imperative for change.

VA's new EHR is critical for not only creating a seamless experience for Veterans moving from DoD to VA care, but also for those seeking to move their care within the VA health system itself. Additionally, VA views this as an opportunity to use the new EHR as the tool to allow the VA health system to function as an enterprise. An enterprise approach will support standardizing care across the system and is a key contributor to improvements in health care quality, patient safety, and realizing greater efficiencies.

Automated integrated functions in the new EHR have already proven to help providers get their work done faster, as experienced in our laboratories where they are able to process more specimens than with the legacy system, and in less time. It has also improved the user experience by moving key functions from multiple applications to one. This automation and integration of capabilities represents a significant change from how VA is managing our health records in the legacy system.

Any implementation of this scale and complexity comes with inherent challenges. While we are working diligently to address them, we also know change like this can be exacting and, as such, have always viewed this process iteratively. We are currently in the early stages of implementation or the initial operating capability phase (IOC), where we are learning what is working and what is not – and applying these lessons learned, moving forward.

As a practicing physician, I have seen this before. Our commercial-sector peers struggle with similar challenges when transitioning to a new EHR. VA's struggles are amplified, because VA is the largest, most complex health system in the United States, with personnel having never experienced a change in EHR before.

VA's Unique Implementation Challenges

VA purchased a commercial off-the-shelf product that does not yet have some of the functions tailored to the unique requirements of VA care. Many of these are administrative functions based on how Veterans qualify for care, but there are also unique ways VA provides some of its clinical care.

For example, unlike the private sector, VA pharmacists make changes directly in patients' health records to communicate requests for medication changes using standardized messages through the e-prescribing network. Prescription changes may be necessary if a certain strength of a drug is not in stock, for example. This has been identified as a priority by VA, and we have contracted with Oracle Cerner to integrate the pharmacy software within the patient record of the new EHR. This will take some time to complete, and until then we have instituted measures to avoid the need for pharmacists to have to make changes in the first place. This includes evaluating the feasibility of using site-specific formularies where physicians select medications and use some of the private sector electronic messaging tools.

VA is continuously collaborating with Oracle Cerner to configure the EHR system to meet our requirements. We implemented rigorous processes to monitor and manage our contractual relationship, to ensure all requirements are delivered. We also instituted a series of metrics to assess user adoption and determine patient engagement, productivity and safety to continually identify areas for improvement.

Despite challenges, it is important to note that the same EHR system that VA is deploying has already been successfully implemented at DoD sites across the United States, including by the U.S. Coast Guard and the U.S. Military Entrance Processing Command, as well as in the commercial sector. Currently, more than 50% of DoD's EHR rollout is complete, with over 100,000 active users.

We acknowledge that our first deployment in Spokane, Washington, almost two years ago, was not as successful as subsequent deployments. Based on our experience there, VA temporarily paused subsequent deployments to conduct a thorough strategic review and install a new leadership team. Lessons learned from the first deployment helped to shape a new, better-informed approach – which has led to four safe and successful deployments in Walla Walla, Washington; Columbus, Ohio; Roseburg, Oregon; and White City, Oregon.

Alongside our own deployment experiences, we are evaluating lessons learned from the DoD rollout, as well as commercial experiences, that are helping us with our own deployments as we move from our initial operating capability to taking our deployments to scale across the entire VA enterprise.

Learning and Improving with Each New Deployment

VA is committed to resolving the challenges identified in the strategic review. We have already made significant progress in many areas. For example, we hired leaders and staff with the right skills and experience for successfully completing large complex projects; established site deployment readiness criteria; optimized dashboards to monitor and measure our performance; established VA governance bodies for more collaborative cross-Department decision-making; and improved communication with our stakeholders. Additionally, we are focused on ensuring technology stability and system enhancements, as well as on rigorous processes to manage budget and expenditures aligned to valid requirements and performance, among many other program improvements.

The steps we have taken have properly position the EHRM program for success. Across every measure of progress, our top priority is, and always has been, patient safety. In fact, due to the patient safety concerns at our first deployment site, VA has incorporated patient safety activities in all aspects of the deployment effort: pre-deployment, at go-live, and post-deployment.

Pre-deployment actions to ensure safe deployment include: validating the nationally approved workflows; thorough testing of the system; and the use of a site deployment readiness checklist, established in January 2022, which includes all tasks required for a safe and successful deployment. Similar checklists are used in other high-risk health care environments, such as operating rooms and intensive care units. Additionally, VA conducts a patient safety incident management table-top exercise and a patient safety summit at the local deployment site, to ensure a thorough and accurate assessment of readiness.

At go-live, VA instituted a comprehensive package of activities to prevent patient safety events and patient harm, including the deployment of staff from VA's National Center for Patient Safety to work with the local patient safety staff to triage Joint Patient Safety Reports (JPSR) for investigation. The most impactful prevention activity is the robust support given to the end users, pre-deployment and at go-live. These include significantly improved training and change management activities to ensure end users are confident in using the new technology; ample on-the-ground support with Cerner adoption coaches, peer super-users, VA solution experts and other clinical experts; and support for clinical operations from the Veterans Integrated Service Network (VISN) (Clinical Resource Hubs) and VHA (National EHRM Supplemental Staffing Unit [NESSU]), that support the local site in providing seamless service to Veterans during the immediate weeks after go-live.

The result of these new activities has been a significant decline in the number of patient safety reports and reports of alleged harm between what was experienced at the first site almost two years ago and the four subsequent implementation sites.

With deployment readiness and patient safety as its number one focus, the new EHR Modernization Integration Office's immediate priorities include strengthening the program, ensuring and sustaining the success of the initial deployment sites, and ensuring successful deployments at future sites.

- Strengthening the program: Our new organizational structure realigns functional, technical, and program management under one executive director, within the Office of the Deputy Secretary, to ensure all aspects of the program are integrated and working together closely. A new Department governance council, the EHRM Integration Council, provides a forum for cross-Department decision-making to ensure expertise is integrated from all VA stakeholders. This council has improved communications, collaboration and transparency across VA and enhanced effective governance of the program.

- Ensuring success of the first five deployment sites: The EHR system is currently deployed at: the Mann-Grandstaff VA Medical Center (VAMC) in Spokane, Washington; the Jonathan M. Wainwright Memorial VAMC in Walla Walla, Washington; the VA Central Ohio Health Care System in Columbus, Ohio; the Roseburg VA Health Care System in Roseburg, Oregon; and VA Southern Oregon Rehabilitation Center and Clinics in White City, Oregon. These sites are designated as IOC sites, which means they are helping us to identify areas for changes and further hone our processes, all of which will be incorporated as lessons learned when the system is deployed at future sites. We continue to support these sites post deployment, including Mann-Grandstaff where we are providing ongoing support to staff in their journey to effectively adopt the system.

- Preparing for future deployments: Following the Mann-Grandstaff VAMC deployment and the strategic review, VA revised its EHR deployment schedule

through the first quarter of fiscal year (FY) 2024 (published in December 2021) which, VA has always communicated, is subject to change based on unforeseen events, such as another wave of COVID-19 or other factors that may prevent a safe and successful deployment. This may include a determination that a site may not be ready for deployment due to implementation tasks not being completed on time or an assessment by EHRM IO and VHA leaders that an adjustment in timeline for a clinical site is needed. In preparation for deployments, EHRM IO developed detailed integrated readiness for go-live criteria to assess risk at future sites. In addition, we implemented a continuous feedback loop with these deployed sites to capture improvement opportunities and drive future changes for non-deployed sites. Pre-deployment activities are underway in VISN 10 and VISN 20, as well as preparations for site deployments scheduled later in FY 2023 and in early FY 2024, in VISN 12 and VISN 23.

Consistent with our readiness assessment approach, deployment to the Boise VAMC was moved from the original date of June 25, 2022, to July 23, 2022, to allow additional time for completion of staff training, completion of scheduling grids, and provisioning of staff. This decision was made, together with the site leadership, using the site readiness for deployment criteria. Based on concerns about the system's stability for deployment to larger sites and to give Oracle Cerner time to stabilize the system, we also shifted the deployment to Puget Sound VA Health Care System, which includes the American Lake and Seattle VAMCs, from the original date of August 2022 to March 2023, and the VA Portland Health Care System, which includes the Portland and Portland-Vancouver VAMCs, from November 2022 to April 2023.

Update on Mann-Grandstaff

As the first VAMC to go-live in October 2020, Mann-Grandstaff VAMC leadership and staff, supported by VISN and VHA leadership, worked tirelessly to ensure Veterans have continuity of quality and timely care during the transition to the new EHR system. While the VA team continues to move forward with other deployments, we are still very much focused on supporting Mann-Grandstaff VAMC, and we will continue to closely monitor for user experience and adoption. Objective data show that staff are successfully adopting the system and clinical operations are close to, or at, their performance level, prior to deployment. Lessons learned at Mann-Grandstaff were applied to deployment sites in 2022, and initial data suggests they will quickly return to pre-deployment levels. Additionally, as we release additional capabilities to enhance VA's EHR system, we expect that the user experience at Mann-Grandstaff VAMC will continue to improve.

2022 Update: Four Successful Deployments

Starting in early 2022, continuing to build on lessons learned, the EHR system was safely and successfully deployed at 4 additional sites: the Jonathan M. Wainwright Memorial VAMC in Walla Walla, Washington, on March 26; the VA Central Ohio Health Care System in Columbus, Ohio on April 30; and at the Roseburg VA Health Care

System in Roseburg, Oregon and the VA Southern Oregon Rehabilitation Center and Clinics in White City, Oregon, both on June 11.

To date, VA has completed five deployments of the new EHR, encompassing five VAMCs, 22 community-based outpatient clinics, and 52 remote sites, with more than 10,000 end users serving over 207,000 Veterans. Reaction has been highly positive across the enterprise to the 2022 results, and momentum continues to build.

Following go-live at the Jonathan M. Wainwright Memorial VAMC in Walla Walla, Washington, the system is working well and by objective operational measures, staff are successfully adopting the system. In fact, early after go-live, staff experienced notable decreases in the amount of time needed to document a patient visit, and because of their success using the system, leadership planned for additional scheduled appointments earlier than had been planned. For example, chief technologists' time spent with patients increased and their documentation preparation time decreased, creating increased efficiency and radiology turnaround times. The new EHR system has also freed lab staff from roughly three hours-a-day worth of work manually processing thousands of specimens. Feedback from site leadership is that morale among staff is high.

Lessons learned from the first two IOC sites were used to enhance every aspect of the next deployment at the VA Central Ohio Health Care System in Columbus, Ohio, including noted improvements to enrich staff training. Leaders and staff at the facility expressed satisfaction with the rollout, noting a seamless transition regarding pre-deployment patient volume. In fact, during the first two weeks of go-live, patient volume in the Urgent Care Center was above average and providers significantly reduced the time they are in the EHR system to document visits, which is a critical measure of successful adoption. Additionally, scheduled patient appointments doubled after just the first week, more surgeries were being performed than pre-deployment and there have been significant improvements in laboratory turn-around times, compared to the legacy system.

On June 11, the EHR system was successfully deployed at both the Roseburg VA Health Care System in Roseburg, Oregon and the VA Southern Oregon Rehabilitation Center and Clinics in White City, Oregon representing the first time VA launched the new EHR at 2 facilities simultaneously. All indications are the go-live was successful. VAMC leadership report consistently that morale is good; deployment has been a positive experience; and they were impressed with the at-the-elbow support. In the first two weeks of go-live, more than 700 appointments a day, on average, were scheduled at both sites combined, with approximately 1,000 end users actively using the system. The White City radiology team were pleased with the real-time visibility of the tracking board, which displays a modified online worklist view showing the queue of work in the Department. Importantly, more than 100,000 Veterans in the region will benefit from the added capabilities of the new EHR system.

Regarding the upcoming Boise deployment, EHRM IO, VHA and VAMC leadership have been meeting regularly, to resolve any outstanding issues and to raise awareness of what to expect at the go-live among the VAMC stakeholders. Town halls were held with staff, local Veterans Service Organizations, and Veterans served by these facilities. Additionally, email notifications were sent, and information was posted to VA's social media platforms and on the facility's website. We continue to hear from VAMC leadership that they are looking forward to going live this weekend, and indicated the staff is ready and shared their excitement.

Future Site Readiness

As mentioned, all new deployments of EHR systems, across sector and industry, have challenges, and we fully intend to learn from ours and, importantly, apply these lessons to future deployments. To that end, data capture and assessment are essential steps. In fact, VA has process measures, based on VHA data sources, that broadly identify site readiness and will use analysis of these measures to drive insights into future site readiness.

To ensure readiness for transition to the new EHR system and to support training for the new way of delivering care, VA conducts Current State Reviews or CSRs at each facility. The CSRs include the following: a comprehensive review of each facility's current clinical processes for patient care; an analysis of each facility's patient documentation requirements; and a review of existing technical infrastructure, including network closets, server rooms, end-user devices, medical devices, printers and scanners. This information enables VA to prepare the facility and its staff for EHR implementation and determine the necessary workflow updates, training and technical upgrades needed to support the EHR deployment.

Change Management

With the goal of encouraging adoption of the new system, we are using a number of change management strategies to ensure that leadership and staff understand that EHR implementation represents an entirely different and innovative way of delivering health care. This includes ongoing, close engagement with local site leadership and staff, VISN leadership and VHA leadership, which allows us to actively monitor system-use trends, to gain insight into how preparation for adoption is progressing and to identify areas where there may be concerns.

In order to continue this type of engagement, at scale, we recently started a series of VISN Medical Center Directors' Conferences to bring together site leadership within a VISN to communicate how to prepare for implementation, answer questions and give leadership at already deployed sites a platform to share their lessons learned and tips with their peers. Our first conference was held for VISN 10 in May 2022, and we received extremely positive feedback from attendees.

To support sites and ensure seamless care for Veterans, during the early days of go-live as staff are still learning the system, VHA also created the National EHRM Supplemental Staffing Unit (NESSU) to provide in-person and virtual clinical staff, trained on the new EHR system, to further supplement the areas of primary care, mental health, outpatient pharmacy, scheduling and nursing care during and after go-live. In addition, the VISN Clinical Resource Hub (CRH) provides trained staff for Veteran populations facing geographic or social barriers to care and have been deployed to sites at go-live to also support care, as staff are learning the new system.

In response to feedback from the Spokane, Walla Walla, and Columbus sites, VA evolved and enhanced its training content to ensure better competency in using the new system. This involved improvements to both quality and quantity of training, including course redesigns to incorporate additional workflows and better address the needs of learners. Another important improvement is identifying super users earlier in the deployment process and engaging them as part of the change management network to support their peers.

Communications with Veterans, facility leadership and staff, and the public are critical to successful EHR deployment. Of primary concern is managing expectations for post implementation, specifically, ensuring that health care personnel understand that the delivery of care will be different from prior practices and that the EHR system will require further refinements, such as enhancements to integration between the core EHR system and unique VA systems for prosthetics, community care referrals and pharmacy.

Budget Overview

As planned, the budget request for FY 2023 reflects the necessary funding to prepare for and meet the deployment requirements at sites that will go live in FY 2024 and early FY 2025. Thanks to the support of Congress, funding already provided in FY 2021 and 2022 supports the majority of information technology infrastructure requirements essential to support the new EHR system.

Conclusion

Modernizing VA's electronic health record is much more than just a routine software implementation. It is a fundamental change in how business and work processes are performed within VA; therefore, it presents us with the opportunity to completely transform the way we deliver health care and standardize that delivery across the enterprise. Because it is so transformative, in terms of how Veteran care is provided, the success of the project depends not just on the software, but on how well we train and support the people who use it. Be assured that the resources you have invested in VA's new EHR system, when fully implemented, will support VA in delivering world-class health care and improving access, outcomes, and the experience for Veterans.

Finally, I want to acknowledge what may be top-of-mind for many of our stakeholders, including some Members of the Committee. We understand the uncertainty this type of innovation can bring as meaningful, industry-shifting change often does. In a rollout of this scale and complexity, challenges come with the territory, they are inevitable, and we are prepared for them. In fact, in the years ahead, a successful EHR deployment must reflect them, with each challenge helping to better inform and position the next.

Mr. Chairman, Ranking Member, and Members of the Committee, thank you for the opportunity to testify today to discuss our deployment of the EHR system. I again extend my gratitude to Congress for your continued support and shared commitment to serving Veterans. Because of your support, VA, in coordination with DoD, will realize the full promise of a modern, seamless, integrated health record that will contribute to the health and well-being of the Veterans in our care. My team and I are happy to respond to any questions that you may have.

# # #

DEPARTMENT OF VETERANS AFFAIRS
OFFICE OF INSPECTOR GENERAL

STATEMENT OF DEPUTY INSPECTOR GENERAL DAVID CASE
OFFICE OF INSPECTOR GENERAL, DEPARTMENT OF VETERANS AFFAIRS
BEFORE THE
U.S. SENATE COMMITTEE ON VETERANS' AFFAIRS
HEARING ON
THE DEPARTMENT OF VETERANS AFFAIRS ELECTRONIC HEALTH RECORD
MODERNIZATION PROGRAM
July 20, 2022

Chairman Tester, Ranking Member Moran, and Committee members, thank you for the opportunity to discuss the Office of Inspector General's (OIG's) oversight of the Department of Veterans Affairs' electronic health record modernization (EHRM) program. The OIG recognizes the enormity and complexity of converting VA's electronic health record (EHR) system for millions of veterans receiving VA care and acknowledges the significant work and commitment of VA staff to accomplish this task. Over the two-plus years that OIG staff have been repeatedly engaging with employees at the first deployment site—the Mann-Grandstaff VA Medical Center (VAMC) in Spokane, Washington—and other VA locations using the new EHR, we have seen an unwavering commitment to this transition while prioritizing the care of patients during the COVID-19 pandemic. Their challenges have been exacerbated, however, by the lack of prompt remediation of problems that the OIG and others have identified in numerous oversight reports published since April 2020.

The OIG published 14 reports addressing the EHRM program and system implementation between April 2020 and July 2022 with a total of 68 recommendations. The reports and their respective recommendations are detailed in the sections that follow. They are meant to help VA improve execution of the new system and support the provision of prompt, quality health care for veterans. Failure to satisfactorily complete the corrective actions associated with these recommendations can increase risks to patient safety and the ability to provide high-caliber care as the new EHR system rolls out nationwide. Fully addressing OIG recommendations can also help minimize considerable cost escalations and delays in future site deployments. The OIG is extremely concerned about the six recommendations that have been open (not implemented or fully addressed) for longer than two years—with 24 total recommendations open for more than one year. While the OIG follows up with VA on open recommendations every 90 days, VA program officials can submit evidence of sustained progress or satisfaction of corrective actions at any time to facilitate closing recommendations.

As the following sections detail, since July 2021, the OIG began examining how the new system has been affecting users and patients. Most recently, the OIG determined that the new EHR system directed thousands of medical orders to an "unknown queue" that were not evident to the clinical and

administrative staff responsible for addressing them. The OIG also found that the Veterans Health Administration (VHA) determined the unknown queue created significant risk and caused harm to multiple veterans. As recently as June 2022, hundreds of orders remained in the unknown queue across VA sites implementing the new system. In another July 2022 report, the OIG found that the Office of Electronic Health Record Modernization's (OEHRM's) Change Management leaders exhibited a lack of care and due diligence that resulted in inaccurate information being submitted to the OIG regarding VHA user training on the new EHR system.[1] Had the OIG not discovered key data had been excluded, which inflated training pass rates, and that the evaluation plan submitted was actually still in "its infancy," it is likely that Congress and the public would have been misinformed about the state of VA's evaluation of the training program.

OIG staff collaborated with the Department of Defense (DoD) Office of Inspector General to examine weaknesses in VA and DoD's efforts to achieve interoperability of their systems to provide a complete EHR for veterans. That work highlighted the failure of the Federal Electronic Health Record Management (FEHRM) program office to execute its oversight and coordination responsibilities in accordance with its charter.

Also at the programmatic level, the OIG reported that VA has not executed a reliable, comprehensive schedule for full system implementation. Identified deficiencies could result in schedule delays and leave VA vulnerable to billions of dollars in cost overruns. Without that schedule, Congress and the public cannot rely on VA timeline projections for completing the work or be assured that the program will be completed within budget.

Three OIG reports released in March 2022 identified EHRM issues connected to medication management, care coordination, and the ticketing process used by staff to request help and resolve problems. A year after going live, Mann-Grandstaff VAMC was also found to be lacking key metrics from the EHR needed to manage organizational performance, patient safety, and access to quality care.

In November 2021, the OIG examined the experiences of employees using the EHR system at Mann-Grandstaff VAMC, as well as the patient appointment scheduling package at the Chalmers P. Wylie VA Ambulatory Care Center in Columbus, Ohio (Columbus clinic). Clinical and administrative staff at these locations expressed frustration with the significant system and process limitations that raised concerns about veterans' prompt access to quality care and the continuity of that care.

Previously, the OIG's oversight in 2020 and through July of 2021 focused on VA's preparation for the system's initial deployment at the Mann-Grandstaff VAMC and the condition of VA's physical and information technology (IT) infrastructure prior to system deployment.[2] Deficiencies the OIG detected

---

[1] OEHRM was subsequently replaced by the Electronic Health Record Modernization Integration Office (EHRM IO).
[2] "Physical infrastructure" refers to the underlying foundation that supports the system, such as electrical; cabling; and heating, ventilation, and air conditioning. "IT infrastructure" includes network components such as wide and local area networks, end-user devices (e.g., desktop and laptop computers, and monitors), and medical devices.

for the first deployment site revealed the need for prompt corrective measures as additional facilities were switching to the new EHR system. Yet many issues remained unresolved prior to additional deployments, particularly problems with the users' and veterans' experience that can affect patient care and safety. Further, the existing physical and IT infrastructure was inadequate for the new system, and pertinent life cycle cost estimates were unreliable and underestimated possibly by about $5 billion.

2022 EHRM OVERSIGHT REPORTS
The OIG has released eight reports in 2022 covering a range of implementation and oversight concerns.

Senior Staff Gave Inaccurate Information to OIG Reviewers of EHR Training (July 2022 Report)

Between September 2020 and April 2021, the OIG experienced significant challenges in receiving timely, complete, and accurate information during a healthcare review focused on employee training on the new EHR. While the OIG did publish a detailed report on the training program in June 2021, discussed below, OIG staff had significant concerns about potential misconduct by two of OEHRM's Change Management leaders regarding their responses to requests for information about the plan to evaluate the training's effectiveness and data related to the post-training proficiency tests taken by employees. The OIG subsequently initiated an administrative investigation.[3] While the investigation did not find that the two Change Management leaders intentionally sought to mislead OIG healthcare inspectors, the OIG found that their lack of due care and diligence resulted in inaccurate information being submitted to OIG staff.

Specifically, Change Management's then executive director and the director for training strategy

- presented documentation to OIG staff that described a training evaluation plan, without disclosing that the action items had not been fully implemented and that no training evaluation plan had been reviewed or approved;

- delayed production of underlying proficiency check data and instead provided one slide with three summary statistics with significant errors that resulted in doubling the reported proficiency check pass rate from 44 to 89 percent, and later inaccurately explained the difference as the result of removing a relatively small number of data outliers;

- failed to recognize red flags and confirm accuracy before reporting the revised results to OIG staff, which would likely have shown that the contractors who produced the information for the OIG had removed *all failing proficiency scores* from the calculations; and

---

[3] VA OIG, *Senior Staff Gave Inaccurate Information to OIG Reviewers of Electronic Health Record Training*, July 14, 2022.

- did not disclose that the training proficiency results reported to the OIG excluded outliers and were calculated in response to the request, instead of resulting from the submitted training evaluation plan when participants' training was completed.

Had the OIG relied on the information provided, Congress and the public would have been misled as to how trainees had performed in the tests. The culture of accountability the Secretary and Deputy Secretary are promoting by mandating training on engaging with the OIG and other measures is critical; however, this report underscores the need for leaders overseeing the EHRM program to reinforce those values and the requirement for timeliness, completeness, and accuracy in all responses to OIG requests for information. The OIG made four recommendations, found in appendix A, and all are open.[4] Two recommendations pertain to the need for open and direct staff-level communications with the OIG to resolve questions and to provide appropriate and prompt responses. The two other recommendations ask VA to examine if administrative action should be taken concerning the conduct or performance of the senior leaders.[5]

The New EHR's Unknown Queue Caused Multiple Events of Patient Harm (July 2022 Report)

This review looked at one aspect of the question of whether the new EHR resulted in any patient harm.[6] In May 2021, after VHA identified several patient safety concerns, a VHA National Center for Patient Safety team went to Mann-Grandstaff VAMC with their work continuing through the year. In late 2021, the team drafted a report and held a Safety Summit where they ranked dozens of safety concerns based on severity, identifying the "unknown queue" as one of the most severe.

Information about harm to patients due to the new EHR system was presented to the VA Deputy Secretary in November 2021. In December 2021, the Deputy Secretary forwarded information about harms due to the unknown queue to the executive director of EHRM IO. From October 24, 2020, through May 8, 2022, VHA identified 1,134 total patient safety events related to the new EHR. VHA's analysis identified one catastrophic patient harm (death or major permanent loss of function) and two major patient harm cases (permanent lessening of bodily functioning), one of which was related to the unknown queue.[7]

---

[4] The appendices list all reports discussed in this statement in publication order from most recent to the earliest EHRM-related release. The OIG requests updates on the status of recommendations every 90 days from VA. See www.va.gov/oig/recommendation-dashboard.asp.

[5] As an independent oversight authority, the OIG cannot mandate administrative action or dictate a specific outcome.

[6] VA OIG, *The New Electronic Health Record's Unknown Queue Caused Multiple Events of Patient Harm*, July 14, 2022.

[7] "Catastrophic harm is defined by VA as "death or major permanent loss of function (sensory, motor, physiologic, or intellectual) **not related to the natural course of the patient's illness or underlying condition** (i.e., acts of commission or omission)." Major harm is defined by VA as "permanent lessening of bodily functioning (sensory, motor, physiologic, or intellectual) **not related to the natural course of the patient's illness or underlying condition** (i.e., acts of commission or omission)." [bolding not added by the OIG]

The intent of the unknown queue is to capture orders entered by providers that the new EHR cannot deliver to the intended location. The design of the new EHR allowed providers to select locations from a drop-down menu that, depending on the specific order, would not be recognized as a "match" by the system. This "mismatch" would ultimately send orders to an unknown queue and not to the requested service location to initiate the ordered care. Notably, the new EHR did not alert the healthcare providers that the order was not delivered to the intended location.

The circled items in the figure above illustrate how locations included in the drop-down list were not matched and, if chosen, would send the order to the unknown queue. Orders from care providers began populating the unknown queue immediately after the facility went live. VHA staff had to re-input the orders after discovering the issue, expending many hours of labor at this point and then during the clinical reviews that assessed the harm patients may have suffered. Cerner did take steps with VA to mitigate the problem at Mann-Grandstaff VAMC by removing unmapped locations in September 2021.[8] As of February 2022, an alert is sent if a provider creates an order with an unmapped location. However, prior to March 2022, VHA could not generate a report of unknown queue orders itself. Cerner acknowledged that the unknown queue's ongoing risk would require mitigation at future go-live sites, noting the need to continuously reinforce the guidance on managing the queue.

The OIG found that Cerner did not inform VA end users of the unknown queue or provide guidance to address the unknown queue in advance of going live with the new EHR. A Cerner vice president, identified by the company's general counsel as a subject matter expert on the unknown queue, similarly reported having no knowledge that VA was told about it before going live. Following the OIG's

---

[8] Cerner Corporation was acquired by Oracle Corporation on June 7, 2022, and is now called Oracle Cerner; however, this statement will refer to the entity as "Cerner."

transmittal of the draft report to VA in June 2022, Cerner provided EHRM IO with documentation that asserted a VA leader approved the use of the unknown queue in January 2020. However, that VA leader and their supervisor told OIG staff they had no awareness of the unknown queue prior to going live.

The OIG found that the unknown queue created significant patient risks and caused harm to multiple patients. VHA itself assessed the risk as major severity, frequently occurring, and very difficult to detect and initiated a clinical review in June 2021 to ensure orders were acted on and to assess patients for harm. The clinical reviewers conducted 1,286 assessments and identified 148 adverse events (with an additional one later found by VHA to be a major harm, bringing the total to 149) for patients:

- Major harm: 2
- Moderate harm: 52
- Minor harm: 95

As an example of a major harm, a provider entered a psychiatric care order for a patient experiencing homelessness and identified as at-risk for suicide. The new EHR sent the order to the unknown queue. The patient was not scheduled for follow-up care and later contacted the Veterans Crisis Line reporting a razor in hand and a plan to take their own life. The patient was hospitalized for psychiatric care.

The OIG has concerns with the effectiveness of the plan to mitigate the unknown queue's safety risk. Facility leaders reported using the mitigation process to monitor and manage the queue but shared that steps in the process could still lead to orders remaining in the queue. In June 2022, when the OIG met with VA leaders to discuss this report, VA said that work to address the unknown queue was considered complete and that, on average, there were 28 orders in the unknown queue report. However, on that day, the OIG generated a report showing 522 total orders across the six VA facilities using the new EHR. The OIG made two recommendations, found in appendix B, and both are open.

Deficits with Metrics Following Implementation of the New EHR at the Mann-Grandstaff VAMC (June 2022 Report)

This report examines the availability and use of EHR performance metrics more than a year after VA's go-live date at Mann-Grandstaff VAMC.[9] The OIG conducted this review because of the potential for vulnerabilities in data reporting and analysis following the new EHR deployment that are used to inform medical facility leaders' decisions. The OIG found that metrics no longer available due to the new EHR transition impaired the facility's ability to measure and act on issues of organizational performance, quality of care and patient safety, and access to health care.

After going live, Mann-Grandstaff VAMC staff used work-arounds to mitigate the metrics gap. The staff shared with the OIG that doing so created a "tremendous" increase in additional workload, at times

---

[9] VA OIG, *Deficits with Metrics Following Implementation of the New Electronic Health Record at the Mann-Grandstaff VA Medical Center in Spokane, Washington*, June 1, 2022.

requiring numerous hours or days to prepare just one metrics report. Despite time-intensive workarounds and concerns with metrics accuracy, a facility leader shared that their service chiefs had been forced at times to "provide their best estimates" to inform decisions, such as facility staffing and patient discharges, because of the gaps in metrics. The OIG remains concerned that, despite the concerted efforts of facility staff to use work-arounds to manage gaps in the new EHR's metrics, the deficits may negatively affect organizational performance, quality of care and patient safety, and prompt access to health care.

The OIG identified multiple factors contributing to the significant gap in metrics available in the new EHR system. Challenges with the new EHR's metrics included the following factors:

- Cerner failed to deliver metrics reports.

- New EHR metrics could not be assessed prior to going live.

- New EHR metrics' usefulness was impaired.

- There was inadequate training regarding new EHR metrics.

VHA-generated metrics using new EHR data also created the following challenges:

- VHA resources were insufficient.

- The metrics were not validated and were therefore unavailable.

- VHA changed which metrics the facility was required to use.

The OIG determined that deficiencies related to the new EHR's metrics and challenges with VHA-generated metrics using new EHR data impaired the facility's access to and use of metrics. The OIG is concerned that further deployment of the new EHR in VHA without addressing the gap in metrics available to the facility will affect Mann-Grandstaff VAMC and future sites' ability to use metrics effectively. The OIG made two recommendations, found in appendix C, and both are open.

Joint Audit of the DoD and the VA Efforts to Achieve EHR Interoperability (May 2022 Report)

Staff from several OIG divisions worked on a joint project led by the DoD Office of Inspector General.[10] The project assessed internal controls and compliance with legal requirements, as well as actions by DoD, VA, and their joint Federal Electronic Health Record Modernization (FEHRM) program office to help ensure that healthcare providers serving veterans can access a complete healthcare record. The joint audit found that the agencies took some actions to achieve the level of

---

[10] DoD OIG and VA OIG, *Joint Audit of the Department of Defense and the Department of Veterans Affairs Efforts to Achieve Electronic Health Record System Interoperability*, May 5, 2022.

interoperability between DoD, VA, and external care providers specified by Congress in the National Defense Authorization Act of 2020 (NDAA). Challenges remain, however.

Specifically, the audit found that VA and DoD did not consistently migrate patient healthcare information from the legacy system into the new EHR to create a single, complete patient health record. The OIGs found that DoD and VA have separate processes for which information is brought forward into the new EHR. To access clinical information that hasn't been migrated from the old system to the new system, users have been instructed to use the Joint Longitudinal Viewer. Having providers use this work-around to obtain information does not meet NDAA requirements that healthcare providers access and exchange patient healthcare information without additional intervention.

Second, the DoD and VA did not develop interfaces from all medical devices to the new EHR so that patient healthcare information will automatically upload to the system from those devices. For example, some medical devices, such as some blood pressure cuffs and IV pumps, did not have set national healthcare data standards and still require the departments to develop effective interfaces.

Finally, the agencies did not ensure that users were granted access to the system for only the information needed to perform their duties. Cerner's EHR system limits access to patient healthcare information based on the provider's user roles. However, the user roles were not always commensurate with the healthcare provider's assigned duties. DoD user role coordinators granted some healthcare providers more access to the EHR system than was needed to perform their duties. According to the NDAA, to achieve interoperability, Cerner Millennium must have the ability to allow only relevant users, those that require access to perform their duties, access to healthcare information. Furthermore, other rules require that healthcare organizations limit the use of protected health information, such as patient EHRs, to the minimum access necessary for users to perform their official duties.

One contributing factor to interoperability problems was the failure of FEHRM program office officials to develop and implement a plan to achieve all FY 2020 NDAA requirements and to take an active role in managing the program's success, as authorized by the FEHRM's charter. Because the FEHRM program office limited its role, DoD and VA took separate actions to migrate patient healthcare information, develop interfaces, and grant user access to the EHR system.

The OIGs made two recommendations, found in appendix D, and both remain open.

The EHRM Program Did Not Fully Meet the Standards for a High-Quality, Reliable Schedule (April 2022 Report)

To implement the program successfully and within budget, it is imperative that VA develop a reliable integrated master schedule (IMS).[11] Government Accountability Office (GAO) guidance, which OEHRM adopted, states that a high-quality, reliable schedule should be comprehensive, credible, well-constructed, and controlled. The IMS is designed to cover the entire required scope of work—of both government staff and contractors—needed to complete the program. VA should use it as a road map to completion, to monitor progress, to help identify potential problems and track their resolution, and to promote accountability for assigned tasks. While not every task for a 10-year project can be accounted for early on, there are strategies to create a tailorable, comprehensive schedule to minimize the risk of delays, dropped activities (some of which are prerequisites for others), and budget overruns.

The audit evaluated whether the IMS met GAO scheduling standards. Then, it assessed whether OEHRM complied with regulations requiring IMS submissions to be "accepted" (that is, reviewed for compliance with contract requirements) before payment. The OIG reviewed all IMS-related invoices paid through August 30, 2021, and found that for one of the two task orders, OEHRM did not accept deliverables until after VA paid related invoices, which means VA cannot ensure submissions meet quality standards. In one instance, VA paid the invoice about 10 months before accepting the deliverable. This is a violation of acquisition regulations requiring acceptance before payment.

VA Did Not Have a High-Quality, Reliable IMS

The OIG found that neither the overall IMS nor five of its underlying individual project schedules fully met GAO standards adopted by OEHRM for a high-quality, reliable schedule. VA failed to meet fully the following scheduling standards:

- **Comprehensive.** The IMS should reflect the entire scope of program work in some level of detail to plan how the system deployment will be executed. However, the OIG determined that the IMS did not capture all work for the program's duration and was missing VHA and Office of Information and Technology (OIT) activities.

- **Credible.** A credible IMS should include a complete schedule risk analysis, which can give a level of confidence in meeting a program's completion date. However, OEHRM did not conduct a schedule risk analysis for the IMS.

- **Well-constructed.** A "critical path" determines the earliest date a program can be completed to help managers examine the effects of activity slippages, but no overall IMS critical path was created.

---

[11] VA OIG, *The Electronic Health Record Modernization Program Did Not Fully Meet the Standards for a High-Quality, Reliable Schedule*, April 25, 2022.

- **Controlled.** A controlled IMS should include a baseline schedule, used for managing the program and conducting trend analyses over time to assess program performance. However, OEHRM's program baseline only covered events through April 2020. While OEHRM has some notional (conceptual) baseline dates within project schedules, they do not give a comprehensive timeline. This is needed to have a full understanding of the plan and what constitutes successful program completion.

The OIG identified several root causes for OEHRM's failures:

- **Did not adequately coordinate with various offices.** VHA and OIT leaders said OEHRM officials did not collaborate with them during development; thus, the schedules the audit team reviewed did not include all work to be performed by these entities.

- **Did not conduct a schedule risk analysis because it lacked procedures.** Despite the importance of completing this analysis, OEHRM did not have procedures in place on when and how to conduct it.

- **Focused on near-term deployment of the system at the initial operating sites.** OEHRM only required development of site-specific schedules after task orders for those sites were awarded. Applying that strategy, VA would not have a high-quality, reliable IMS until it starts deploying the system at the last sites, which are planned to go live in FY 2028.

- **Did not enforce its own scheduling standards or have tools in place to assess compliance.** While OEHRM's schedule management plan stresses compliance with GAO guidance, task orders to Cerner do not require the IMS to align with them. Additionally, OEHRM's schedule management plan requires staff to use specific software to assess whether EHRM project schedules comply with GAO standards. However, a tool was not available from March 2020 to June 2021.

- **Lacked consistent guidance on roles, resulting in confusion over the assignment of IMS development and documenting how work was broken down.** Internal planning and contract documents inconsistently assigned responsibilities for developing and maintaining the program's work breakdown structure (WBS) and the IMS. The WBS defines all work needed to complete the program. Guidance inconsistently assigned these responsibilities to VA or one of its contractors— Booz Allen Hamilton, Inc., or Cerner, leading to confusion.[12] Cerner accepted responsibility for the WBS and, in July 2020, worked with VA to create it. While Cerner is responsible for developing the IMS, VA should ensure contract requirements are consistent with internal guidance.

- **Did not clearly define IMS contract requirements.** Cerner was contractually required to develop and maintain an IMS for the program under VA's task orders; however, the task orders did not clearly establish a timeline for when a complete IMS would be developed. Without a clear timeline,

---

[12] Booz Allen Hamilton, Inc. staff support EHRM activities. Their work included gathering input from VA administrations or offices to develop schedules for VA activities.

OEHRM required Cerner to develop site-specific project schedules as task orders were awarded. Following this process, future work not yet on task order would be unaccounted for in the IMS.

VA has a responsibility to ensure there is a complete IMS that meets scheduling standards. After completing a 12-week strategic review in July 2021, VA committed to conducting an enterprise-wide assessment to help identify gaps at all VA medical centers. This effort would allow VA to develop a reliable schedule by using the information learned to better define the scope of future work needed. It would also help address some of the concerns identified by the OIG.

VA needs a high-quality, reliable IMS to strengthen the credibility of the program's timeline. Without one, VA can neither demonstrate how slippages will affect the overall timeline nor assure stakeholders that the reported timeline is realistic and achievable. Any schedule delays that extend the program beyond 10 years are also likely to result in billions of dollars in cost overruns. The OIG estimated the average cost per year of a schedule delay is potentially about $1.95 billion.

For this report, the OIG made six recommendations, found in appendix E, and all are open.

A trilogy of reports released in 2022 responded to many complaints submitted to the OIG hotline and requests from congressional offices following the new EHR's deployment to Mann-Grandstaff VAMC. OIG healthcare inspections staff began work on two efforts to address several priority concerns—medication management and patient care coordination. During this work, the OIG team identified further challenges with the "trouble" or "help" ticketing process for system users to submit concerns, and the OIG team determined that some previously identified deficiencies were still unresolved. Consequently, the healthcare oversight team started a third effort to examine why problems were not addressed and to highlight the underlying causal factors. When VA responded to the three reports in early March 2022—nearly 18 months after going live in October 2020, VA actions to resolve issues were limited. The OIG identified 37 issues that were unresolved after the OIG completed its inspection in June 2021, but only eight were resolved by March of 2022.

Medication Management Deficiencies after the New EHR Go-Live at the Mann-Grandstaff VAMC (March 2022 Report)

The first in the trilogy of healthcare inspections focused on medication management for patients subject to the new EHR at the initial operating site.[13] This includes tracking and managing lists of medication, ordering, and promptly getting them to patients. Ensuring VA patients receive the correct medications in a timely manner is critical, particularly as many patients are older with numerous medical conditions treated with multiple medications. EHRs can improve clinical decision-making and minimize human error, but the risk of harm increases when systems have poor usability, workflows, or data inputs.

---

[13] VA OIG, *Medication Management Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington*, March 17, 2022.

The problems with medication management and prescriptions within the new EHR became apparent shortly after going live. A facility staff member reported a daily average of 100 patients showed up at Mann-Grandstaff VAMC for help with prescriptions even during the pandemic—five times more than before going live.

The OIG grouped the various complaints regarding medication management into three categories: data migration, medication orders, and medication reconciliation.

Data Migration

For this report, data migration focused on transferring patient information from VA's legacy EHR to the new system. Identified deficient areas related to patient contact information, patient medication lists, and formulary lists that included medications unavailable at the facility and supplies.

- **Patient Contact Information**: Prior to going live, VA migrated contact information and clinical data for approximately 88,000 veterans to the new EHR. The OIG found that outdated DoD data overwrote VHA's patient contact information, such as name, address, telephone number, and email address when data were migrated to the new EHR. Consequently, VA patients were delayed in receiving medications through the mail order pharmacy system.

- **Medication Lists**: The OIG substantiated that medication lists, migrated as "free text" per VHA's request, contained inaccuracies. Because medication lists did not import properly, care providers used work-arounds, including manual reentry to generate accurate medication lists. Staff described this process as "overwhelming" and time-consuming.

- **Medication Formulary**: The new EHR's formulary included many medications not available at Mann-Grandstaff or on VA's national formulary. Consequently, care providers unknowingly selected nonformulary or unavailable supplies. These selections increased risks for errors, potentially raised costs for VA, and added work for care providers and pharmacy staff. The figure below shows the new EHR's available options for a single medication commonly used to control blood pressure or heart rate. It shows how one medication can have dozens of entries of drug formulations and strength options, frustrating providers and increasing the risk of error.

Search: metoprolol | Advanced Options ∨ | Type: Ambulatory (Meds as Rx) ∨

⬆ 🏠 ⭐ ▾ 📁 🗐 Folder: | Search within: All ∨

🟢 metoprolol succinate 25 mg oral capsule, extended release
🟢 metoprolol succinate 25 mg oral tablet, extended release
🟢 metoprolol succinate 50 mg oral capsule, extended release
🟢 metoprolol succinate 50 mg oral tablet, extended release
🟢 metoprolol succinate 100 mg oral capsule, extended release
🟢 metoprolol succinate 100 mg oral tablet, extended release
🟢 metoprolol succinate 200 mg oral capsule, extended release
🟢 metoprolol succinate 200 mg oral tablet, extended release
🟢 Metoprolol Succinate ER 25 mg oral tablet, extended release
🟢 Metoprolol Succinate ER 25 mg oral tablet, extended release
   1 tab(s), Oral, Daily, for blood pressure, # 90 tab(s)
🟢 Metoprolol Succinate ER 50 mg oral tablet, extended release
🟢 Metoprolol Succinate ER 50 mg oral tablet, extended release
   1 tab(s), Oral, Daily, for blood pressure, # 90 tab(s)
🟢 Metoprolol Succinate ER 100 mg oral tablet, extended release
🟢 Metoprolol Succinate ER 100 mg oral tablet, extended release
   1 tab(s), Oral, Daily, for blood pressure, # 90 tab(s)
🟢 Metoprolol Succinate ER 200 mg oral tablet, extended release
🟢 Metoprolol Succinate ER 200 mg oral tablet, extended release
   1 tab(s), Oral, Daily, for blood pressure, # 90 tab(s)
🟢 metoprolol tartrate 1 mg/mL injectable solution
🔴 metoprolol tartrate 10 mg/mL oral solution
🔴 Metoprolol tartrate 10mg/ml oral susp compound
🟢 metoprolol tartrate 25 mg oral tablet
🟢 metoprolol tartrate 25 mg oral tablet 0.5 tab(s), Oral, BID
🟢 metoprolol tartrate 25 mg oral tablet 1 tab(s), Oral, BID, # 180 tab(s)
🟢 metoprolol tartrate 25 mg oral tablet (one-half of 50 mg)
🟢 metoprolol tartrate 25 mg oral tablet (one-half of 50 mg)
   0.5 tab(s), Oral, BID, # 90 tab(s), Replace SIG for label: Take a half ta...
🟢 metoprolol tartrate 37.5 mg oral tablet
🟢 metoprolol tartrate 37.5 mg oral tablet (one-half of 75 mg)
🟢 metoprolol tartrate 37.5 mg oral tablet (one-half of 75 mg)
   0.5 tab(s), Oral, BID, # 90 tab(s), Replace SIG for label: Take a half ta...
🟢 metoprolol tartrate 50 mg oral tablet
🟢 metoprolol tartrate 50 mg oral tablet 1 tab(s), Oral, BID, # 180 tab(s)
🟢 metoprolol tartrate 50 mg oral tablet (one-half of 100 mg)
🟢 metoprolol tartrate 50 mg oral tablet (one-half of 100 mg)
   0.5 tab(s), Oral, BID, # 90 tab(s), Replace SIG for label: Take a half ta...
🟢 metoprolol tartrate 75 mg oral tablet
🟢 metoprolol tartrate 100 mg oral tablet
🟢 metoprolol tartrate 100 mg oral tablet 1 tab(s), Oral, BID, # 180 tab(s)
🔴 metoprolol-hydroCHLOROthiazide 25mg-12.5mg oral tablet, extended...
🔴 metoprolol-hydroCHLOROthiazide 25mg-12.5mg oral tablet, extended...
   1 tab(s), Oral, Daily, # 30 tab(s)
🔴 metoprolol-hydroCHLOROthiazide 25mg-12.5mg oral tablet, extended...
   2 tab(s), Oral, Daily, # 60 tab(s)
🔴 metoprolol-hydroCHLOROthiazide 50mg-12.5mg oral tablet, extended...
🔴 metoprolol-hydroCHLOROthiazide 50mg-12.5mg oral tablet, extended...
   1 tab(s), Oral, Daily, # 30 tab(s)

🔴 metoprolol-hydroCHLOROthiazide 50mg-12.5mg oral tablet, extended...
   2 tab(s), Oral, Daily, # 60 tab(s)
🔴 metoprolol-hydroCHLOROthiazide 50mg-25mg oral tablet
🔴 metoprolol-hydroCHLOROthiazide 50mg-25mg oral tablet
   1 tab(s), Oral, BID
🔴 metoprolol-hydroCHLOROthiazide 50mg-25mg oral tablet
   1 tab(s), Oral, BID, # 60 tab(s)
🔴 metoprolol-hydroCHLOROthiazide 50mg-25mg oral tablet
   1 tab(s), Oral, BID, # 180 tab(s)
🔴 metoprolol-hydroCHLOROthiazide 100mg-25mg oral tablet
🔴 metoprolol-hydroCHLOROthiazide 100mg-25mg oral tablet
   1 tab(s), Oral, BID
🔴 metoprolol-hydroCHLOROthiazide 100mg-25mg oral tablet
   1 tab(s), Oral, BID, # 60 tab(s)
🔴 metoprolol-hydroCHLOROthiazide 100mg-25mg oral tablet
   1 tab(s), Oral, BID, # 180 tab(s)
🔴 metoprolol-hydroCHLOROthiazide 100mg-50mg oral tablet
🔴 metoprolol-hydroCHLOROthiazide 100mg-50mg oral tablet
   1 tab(s), Oral, Daily, # 30 tab(s)
🔴 metoprolol-hydroCHLOROthiazide 100mg-50mg oral tablet
   1 tab(s), Oral, Daily, # 90 tab(s)
🔴 FIRST-Metoprolol 10 mg/mL oral solution

Medication Orders

The OIG substantiated 10 of 12 allegations related to the mismanagement of medication orders. The identified problems affect every aspect of the process from orders failing to process to patients'

recurring future medication orders being automatically discontinued without notice to providers. Staff could not track prescription orders for patients. The OIG also received varied accounts on the functionality of the new EHR's Prescription Drug Monitoring Program (PDMP) process. The PDMP is a state-controlled substance monitoring program. The PDMP provides an important check on drug diversion and substance misuse. The common theme among these accounts, however, was that the multiple-step work-arounds staff developed to address deficiencies increased risks for human error.

Summary of Medication Order Allegations about the New EHR and Findings

Medication Orders	Allegations	OIG Determination	Status
Future Order Discontinuance	The new EHR discontinued future medication orders written by providers.	Substantiated	Unresolved
	Discontinued future medication orders required providers to write "stat" or place immediate orders, causing medication delays for patients.	Substantiated	Unresolved
	Discontinued future medication orders led absent providers to arrange for colleagues to write orders for recurring medications, creating inefficiencies and increasing risks for orders being missed and possible patient safety issues.	Substantiated	Unresolved
Unauthorized Orders Placed	Registered nurses could order medications without provider approval.	Substantiated	Unresolved
Outpatient Orders Not Processed	Pharmacy staff did not process outpatient orders.	Not Substantiated	Not Applicable
	Some outpatient orders failed to process and appeared missing to nonpharmacy staff.	Substantiated	Unresolved
Lack of Notification	Notifications were not sent to prescribing providers and pharmacists about future recurring injectable medication orders that were discontinued or outpatient medication orders that did not process.	Substantiated	Unresolved
Confusing Alerts	Medication alerts were confusing, and providers did not receive training on interpreting them.	Substantiated	Unresolved
Prescription Status Unclear	Providers were unable to assess the status of a filled prescription order.	Substantiated	Unresolved
Lack of Tracking for Mailed Controlled Substances	Pharmacy staff were unable to consistently track mailed controlled substance prescriptions.	Not Substantiated	Not Applicable
	Nonpharmacy staff could not consistently track mailed controlled substance prescriptions.	Substantiated	Unresolved
PDMP	After completing a PDMP query, providers' notes were not automatically populated in alignment with VHA policy, requiring additional work for providers.	Substantiated	Unresolved

Medication Reconciliation

The OIG substantiated that inaccurate medication lists in the new EHR challenged staff conducting reconciliations. This critical process identifies and resolves any medication discrepancies found in an EHR with the information supplied by the patient or caregiver. Accurate medication lists guide providers' treatment decisions, and inaccuracies could have significant health consequences for a patient. Staff familiar with the new EHR said medication reconciliation is a complex, time-consuming, multistep process requiring an in-depth understanding of the new system. The OIG observed that poor training led to a knowledge gap that contributed to errors and helped explain varying user experiences.

Summary of Medication Reconciliation Allegations and Findings

Medication Reconciliation	Allegations	OIG Determination	Status
Medication List Discontinuity	Staff had to update medication lists at every visit because prior medication information revisions did not carry over.	Substantiated	Unresolved
	Medications disappeared from reconciled medication lists, and lists were inaccurate after reconciliation.	Substantiated	Unresolved
	Staff manually entered medication lists post-reconciliation, which increased risk for error and safety concerns.	Substantiated	Unresolved
	Medication reconciliation required a significant amount of time to complete per patient.	Substantiated	Unresolved
Medication List Inaccuracies	Discontinued and expired medications were not viewable during reconciliation, creating a patient safety issue.	Substantiated	Unresolved
	Medications administered in a clinic did not appear on medication lists, creating a patient safety issue.	Substantiated	Unresolved
Medication Lists Unsuited for Patient Use	Medication lists were not patient-friendly.	Substantiated	Unresolved

The two recommendations can be found in appendix F of this statement. VA concurred with the first recommendation, which requires extensive software modifications that VA has indicated will take over a year from now to implement. The second recommendation called for the Deputy Secretary to ensure medication management issues related to the new EHR identified after the inspection be reported to the OIG for further analysis. VA did not concur with this recommendation, citing the difficulty of a continuous, open reporting requirement to the OIG. This is not an open-ended recommendation, however, and would be closed after VA demonstrates an effective and sustainable process to identify and address patient safety issues. VA already must provide this information to the OIG regardless of whether VA concurs with the recommendation, and the OIG will continue this oversight work.

Care Coordination Deficiencies after the New EHR Go-Live at the Mann-Grandstaff VAMC (March 2022 Report)

The second report in the trilogy addressed an expansive list of allegations categorized as care coordination concerns.[14] Care coordination involves numerous EHR functions that facilitate how care is synchronized both among healthcare providers and directly with the patient. As an example of these challenges, the VAMC's coordinator for the new EHR's patient portal reported a backlog after the go-live of over 300 voicemail messages from patients unable to access the portal. During the pandemic, the portal was a central means for patients to communicate with providers.

The OIG further sorted the allegations into eight categories. Each had multiple deficiencies:

1. **Patient Record Flags:** Patient record flags denoting patients at high risk for suicide and disruptive behavior in the legacy EHR failed to activate for some Mann-Grandstaff VAMC patients. Some identified concerns about patient record flag functionality in the new EHR stemmed from system design, while others related to deficits in training on the new EHR's workflow. The flags are not as obvious in the new system as they were in the legacy EHR. In some new EHR views, staff had to navigate multiple steps to find information about the flag and relevant precautions. Of the six substantiated allegations, only two remained unresolved: the visibility of the flag and national-level data sharing of active record flags for patients at high risk for suicide.

2. **Data Migration:** As previously discussed, deficiencies were found in the migration of patient information, such as incorrect patient names, patients' gender, and contact information. VA reported that discussions continued between VA and DoD regarding updates to enterprise system–level business rules needed to improve interoperability and ensure accurate data migration in the face of policy differences between VA and DoD.

3. **Scheduling Process:** Initial allegations received by the OIG cited delays in scheduling and inadequate appointment information and reminders in the new EHR. Reminders to veterans and caregivers did not always specify if appointments were by telephone rather than in-person, resulting in some patients traveling to the facility for telephone appointments. The OIG was also alerted to problems with the new self-scheduling tool that resulted in Washington State patients inadvertently self-scheduling appointments at the Columbus clinic. Of the five related substantiated allegations, four remained unresolved, particularly related to delays in scheduling primary care appointments, the type of appointment, and the information contained on appointment reminders.

4. **VA Video Connect:** This VHA telehealth service technology enables veterans to meet virtually with VA healthcare providers from anywhere, using encrypted video. The OIG substantiated some allegations that appointments failed due to broken links, incorrect time zones, and links being sent to

---

[14] VA OIG, *Care Coordination Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington*, March 17, 2022.

outdated email addresses. VA needed to completely resolve only the last allegation, as some veterans were still having to contact DoD to have their contact information updated.

5. **Referral Management:** Deficiencies in implementing the Ambulatory Referral Management function decreased care providers' ability to manage patients' referrals in the provider's own clinical service, particularly in the behavioral health department, and with other outpatient services in VHA. These breakdowns could lead to delays and affect patient experiences at VHA more generally. For example, providers had no easy way to determine if a referral had been acted on. Certain aspects of system configuration, workflow errors, interoperability deficits, and insufficient training contributed to staffs' difficulties with handling referrals. The three substantiated issues remained unresolved.

6. **Laboratory Orders:** The OIG was alerted to "disappearing" laboratory orders that never reached lab personnel. The system configurations and training deficits were factors in these failures. Like the prior blood pressure medicine example, ordering providers were shown a confusing array of options. Additionally, staff were challenged in tracking the orders, and many results were delayed in being returned. These issues created more opportunities for human error as staff used work-arounds to get results that informed care delivery. These three substantiated issues were unresolved.

7. **Patient Portal and Secure Messaging:** When the new EHR went live, many patients could not access the portal, affecting access to tools that supported coordination of care, such as secure messaging and online prescription refills. VA staff reported that system changes completed by OIT resolved some causes of this disruption, while other resolutions were in progress.

8. **Documentation Processes:** While the OIG did not substantiate all allegations received related to documentation process problems, facility staff reported experiencing challenges in effectively navigating and using some of the new EHR capabilities. Insufficient end-user training and misperceptions about certain new EHR functionalities appeared to be the sources of the difficulties. VA started using a new method, the financial identification number (FIN), to document workload associated with care provided between visits, which historically VHA had not recorded. This required numerous steps for providers and created additional work and confusion. Another example involves a configuration issue in which not all International Classification of Disease 10 diagnostic codes were available in the new EHR, affecting providers' ability to correctly code patient diagnoses. Of the three substantiated allegations, the FIN and diagnostic codes, were unresolved.

For this report, the OIG made one recommendation, located in appendix G, and it remains open.

Ticket Process Concerns and Underlying Factors Contributing to Medication Management and Care Coordination Deficiencies (March 2022 Report)

The OIG issued this third report in the trilogy to provide an analysis of the persistent issues with the ticket process used for reporting problems and requesting assistance at Mann-Grandstaff, including

identifying the underlying causal factors.[15] From the October 2020 go-live date through March 31, 2021, new EHR end users placed over 38,700 tickets. OIG staff gained access to the EHR help ticket system for analysis and identified key terms for each allegation and checked and cross-checked 4,094 tickets that were related to the issues discussed in the two reports.

Ticket Process Challenges

The OIG team reviewed ticket comments to understand facility staffs' frustration with getting fixes and changes. VA and VHA leaders also identified potential patient safety and related concerns with the new EHR ticketing process. Although VA initiated a strategic review to address these concerns, there were limited process changes. The ticket process challenges the OIG found include the following:

- **Cerner's service desk support staff were not able to view and replicate reported issues.** While Cerner had a mirror version of the DoD EHR, a mirror version of the Mann-Grandstaff VAMC's EHR was not built. OEHRM staff were frustrated that when Cerner service desk support staff could not reproduce a reported issue they closed the ticket, potentially delaying the problem's resolution.[16]

- **The same Cerner staff closed tickets before resolving the issues.** Closing tickets without resolving the concerns could result in patient safety issues as well as the propagation of similar issues at future implementation sites. Facility staff also reported feeling a lack of support.

- **Ticket status was not communicated to end users.** As part of VA's agreement with Cerner, end users were to be notified and given the opportunity to review whether the proposed or implemented resolution addressed the reported issue before Cerner closed the ticket. Mann-Grandstaff VAMC staff reported during 2021 that Cerner's service desk staff were unhelpful or rude. The OIG found that these challenges contributed to tickets not being fully resolved and low staff morale.

- **Mann-Grandstaff VAMC staff sometimes created work-arounds instead of placing tickets.** Due to ticket process challenges, staff across clinical service lines at Mann-Grandstaff VAMC began creating work-arounds to accomplish necessary tasks, which can increase patient safety risks, result in inefficiencies, and bypass security or safeguard measures.

This report validated deficient ticket processes identified earlier in VA's "Electronic Health Record Comprehensive Lessons Learned" report released in July 2021.[17] While VA had identified proposed measures to monitor these process changes, their report stated that the measures had not been finalized and were under review.

---

[15] VA OIG, *Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington*, March 17, 2022.

[16] In the response VA gave to the OIG shortly before publication, VA wrote that Cerner service desk support staff had given access to the EHR's production version. The OIG will review VA's evidence during the follow-up process to determine if that is the case.

[17] VA, *Electronic Health Record Modernization Comprehensive Lessons Learned Report*, November 2021. The report was initially released in July 2021 and updated in November 2021.

Underlying Factors of Substantiated Allegations in Companion Inspections

To probe deeper into the allegations of this report's two companion inspections regarding medication management and care coordination issues, the inspection team reviewed the prior substantiated allegations and identified five underlying factors:

1. **EHR Usability Problems.** Poor usability has been linked to increased patient safety risks, inefficiencies, and care provider frustration and stress. Among other issues, the OIG found that the user interface was not optimized for workflows, inefficient navigation hampered staff, patient data were in different sections of the EHR, and restrictive definitions of user roles assignments that defined employees' capabilities in the system limited the information staff could see.

2. **Training Deficits.** The OIG found insufficient training content, support, and an approach to training that did not provide staff with the underlying reasons for the actions they should take.

3. **Interoperability Challenges.** Staff must have access to information needed to perform their work from within and across VHA. This was hampered by the data migration issues previously discussed, the failure of information to transfer to the Consolidated Mail Outpatient Pharmacy, and information not properly transferring to national-level VHA databases.

4. **Fixes and Refinement Needs.** The OIG identified that some substantiated allegations were unresolved and required fixes after going live, as well as refinements to address errors in system workflows and changes to components of the new EHR. For example, staff were initially unable to view patients' service-connected conditions noted by the Veterans Benefits Administration from the new EHR, which led to an inability to document these conditions for healthcare delivery purposes.

5. **Problem Resolution Process Challenges.** Successful EHR implementation requires effective pathways for resolving identified problems, and as discussed in this trilogy of reports, the ticket process for resolving questions and concerns had several deficiencies.

For this report, the OIG made three recommendations, found in appendix H, and all are open.

2021 EHRM OVERSIGHT REPORTS

In 2021, the OIG published four EHRM-focused reports. The November report assessed the implementation of the EHR system's patient scheduling component at the Columbus clinic and Mann-Grandstaff VAMC. Two reports (published in May and July) resulted from audits that examined cost estimates for needed physical and IT-related infrastructure upgrades. For the new EHR system to operate as intended, VHA facilities need these infrastructure upgrades, but they are generally funded from different sources. Because the submitting agency did not account for costs from other VA components' budgets, some cost estimates were not included in mandated reports to Congress. Transparent and reliable cost estimates are critical for Congress to make informed budgetary and investment decisions. VA senior leaders also depend on these cost estimates to plan program budgets, approve acquisitions, and monitor program execution. In another July report, the OIG inspected the

development and delivery of training content to the new EHR's users and assessed post-training staff proficiency. These reports are summarized below.

New Patient Scheduling System Needs Improvement as VA Expands Its Implementation (November 2021 Report)

This report assessed the implementation of the EHR system's patient scheduling component at the Columbus clinic and Mann-Grandstaff VAMC.[18] The OIG found VHA and OEHRM did not fully resolve known significant limitations in the scheduling system, leading to reduced effectiveness and increased risk of patient care delays. The problems identified in this report have persisted through the OIG's 2022 reports, such as schedulers developing work-arounds for unresolved issues and problematic data migrated from legacy systems. OEHRM leaders did not provide scheduling staff with adequate chances to identify limitations in the new scheduling system before implementation, nor did leaders assess Cerner's compliance with contract terms for handling trouble tickets. The OIG made eight recommendations, which can be found in appendix I, and all remain open.

Unreliable IT Infrastructure Cost Estimates (July 2021 Report)

This audit examined VA's estimates of IT infrastructure upgrades.[19] Of the EHRM program's estimated $16.1 billion cost, VA targeted $4.3 billion for IT infrastructure upgrades. However, the OIG found this unreliable, and a lack of documentation hampered determining the extent of the estimate's inaccuracy. The OIG also found VA did not report to Congress other IT upgrade costs of about $2.5 billion because OEHRM did not include costs from other VA components. Many of the deficiencies and root causes noted are also found in the OIG's physical infrastructure report discussed below. That said, the OIG did note that VA was improving its estimating methodology, and it would be reasonable to assume more reliable future estimates.

The OIG also found OEHRM was not updating the cost estimates provided to Congress during the audit period. In February 2020, OEHRM knew of changes to FY 2021 costs requiring revisions to expected future years' costs but did not update the estimates in any of the four subsequent reports to Congress. VA did make changes to projected costs in the November 2021 report to Congress, but given VA was still developing an independent cost estimate, there was no certainty those updates were reliable.

All six recommendations to the executive director of OEHRM listed in appendix J remain open and a few rely on VA to conduct the independent cost estimate, which has yet to be completed.

---

[18] VA OIG, *New Patient Scheduling System Needs Improvement as VA Expands Its Implementation*, November 10, 2021.
[19] VA OIG, *Unreliable Information Technology Infrastructure Cost Estimates for the Electronic Health Record Modernization Program*, July 7, 2021.

Deficiencies in Reporting Reliable Physical Infrastructure Cost Estimates (May 2021 Report)

This audit assessed whether VA developed and reported reliable physical infrastructure upgrade cost estimates for the new EHR.[20] VHA medical facilities need significant physical infrastructure upgrades, such as electrical work, cabling, heating, and cooling to deploy the new EHR. The audit found VHA's cost estimates were not reliable and did not meet standards for being comprehensive, well documented, accurate, and credible. The audit team projected two VHA cost estimates were potentially underestimated by as much as $1 billion and $2.6 billion, in part due to facility needs not being well-defined. The estimates also omitted escalation and some cabling costs and were based on low estimates.

VA also failed to report all program costs to Congress in accordance with statutory requirements. OEHRM did not include cost estimates for upgrading physical infrastructure in the program's life cycle cost estimates. While VHA provided OEHRM with those costs estimates for physical infrastructure upgrade costs as early as June 2019, OEHRM did not include them in congressional life cycle cost estimate reports. OEHRM said it did not disclose these estimates because the upgrades were outside its funding responsibility, but this is contrary to statute and VA and GAO guidance requiring a life cycle cost estimate include all costs, regardless of source.[21] VA concurred with the OIG's five recommendations for corrective action, and further confirmed in its comments that the costs associated with these upgrades will be transparently disclosed to Congress. Four recommendations are still open, as shown in appendix K of this statement.

Training Deficiencies for VA's New EHR System at the Mann-Grandstaff VAMC (July 2021 Report)

The OIG reviewed the training given to Mann-Grandstaff VAMC staff.[22] Similar to findings DoD had for training on Military Health System GENESIS, which is essentially the EHR system VA purchased, the OIG found problems. Even before deployment, the healthcare inspection team identified governance challenges as VHA did not have a defined role in decision-making or oversight related to training activities. In reviewing the training, the OIG found training content, delivery, and assessment failures.

The inspection team reviewed the training content on the software and the more than 900 new workflows. New workflows result in changes to how end users perform their jobs, such as scheduling

---

[20] VA OIG, *Deficiencies in Reporting Reliable Physical Infrastructure Cost Estimates for the Electronic Health Record Modernization Program*, May 25, 2021.

[21] The Veterans Benefits and Transition Act of 2018 defines the EHRM program as "any activities … to procure or implement an electronic health or medical record system to replace" the existing electronic health record system and "any contracts or agreements entered into by [VA] to carry out, support, or analyze" these activities. Because physical infrastructure upgrades are necessary for system implementation, those costs should be included in LCCEs under the statute's plain language.

[22] VA OIG, *Training Deficiencies with VA's New Electronic Health Record System at the Mann-Grandstaff VA Medical Center in Spokane, Washington*, July 8, 2021.

consults (referrals) or how a provider performs an exam. The OIG found the classroom training and supplemental material were insufficient. Facility leaders and staff told the OIG that training did not prepare them for going live with the new system, teach them how to apply what they learned to their work, or explain the meaning behind the process of which buttons to push ("buttonology"). The VA OEHRM director of Change Management corroborated the classroom training's inadequacy.

The OIG also identified four aspects of training delivery that may have negatively affected the new EHR system's use: (1) insufficient time for training, (2) limitations with the training domain (a close facsimile for users' practice), (3) challenges with user role assignments (these dictate the capabilities on which an employee is trained), and (4) gaps in training support. OEHRM's then director of Change Management said not having contact with facility staff for five months due to the pandemic had the biggest impact on training but acknowledged that staff understood they would have a practice EHR and that "it was a miss from a communication standpoint." Facility leaders and staff raised concerns with Cerner classroom trainers, including their lack of clinical knowledge, EHR expertise, and an inability to address questions.

Finally, the OIG found OEHRM failed to effectively evaluate training. Even in early 2021 (five months after go-live), OEHRM said the evaluation plan was "immature" and "in its infancy" when there had been plans to assess training immediately after students' completion. As discussed above, the OIG conducted an administrative investigation into the inaccurate and incomplete data OEHRM provided after OIG staff requested "any and all data" from the training evaluation plan.

The OIG made 11 recommendations, which can be found in [appendix L](#), and eight are still open.

2020 EHRM OVERSIGHT REPORTS

The reports above build on the foundation of two April 2020 OIG reports about EHRM readiness prior to the original go-live date at Mann-Grandstaff VAMC. The first examined the potential impact of VA's transition to the new EHR on patients' access to care and the many mitigations needed to handle the initially unavailable capabilities.[23] The OIG also found the facility was not staffed adequately for the transition, and the work-around for the electronic prescription refill process presented significant concerns as it could have affected patients' ability to fill critical medications. These medication management concerns were borne out in the OIG's April 2022 report. The OIG made eight recommendations in this report, of which three—related to staffing and minimizing the need for risk-mitigation strategies—remain open. The recommendations can be found in [appendix M](#).

The second report focused on the gaps in VA's efforts to update Mann-Grandstaff VAMC's physical and IT infrastructure—a precursor to the 2021 audits that evaluated VA's associated cost estimates.[24]

---

[23] VA OIG, *Review of Access to Care and Capabilities during VA's Transition to a New Electronic Health Record at the Mann-Grandstaff VA Medical Center Spokane Washington*, April 27, 2020.

[24] VA OIG, *Deficiencies in Infrastructure Readiness for Deploying VA's New Electronic Health Record System*, April 27, 2020.

The OIG found VA did not meet its own timelines to complete the infrastructure upgrades needed to sustain the new system and that VA lacked internal oversight to track the facility's readiness. VA lacked comprehensive site assessments to determine a realistic go-live date, requisite specifications, appropriate monitoring mechanisms, and adequate staffing. VA committed to an aggressive—but apparently unrealistic—initial deployment date in March 2020 without having the necessary information about the facility's infrastructure. The OIG made eight recommendations, listed in appendix N. Three of the recommendations—related to ensuring program requirements for physical infrastructure are met, staff vacancies are filled, and physical security assessments are completed—remain open.

CONCLUSION

The Committee and VA have focused tremendous resources to deploy the new EHR system. The OIG's work highlighted in this statement reveals there are still considerable challenges for VA to handle as it begins to scale up the new EHR's deployment and use. The OIG is committed to providing thorough and practical recommendations to help VA deploy the new EHR efficiently and in a manner that improves veterans' and staffs' experiences. While each report has specific recommendations intended to improve EHRM, there are broader concerns that many of the recommendations reflect. A primary concern is governance: Is the right structure in place to identify potential issues to prevent their occurrence, to prioritize those issues that may affect prompt quality care to patients, and to resolve those issues before additional deployments? Another key concern is transparency. Is there transparency between EHRM IO the facilities, VHA, OIT, and Cerner? Full and candid information sharing will help build confidence that issues are identified, prioritized, and adequately addressed. As VA moves toward deployment in more complex facilities and potentially on an accelerating schedule, proper governance and transparency will be necessary to get it right. Failures in these areas risk cascading problems that put the entire program in jeopardy. The OIG will continue to monitor EHRM efforts to help recommend improvements needed to fulfill its promise to the veteran community and make the most effective use of taxpayer dollars.

Chairman Tester, this concludes my statement. I would be happy to answer any questions you or other members may have.

APPENDIX A - ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *SENIOR STAFF GAVE INACCURATE INFORMATION TO OIG REVIEWERS OF EHR TRAINING* – JULY 14, 2022

1. Issue a clarifying communication to the office's personnel that all staff have a right to speak directly and openly with OIG staff without fear of retaliation, and that, irrespective of any processes established to facilitate the flow of information, EHRM IO personnel are encouraged to communicate directly with OIG staff when needed to proactively clarify requests and avoid confusion.
Status: Open.
VA's targeted completion date: July 2022.

2. Provide clear guidance that the office's personnel must provide timely, complete, and accurate responses to requests for all data or information without alteration, unless other formats are requested, with full disclosure of the methodology, any data limitations, or other relevant context. This includes prompt OIG access to entire datasets consistent with the Inspector General Act of 1978, as amended.
Status: Open.
VA's targeted completion date: October 2022.

3. Determine whether any administrative action should be taken with respect to the conduct or performance of the executive director of Change Management.
Status: Open.
VA's targeted completion date: July 2022.

4. Determine whether any administrative action should be taken with respect to the conduct or performance of Change Management's director for training strategy.
Status: Open.
VA's targeted completion date: July 2022.

APPENDIX B - ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *THE NEW EHR'S UNKNOWN QUEUE CAUSED MULTIPLE EVENTS OF PATIENT HARM* – JULY 14, 2022

1. The deputy secretary reviews the process that led to Cerner's failure to provide VA substantive information of the unknown queue and takes action as indicated.
Status: Open.
VA's targeted completion date: October 2022.

2. The deputy secretary evaluates the unknown queue technology and mitigation process and takes action as indicated.
Status: Open.
VA's targeted completion date: October 2022.

APPENDIX C - ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *DEFICITS WITH METRICS FOLLOWING IMPLEMENTATION OF THE NEW EHR AT THE MANN-GRANDSTAFF VAMC* – JUNE 1, 2022

1. The deputy secretary completes an evaluation of gaps in new EHR metrics and takes action as warranted.
Status: Open.
VA's targeted completion date: October 2022.

2. The deputy secretary completes an evaluation of factors affecting the availability of metrics and takes action as warranted.
Status: Open.
VA's targeted completion date: October 2022.

APPENDIX D - ACTIONS TAKEN BY VA, DOD, AND THE FEHRM IN RESPONSE TO RECOMMENDATIONS FROM *JOINT AUDIT OF THE DOD AND THE VA EFFORTS TO ACHIEVE EHR INTEROPERABILITY* – MAY 5, 2022

1. We recommend that the deputy secretary of defense and deputy secretary of veterans affairs review the actions of the FEHRM and direct the FEHRM to develop processes and procedures in accordance with the FEHRM charter and the National Defense Authorization Acts.
Status: Open.
VA's targeted completion date: September 30, 2022.
DoD's targeted completion date: None specified.
2. We recommend that the director of the FEHRM, in coordination with the director of the Defense Health Agency; program executive director for EHRMI; and program manager for DoD Healthcare Management System Modernization:
    a. Determine the type of patient health care information that constitutes a complete patient EHR.
Status: Open.
FEHRM's targeted completion date: August 31, 2022.
    b. Develop and implement a plan for migrating legacy patient health care information needed for a patient's complete EHR once the FEHRM determines the health care data domains of patient health care information that constitutes a complete patient EHR.
Status: Open.
FEHRM's targeted completion date: August 31, 2022.
    c. Develop and implement a plan for creating interfaces that would allow medical devices to connect and transfer patient health care information to Cerner Millennium.
Status: Open.
FEHRM's targeted completion date: One year after resources have been approved and allocated, the FEHRM will develop a plan to create interfaces between medical devices and the federal EHR.

APPENDIX E - ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *THE EHRM PROGRAM DID NOT FULLY MEET THE STANDARDS FOR A HIGH QUALITY, RELIABLE SCHEDULE* – APRIL 25, 2022

1. The EHRM program management office executive director should comply with internal guidance and ensure the development of an IMS that complies with standards adopted from GAO for scheduling,

VA's targeted completion date: December 2022.

2. The EHRM program management office executive director should take action to improve stakeholder coordination in the development of the program schedules to ensure activities from all relevant VA entities are included.
VA's targeted completion date: August 2022.

3. The EHRM program management office executive director should develop procedures for when and how staff should perform an initial schedule risk analysis and conduct periodic updates as needed.
VA's targeted completion date: December 2022.

4. The EHRM program management office executive director should ensure consistency between contract language and program office plans or other guidance identifying the entity or individuals responsible for developing and maintaining the program's WBS and IMS.
VA's targeted completion date: November 2022.

5. The EHRM program management office executive director should evaluate the contract requirements for schedule management and modify as needed to ensure clear roles and expectations for further development and maintenance of the IMS.
VA's targeted completion date: December 2022.

6. The EHRM program management office executive director should comply with the Federal Acquisition Regulation and issue guidance to accept deliverables not separately priced before invoice payment.
VA's targeted completion date: May 2022.

APPENDIX F - ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *MEDICATION MANAGEMENT DEFICIENCIES AFTER THE NEW EHR GO-LIVE AT THE MANN-GRANDSTAFF VAMC* – MARCH 17, 2022

1. The deputy secretary ensures that substantiated and unresolved allegations discussed in this report are reviewed and addressed.
VA's targeted completion date: May 2022.

2. The deputy secretary ensures medication management issues related to the new EHR that are identified subsequent to this inspection be reported to the OIG for further analysis.
Status: Open.
VA's targeted completion date: None as VA non-concurred with the recommendation.

APPENDIX G - ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *CARE COORDINATION DEFICIENCIES AFTER THE NEW EHR GO-LIVE AT THE MANN-GRANDSTAFF VAMC* – MARCH 17, 2022

1. The deputy secretary ensures that substantiated and unresolved allegations noted in this report are reviewed and addressed.
Status: Open.
VA's targeted completion date: May 2022.

APPENDIX H - ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *TICKET PROCESS CONCERNS AND UNDERLYING FACTORS CONTRIBUTING TO DEFICIENCIES AFTER THE NEW EHR GO-LIVE AT THE MANN-GRANDSTAFF VAMC* – MARCH 17, 2022

1. The deputy secretary completes an evaluation of the new EHR problem resolution processes and takes action as warranted.
Status: Open.
VA's targeted completion date: March 2022.

2. The deputy secretary completes an evaluation of the underlying factors of substantiated allegations identified in this report and takes action as warranted.
Status: Open.
VA's targeted completion date: May 2022.

3. The deputy secretary ensures the EHRM deployment schedule reflects resolution of the allegations and concerns discussed in this report.
Status: Open.
VA's targeted completion date: March 2022.

APPENDIX I - ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *NEW PATIENT SCHEDULING SYSTEM NEEDS IMPROVEMENT AS VA EXPANDS ITS IMPLEMENTATION* – NOVEMBER 10, 2021

1. The USH coordinates with the OEHRM executive director to continue to make improvements to the scheduling training as needed to address feedback from schedulers.
Status: Open.
VA's targeted completion date: July 2022.

2. The USH coordinates with the OEHRM executive director to require that some schedulers from each clinic fully test the scheduling capabilities of their clinics, solicit feedback from the schedulers to identify system or process issues, and make improvements as needed.
Status: Open.
VA's targeted completion date: April 2022.

3. The USH coordinates with the OEHRM executive director to issue guidance to facility staff on which date fields in the new system schedulers should use to measure patient wait times.
Status: Open.
VA's targeted completion date: July 2022.

4. The USH coordinates with the OEHRM executive director to develop a mechanism to track and then monitor all tickets related to the new scheduling system, and then ensure OEHRM evaluates whether Cerner effectively resolved the tickets within the timeliness metrics established in the contract.
Status: Open.
VA's targeted completion date: July 2022.

5. The USH coordinates with the OEHRM executive director to develop a strategy to identify and resolve additional scheduling issues in a timely manner as OEHRM deploys the new EHR at future facilities.
Status: Open.
VA's targeted completion date: July 2022.

6. The USH coordinates with the OEHRM executive director to develop a mechanism to assess whether facility employees accurately scheduled patient appointments in the new scheduling system, and then ensure facility leaders conduct routine scheduling audits.
Status: Open.

7. The USH coordinates with the OEHRM executive director to evaluate whether patients received care within the time frames directed by VHA policy when scheduled through the new system.
Status: Open.

8. The OIG recommends that the VA OEHRM executive director provide guidance to schedulers to consistently address system limitations until problems are resolved.
Status: Open.
VA's targeted completion date: August 2022.

APPENDIX J - ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *UNRELIABLE INFORMATION TECHNOLOGY INFRASTRUCTURE COST ESTIMATES FOR THE EHRM PROGRAM* – JULY 7, 2021

1. The executive director of OEHRM should ensure an independent cost estimate is performed for program life-cycle cost estimates related to IT infrastructure costs.
Status: Open.

VA's targeted completion date: This is part of the strategic review and will be provided as soon as information is available.

2. The executive director of OEHRM should reassess the cost estimate for EHRM program-related IT infrastructure and refine as needed to comply with VA's cost-estimating standards.
Status: Open.
VA's targeted completion date: Under active revision as part of the strategic review and will be provided as soon as information is available

3. The executive director of OEHRM should develop procedures for cost-estimating staff that align with VA cost-estimating guidance.
Status: Open.
VA's targeted completion date: Under active revision as part of the strategic review and will be provided as soon as information is available

4. The executive director of OEHRM should ensure costs for all IT infrastructure upgrades funded by OIT and VHA or other sources needed to support the EHRM program are disclosed in program life-cycle cost estimates presented to Congress
Status: Open.
VA's targeted completion date: This is part of the strategic review and will be provided as soon as information is available.

5. The executive director of OEHRM should formalize agreements with OIT and VHA identifying the expected contributions from each entity toward IT infrastructure upgrades in support of the EHRM program.
Status: Open.
VA's targeted completion date: This is part of the strategic review and will be provided as soon as information is available.

6. The executive director of OEHRM should establish procedures that identify when life-cycle cost estimates should be updated and ensure those updated estimates are disclosed in the program's congressionally mandated reports.
Status: Open.
VA's targeted completion date: This is part of the strategic review and will be provided as soon as information is available.

APPENDIX K – ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *DEFICIENCIES IN REPORTING RELIABLE PHYSICAL INFRASTRUCTURE COST ESTIMATES FOR THE EHRM PROGRAM* – MAY 25, 2021

1. The executive director for OEHRM should ensure an independent cost estimate is performed for program life cycle cost estimates including related physical infrastructure costs funded by VHA.
Status: Open.
VA's targeted completion date: 9 – 12 months from contract start.

2. The VA assistant secretary for management and chief financial officer should ensure the Office of Programming, Analysis and Evaluation, or another office performing its duties, conducts independent cost estimates as required by VA financial policy, and performs an independent estimate of EHRM program life cycle cost estimates including physical infrastructure.
Status: Open.
VA's targeted completion date: 9 – 12 months from contract start.

3. The director of special engineering projects for VHA's Office of Healthcare Environment and Facilities Programs should develop a reliable cost estimate for EHRM program-related physical infrastructure in accordance with VA cost-estimating standards and incorporate costs for upgrade needs identified in facility self-assessments and scoping sessions.
Status: Open.
VA's targeted completion date: 9 – 12 months from contract start.

4. The director of special engineering projects should also continuously update physical infrastructure cost estimates based on emerging requirements and identified project needs.
Status: Closed January 20, 2022.

5. The executive director for OEHRM should ensure costs for physical infrastructure upgrades funded by VHA or other sources needed to support the EHRM program are disclosed in program life cycle cost estimates presented to Congress.
Status: Open.
VA's targeted completion date: July 31, 2021.

APPENDIX L - ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *TRAINING DEFICIENCIES WITH VA'S NEW EHR SYSTEM AT THE MANN-GRANDSTAFF VAMC* – JULY 8, 2021

1. The USH explores the establishment of a group of VHA staff composed of core user roles with expertise in VHA operations and Cerner EHR use with data architect level knowledge to lead the effort of generating optimized VHA clinical and administrative workflows.
Status: Open.
VA's targeted completion date: September 2021.

2. The deputy secretary establishes an EHR training domain that ensures close proximation to the production environment and is readily available to all end users during and following training.
Status: Open.
VA's targeted completion date: January 2022.

3. The deputy secretary ensures end users receive training time sufficient to impart the skills necessary to use the new EHR prior to implementation.
Status: Open.
VA's targeted completion date: January 2022.

4. The deputy secretary ensures the user role assignment process addresses identified facility leaders and staff concerns.

83

VA's targeted completion date: January 2022.

5. The deputy secretary ensures Cerner trainers and adoption coaches have the capability to deliver end user training on Cerner and VHA EHR software workflows.
Status: Open.
VA's targeted completion date: January 2022.

6. The deputy secretary evaluates the process of super user selection and takes action as indicated.
Status: Closed February 1, 2022.

7. The deputy secretary reviews OEHRM's performance-based service assessments for Cerner's execution of training to determine whether multiple, recurrent concerns are being accurately captured and addressed.
Status: Open.
VA's targeted completion date: January 2022.

8. The deputy secretary oversees the revision of an OEHRM training evaluation plan and ensures implementation of stated objectives.
Status: Open.
VA's targeted completion date: January 2022.

9. The deputy secretary reviews the EHRM governance structure and takes action as indicated to ensure the USH's role in directing and prioritizing EHRM efforts is commensurate with VHA's role in providing safe patient care.
Status: Closed February 1, 2022.

10. The USH establishes guidelines and training to capture new EHR-related patient complaints, including patient advocacy.
Status: Open.
VA's targeted completion date: January 2022.

11. The USH ensures an assessment of employee morale following implementation of a new EHR and takes action as indicated.
Status: Closed February 1, 2022.

APPENDIX M - ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *REVIEW OF ACCESS TO CARE AND CAPABILITIES DURING VA'S TRANSITION TO A NEW EHR SYSTEM AT THE MANN-GRANDSTAFF VAMC* – APRIL 27, 2020

1. The under secretary for health (USH), in conjunction with OEHRM evaluates the impact of the new EHR implementation on productivity and provides operational guidance and required resources to facilities prior to go-live.
Status: Open

VA's targeted completion date: Initial response at IOC go-live; revised versions at subsequent go-live dates.

2. The USH, in conjunction with OEHRM, identifies the impact of the mitigation strategies on user and patient experience at go-live and takes action, as needed.
Status: Open
VA's targeted completion date: Initial response at IOC go-live; revised versions at subsequent go-live dates.

3. The executive director, OEHRM, in conjunction with the USH, ensures that clear guidance is given to facility staff on what EHR capabilities will be available at go-live.
Status: Closed January 13, 2021.

4. The USH, in conjunction with OEHRM, reevaluates the EHRM deployment timeline to minimize the number of required mitigation strategies at go-live.
Status: Open
VA's targeted completion date: May 2020.

5. The veterans integrated service network (VISN) director collaborates with facility leaders to implement VA-provided operational guidance and supports required resources needed throughout the transition to the new EHR system.
Status: Closed July 31, 2021

6. The VISN director ensures that positions required for the transition to the new EHR system are staffed and trained prior to go-live.
Status: Closed October 16, 2020

7. The Mann-Grandstaff VAMC Director ensures that community care consults are managed through go-live to ensure accuracy, completeness, and to avoid the need for manual reentry after go-live.
Status: Closed September 22, 2021.

8. The Mann-Grandstaff VAMC Director ensures that patients receive medication refills in a timely manner throughout the transition to the new EHR system.
Status: Closed September 22, 2021.

APPENDIX N - ACTIONS TAKEN BY VA IN RESPONSE TO OIG RECOMMENDATIONS FROM *DEFICIENCIES IN INFRASTRUCTURE READINESS FOR DEPLOYING VA'S NEW EHR SYSTEM* – APRIL 27, 2020

1. The executive director of OEHRM should establish an infrastructure-readiness schedule for future deployment sites that incorporates lessons learned from the DoD.
Status: Closed October 1, 2020.

2. The executive director of OEHRM should reassess the enterprise-wide deployment schedule to ensure projected milestones are realistic and achievable, considering the time needed for facilities to complete infrastructure upgrades.
Status: Closed October 1, 2020.

3. The executive director of OEHRM should implement tools to comprehensively monitor the status and progress of medical devices at the enterprise level.
Status: Closed September 21, 2021.

4. The executive director of OEHRM should standardize infrastructure requirements in conjunction with the VHA and the OIT and ensure those requirements are disseminated to all necessary staff.
Status: Closed July 16, 2021.

5. The executive director of OEHRM should evaluate physical infrastructure for consistency with OEHRM requirements and monitor completion of those evaluations.
Status: Open.
VA's targeted completion date: March 2021.

6. The executive director of OEHRM should fill infrastructure-readiness team vacancies until optimal staffing levels are attained.
Status: Open.
VA's targeted completion date: March 2021.

7.The executive director of OEHRM should ensure physical security assessments are completed and addressed at future EHR deployment sites.
Status: Open.
VA's targeted completion date: April 2020.

8. The Mann-Grandstaff VAMC director should ensure all access points to physical infrastructure are secured and inaccessible to unauthorized individuals
Status: Closed October 1, 2020.

ORACLE
Health

Statement of Mike Sicilia, Executive Vice President Industries
Oracle Corporation

Before the

U.S. Senate
Committee on Veterans' Affairs

Hearing on

Examining the Status of VA's
Electronic Health Record Modernization Program

July 20, 2022

Introduction:

Chairman Tester, Ranking Member Moran and distinguished members of the Committee, thank you for the opportunity to speak to you today about the Dept. of Veterans Affairs' (VA) Electronic Health Record Modernization (EHRM) program and Oracle Cerner's Electronic Health Records (EHR) system.

I am Mike Sicilia, and I am Executive Vice President for Industries at Oracle. I am responsible for Oracle's Global Health Business Unit and I am now responsible for Oracle's acquisition of Cerner. Oracle is a leading enterprise software company and cloud service provider with more than forty years of experience building and developing some of the most advanced, mission-critical, secure and performant technology around the world for governments, critical infrastructure, and commercial enterprises.

Oracle employs over 160,000 employees with more than 50,000 developers and engineers, and in the last ten years we have spent more than $56 billion on research and development. Oracle holds more than 18,500 patents worldwide. Oracle is in both the infrastructure business with the world's leading autonomous database as well as the applications business with a full suite of high-performance enterprise applications across all industries. Oracle is also a leading hyper-scale cloud service provider with global reach across industries and governments.

As you know, approximately six weeks ago Oracle completed its acquisition of Cerner. With this acquisition we are bringing together one of the world's most formidable and capable infrastructure and applications companies with one of the leading healthcare applications companies. Oracle's engineering expertise brought together with Cerner's clinical expertise is a very powerful combination.

Our rationale for acquiring Cerner is straightforward. Health IT in this country and around the world is broken and there is a massive opportunity to modernize and innovate. Compared to banking, telecommunications, transportation, utilities, or any other mission critical sector, healthcare IT is furthest behind the modernization curve. Across the industry, Electronic Health Record systems are dated, often bespoke, and running on-premises. Our intention is to lead the way with a new generation of modern, cloud, highly performant and secure applications.

In modernizing healthcare IT there is a major opportunity to improve patient outcomes with analytics, machine learning, and virtual care such as tele-medicine. There is a major opportunity to reduce healthcare costs. And there is a major opportunity to decrease the burden on caregivers. Unlike Cerner alone, Oracle brings an order of magnitude more engineering resources and scale to this formidable challenge.

While Oracle is new to the EHR business, Oracle has years of experience advancing medical research, powering clinical trials, reducing healthcare costs and providing public health authorities and policymakers with essential data to improve public health. During the COVID-19 pandemic, Oracle was honored to collaborate with the Centers for Disease Control (CDC) and the National Institutes of Health (NIH) to support COVID-19 related systems of record. We assisted in electronically pre-screening over six hundred thousand individuals willing to participate in vaccine clinical trials and then supported the CDC with the creation of the v-Safe After Vaccination Health Checker and HPOP ordering portals to support the distribution of vaccine, diagnostic and therapeutic supplies. Finally, we worked with the CDC to build a national data repository for COVID-19 vaccination data in the U.S. All this work was performed and continues to be supported by Oracle at no cost to the government. We are accustomed to handling large, complex tasks when our nation needs it.

The DoD and VA EHR System and the "List of 36":

I give you all this introduction so that you understand our acquisition of Cerner and assumption of its EHRM contract with the VA is well within our capabilities, given our size, expertise, and resources.

You should consider that in effect the VA, the Department of Defense (DoD) and the Coast Guard obtained a new, vastly more resourced technology partner overnight to augment Cerner. We also strongly believe in this mission and consider it not only a contractual obligation but a moral one to improve healthcare for our nation's veterans and their caregivers. We intend to exceed expectations.

In my recent meetings with many of the Committee members and other Congressional stakeholders your frustration with the current situation with the VA's EHR system was clear. I have spent the last six weeks reviewing the issues and working through engineering plans, and I have concluded that there is nothing here that can't be addressed in reasonably short order.

The EHRM program is the largest health IT modernization project in history. To-date the new EHR has been fully deployed for the Coast Guard and is deployed at more than half of DoD medical facilities. With the VA, the EHR is deployed at five medical centers and their associated facilities.

When fully deployed across the VA healthcare system, 171 medical centers will go from using 130 different versions of the current VistA EHR to using one single enterprise-wide EHR that is interoperable between the VA, DoD and Coast Guard.

While I fully appreciate substantial challenges exist – all of which are legitimate and understandable – the fact is that more is working than is not. Rollouts to date have been largely successful, and much of the functionality is working.

Nearly 9,000 veterans and service members have utilized a facility with the new EHR and have benefited from clinicians having a more comprehensive view of their medical record without having to dig through multiple systems. For example, a veteran may have received their first COVID-19 vaccination shot at a DoD location, and their second shot or a booster at a VA clinic. That veteran's health record is seamlessly documented for all of the doses and the clinician benefitted from having the full picture of the veteran's medical history and prescription data.

Similarly, and by way of example, patient safety is being greatly enhanced by the system's opioid advisor tool. The Cerner EHR allows clinicians to simultaneously check data from 47 state Prescription Drug Monitoring Programs (PDMP) and DoD facilities to prevent improper prescribing of controlled substances. Previously clinicians had to leave a patient's record and access PDMP data through each state's website with different passwords for each site. The opioid advisor tool has automatically alerted providers to avoid prescribing opioids to high-risk patients 700 times in the VA since November 2020 and nearly 1,000 times in the DoD in the month of May alone.

In addition to how the system is better integrating disparate data and systems into one place to improve patient safety, the new EHR also incorporates many new or improved patient-safety tools to directly support clinical decision-making. Barcode medication administration is a workflow that allows providers to validate that the correct medications are given to each patient. The new system provides a more robust capability and expands this important patient safety feature beyond inpatient services to anywhere veterans receive medications.

The program's goals of having a single, interoperable record following an individual from active service to the VA is in place. Ultimately that's what this is all about, making sure that from an Army recruit's first physical at boot camp to her separation from service and receipt of care at the VA, she will have an EHR that goes with her and allows all of her providers at any facility to know her full medical history.

Our Chairman and our CEO have made it clear that our top talent is to be shifted to working on the DoD/VA EHR system as our number one priority. A war room has been established led by a team of very senior Oracle engineers and developers. Our war room is conducting a top-to-bottom analysis of the entire EHR system. We are integrating with the Cerner team but understand that Oracle brings an order of magnitude larger engineering team than Cerner so we can set urgency to projects and drive a number of goals at the same time that previously was not possible.

We aren't there yet, and there is a lot of work to do. Further, we will always provide honest and full transparency, the good, bad and ugly. If something isn't working, we plan to fix it first and work out the economics later. Patients and providers will always come first, and we won't let contract wrangling get in the way.

Let me be clear. Oracle's goals are two-fold and in this priority order:

1) To ensure patient safety above and beyond anything else; and

2) To deliver to the VA, DoD and Coast Guard the most modern, intuitive, performant and secure EHR in the world. We intend this system to be the gold standard.

As we focus on these goals, we know there are issues that need to be addressed. Examining the "List of 36" items that was attached to your letter to Deputy Secretary Remy dated June 27, 2022, leads me to "bucket" the issues into three categories: 1) Performance; 2) Design; and 3) Functionality.

Performance: As is not unusual with commercial EHR systems, the Cerner EHR system is currently running on a dated architecture with technology that is in some cases two decades old. Frankly it is being run on a disparate set of technology and systems that have grown in place over time, making it difficult to manage, support and scale. It isn't in the cloud and it requires massive amounts of manual support. This isn't unusual in the EHR industry, but it does lead to more frequent outages and degradations of service.

Today I am announcing our intention to move the Cerner application to a modern, hyperscale cloud data center within the next six to nine months, which will deliver better performance and stability for the end-user. This is the same Generation 2 Cloud infrastructure that underpins Oracle's customers' most critical workloads in sectors like Financial Services and Utilities. Candidly we anticipate this change alone will be the single most important change we make in terms of system reliability. It will also provide a scalable, modern platform for us to deliver the kind of future releases users have come to expect like mobility and predictive analytics.

Another advantage of moving the EHR system to Oracle Cloud Infrastructure is that our cloud is a second-generation cloud with security built-in from the start. Infrastructure security patches are applied automatically with no downtime, removing the possibility of human error that is a major cause for breaches. Oracle maintains all the highest government security classifications. Moving to a new datacenter and Oracle cloud will be provided at no extra cost to the Coast Guard, DoD or the VA.

We also currently have a team of our best engineers – now with access to all the source code – fixing bugs and upgrading technologies. By way of example, shortly after the closing our team

fixed a database bug that caused 13 of the last 15 outages. I can't promise you there won't be another outage, but since we made that fix in mid-June, there has been no unplanned downtime through yesterday.

For the front end of the system, it's important to understand that EHR systems globally – and this is equally true for the VA as it is for commercial, private healthcare facilities – provided by Cerner or anyone else – are dated and are frankly stuck in the late 1990s. Oracle plans to invest substantial resources to develop and deploy modern stateless web applications – with a modern user interface – to all Cerner customers, including the VA. This is somewhat down the road but I want to emphasize that Oracle's acquisition of Cerner will vastly accelerate this process and make the VA the gold standard of EHR systems globally. Again, this technology will be provided to the DoD, Coast Guard, and VA within the current contract envelope.

Design: The second category of problems relates to system design. In the end, applications are largely processes and workflows. No one is to say that Cerner developers have a monopoly on workflow ideas and quite often a process makes sense on a white board makes no sense in actual practice. If the workflow is not intuitive, if it has too many steps – or clicks – or if it doesn't quite meet the needs of end-users let's change those processes.

Let's be clear, modern applications should not require training or the training should be minimal. Certainly an EHR system has a level of complexity and medical specificity that will require some training, but our goal is to make this system as easy to use as anything else you do online. The best way to succeed is to win over users with user interfaces that are intuitive and functionality that exceeds practitioner's needs. When we do that, we believe we will create greater user satisfaction and combat inertia for acceptance of the new system.

When it comes to design, a case in point is the so-called "unknown queue," which I have read a lot about in the news and the subject of the Inspector General's most recent report. Now, the truth is the unknown queue was not a bug, it was a process to account for patient scheduling tasks to facilities or providers that were not recognized by the system. These scheduling tasks were not lost, rather they were routed for manual review and processing. But the fact is the process initially resulted in far too many actions being routed to this queue and the manual review was not being completed in a timely manner. The fact is the "unknown queue" is a process designed to account for human error rather than designed to mitigate it. So, let's enhance it. We will find a way to automate more on the front end and come up with a better process on the back end. I have included Oracle's response letter to the House Committee on Veterans' Affairs to this testimony, which describes the current status of the "unknown queue" in more detail. We intend to address these issues within weeks.

Going forward, we intend to move engineering resources much closer to the end-users to create a real, collaborative solution model. Again, these issues will be addressed at Oracle's

expense because the entire system will be better as a result, not only for the VA but for DoD and all our other customers.

Functionality: The third category of items on the list are areas where functionality is not yet developed or not ready for prime time. Maybe the best example here is pharmacy. My inclination with the pharmacy module is to start over and make pharmacy an example – a showpiece – of what is to come. We now have VA's requirements, and we intend to use a new model of collaborative development where we will bring developers out to the users and jointly define parameters, metrics, and workflows. In fact, we plan to send a substantial number of military veterans who currently work as developers at Oracle to work with VA pharmacists, clinicians and other end-users to assist in this process.

We intend to develop this as a modern, stateless web application, which simply means it is built for use in the cloud with the associated scalability and reliability you expect from popular web sites today. With this development, all the modern mobile, social, and analytical features will be built in. Today, I am announcing that we believe we can have a beta version of the new pharmacy module built and delivered within six to nine months from today.

Conclusions:

We recognize this "List of 36" could grow as quickly as it shrinks and other issues will come up that need to be addressed. We are committed to providing the Committee with full transparency as we move forward addressing these and other issues. You can be assured we are triaging all the issues that we have been made aware of to-date and working through them with appropriate clinical and engineering expertise where needed. Our teams are analyzing whether there are ways to simplify and accelerate capabilities and improve end-user experience and adoption. This is an enterprise-wide system, but we understand end-users have different preferences and needs and it will be designed so they can configure it to work for them. To be clear, we are dedicated to providing whatever resources are necessary to deliver the DoD and VA a system that exceeds expectations.

We commit that Oracle will not go-live at a facility unless we are confident the system is fully prepared for the additional workloads and it has been thoroughly tested because patient safety is our highest priority.

Oracle is committed to delivering the VA an EHR system that exceeds expectations without exceeding the contracted cost. If there are issues with performance or workflow we commit to fixing those issues at our expense.

Let me end by saying that Oracle is excited to be the VA's new partner on the EHRM project. We are confident that our energy, commitment and resources is what this program needs.

93

With a little time, we can deliver for all the veterans who served our nation and deserve nothing but the best, as well as for our current service members who will one day be a part of our veteran community.

We hope you will support us in this endeavor and look forward to working with the Committee as we move forward. I look forward to your questions. Thank you.

ORACLE

July 6, 2022

The Honorable Frank J. Mrvan
U.S. House of Representatives
Chairman, Subcommittee on Technology
Modernization
Committee on Veterans' Affairs
364 Cannon House Office Building
Washington, DC 20515

The Honorable Matthew Rosendale, Sr.
U.S. House of Representatives
Ranking Member, Subcommittee on Technology
Modernization
Committee on Veterans' Affairs
364 Cannon House Office Building
Washington, DC 20515

Dear Chairman Mrvan and Ranking Member Rosendale,

Thank you for your ongoing oversight of the Department of Veterans Affairs' (VA) Electronic Health Record Modernization (EHRM) program. We received your letter regarding the "unknown queue" in the "Orders to Schedule" capability of the Cerner Electronic Health Records (EHR) system. As we have said, with Oracle's acquisition of Cerner last month, we have made the delivery of a safe and modern EHR system to VA our top priority.

Oracle is currently undertaking a thorough analysis across the EHR system, including the "Orders to Schedule" capability referenced in your letter, to examine where Oracle expertise and technology can be utilized to rethink approaches not possible before the acquisition. This will include ways to simplify and accelerate capabilities, improve end-user experience and adoption, and enhance the availability and stability of the system. With specific regard to your concerns about the "unknown queue," if there is a problem we will fix it, or if there is a better way to accomplish a task that enhances patient safety, we will develop and implement it.

Using a single common EHR platform across VA, Department of Defense (DoD) and Coast Guard allows clinicians to send appointment requests on behalf of service members and veterans to any facility within the system. After the clinician completes a scheduling order, the system sends a task to the "scheduling queue" for facility staff follow up. This capability enables more seamless scheduling of care at locations that best meet the needs of the veteran, while reducing the provider burden to track the evolving services provided at every facility.

Given the size and complexity of this healthcare system, and consistent with other large commercial systems, the reality is that an order for scheduling an appointment could be made with an error based on variations of where services are provided and how scheduling departments are organized. Therefore, in January 2020, VA, DoD and Cerner decided to utilize the so called "unknown queue" in order to have a safety backstop. If a scheduling order is made with an error that prevents the task from being routed to the proper scheduling department queue, it is sent to the "unknown queue" so that it can be reviewed manually and properly re-routed. The order is always saved in the patient's record as well.

ORACLE

As reported in the media, clearly the "Orders to Schedule" capability was not operating as intended to appropriately account for all the site's needs when it was rolled-out at the Mann Grandstaff facility in Spokane, Washington. The result was a larger than expected number of requests routed to the "unknown queue," which to the end-user appeared to be lost in the system. This is obviously not acceptable.

Since its initial deployment, feedback has been gathered on site and from end-users on the "Order to Schedule" capability that has resulted in the implementation of enhancements to better account for walk-in services, alerts to providers on errors, and service mapping refinements, all of which has reduced the number of scheduling tasks sent to the "unknown queue." Since these changes, Mann Grandstaff currently has on average 2.4 tasks appear in the "unknown queue" per day. These tasks are monitored by trained VA staff and re-routed appropriately. As the EHR has been deployed at additional facilities, staff have been trained on the "Orders to Schedule" capability and the "unknown queue" so that re-routing can occur routinely. For example, over the last month the daily average of tasks going in the "unknown queue" in Walla Walla is 2.7, Columbus is 7.5, White City is 8 and Roseburg is 21.

That said, we are of course continuing to examine innovative ways to make this workflow better. We are open to your specific suggestions and are prepared to implement any modifications that further reduce manual review and enhance patient and clinician results.

We appreciate your work and the work of the committee on behalf of our nations' veterans. We are committed to full transparency and look forward to continuing to work with you to ensure Oracle Cerner's EHRM contract with VA meets or exceeds all expectations.

Sincerely,

Kenneth Glueck
Executive Vice President
Oracle Corporation

Questions for the Record

1. I've been told that at one VAMC in Arizona, the V.A. paid more than 2 million dollars for repeat and unnecessary imaging procedures because the electronic records were not compatible. What is the rate of repeat advanced imaging veterans must undergo due to V.A. clinicians not having digital access to prior images from a private, community provider?

2. In places such as Phoenix and the Tucson VAMC's and other VISNs where they have a tool for electronic radiology image transmissions, how did the rate of repeat imaging and number of unnecessary imaging such as mammograms change?

3. What is the V.A.'s plans for providing all VAMC's access to electronic radiology image transmission capabilities?

4. What are the V.A.'s plans for integrating this capability into the Electronic Health Record Management system?

Combined Response to Questions 1 - 4

Thank you for your questions regarding diagnostic imaging and the Electronic Health Record Modernization (EHRM) program. As you know, VA decided to modernize its electronic health record (EHR) with the same system as the Department of Defense (DoD) due in large part to these exact interoperability concerns and its subsequent impacts on care such as the reliance on repeat and unnecessary imaging procedures.

As background, the DoD launched its EHR modernization in 2015 and VA followed in 2018. Currently, the rollout of the new EHR at DoD sites is more than 50% complete which does include the military treatment facilities in Arizona. The DoD program is on track to be fully deployed across DoD sites by the end of 2023. VA, having started later, is deployed at 5 VA medical centers and 22 community-based outpatient clinics across the Pacific Northwest and Ohio. VA's deployment of the new EHR for VISN 22 and Arizona VA facilities is scheduled for 2024.

As a part of the DoD and VA EHR modernization effort, the new system brings imaging capabilities directly into the new electronic health record (EHR) across multiple systems for inclusion in a Veteran's longitudinal health record and the clinician workflow. This centralizes the images in one place and reduces the number of systems a clinician must log into to see a full longitudinal view of all imaging related services. Providers can access historical images to reduce repeat examinations. And when a Veteran is seeking care across multiple VA facilities, all providers have full access to prior imaging for use as part of follow-up care or for identification of changes over a lifetime of care. This seamless access to imaging history is essential for all Veterans, but especially for the number of Veteran 'snowbirds' in Arizona who will routinely receive care in multiple VA medical centers.

Beyond the seamless access for DoD and VA providers at facilities that have adopted the new EHR, integration has also been established during the EHR transition to provide cross EHR image access using a Federal Image Exchange Network. This image exchange network will allow VA providers, using the legacy VA EHR, to access and view diagnostic images available in both the new and legacy EHR system.

To ensure interoperability beyond DoD and VA facilities, the EHRM program also provides centralized and streamlined capabilities to send and receive images from/to community providers. Through the diagnostic community image exchange, Community Care providers can send images to VA for inclusion in a Veteran's longitudinal record, and VA can comprehensively share a patient image history from a single data source to providers in the community.

Overall, the modernization efforts of VA and DoD programs increase the interoperability of diagnostic images, centralize data from disparate systems, and reduce the need for clinicians to navigate multiple systems. This improves patient safety by closing data gaps, lowers costs of care by reducing redundant imaging and empowers a veteran to seek care where she sees fit.

It is also worth noting that in addition to extending image access for Radiology images, these same services and improved interoperability are also available for diagnostic imaging performed across specialties such as cardiology, dental and eye care.

Department of Veterans Affairs (VA)
Questions for the Record
Committee on Veterans' Affairs
United States Senate
Examining the Status of VA's EHRM Program

07/20/22

Questions from Senator Thom Tillis

Question 1: **The Institute of Defense Analyses (IDA) released a lifecycle cost estimate that estimated EHRM implementation over 13 years at nearly $39 billion and sustainment at over $17 billion. Taken together, this is $40 billion over the cost estimate that the Department has been operating under. In terms of the differences in the Department's lifecycle cost analysis versus the IDA's analysis, what are the core implementation costs versus the sustainment costs? Can you provide a breakdown and side-by-side comparison in order to fully examine the differences in the Department's and IDA's estimates?**

VA Response: VA's estimate for costs associated with the implementation of the electronic health record (EHR) system spanned 10 years, whereas IDA's estimate covers a timeframe of 13 years. VA's estimate was based on costs associated with the current 10-year contract. IDA's estimate of 13 years was derived from examination of data on historical enterprise resource planning programs, costs not totally covered by the existing 10-year contract.

In its estimate, IDA also includes the cost for some sustainment during the implementation phase, plus 15 years of sustainment operations once the system is fully deployed. The specific sustainment cost point estimates in the IDA life cycle cost are $4.1 billion during the implementation phase and $17.2 billion during the 15-year fully deployed phase. VA's estimate did not include some of the costs for operations and support during the implementation phase or any sustainment costs during the fully deployed phase.

In total, IDA's estimate includes an estimated $26.6 billion in costs for elements not in scope of VA's estimate. These additional elements, shown in Table 1 on page 2, account for 75% of the cost difference between VA's estimate ($16.1 billion) and IDA's estimate ($50.8 billion).

Table 1
Additional Cost Elements in IDA Estimate ($ billion constant FY 2022)

Cost Elements	Phase	IDA Estimate
Operational Disruption (Acquisition)	Implementation	5.2
Sustainment	Implementation	4.1
Sustainment	Fully Deployed	17.2
Additional Elements		26.6

The remaining 25% difference between VA and IDA estimates is due to IDA independently producing higher cost estimates for some of the elements common to both VA and IDA estimates. These increased costs were derived from VA actual costs and the IDA-estimated 13-year implementation schedule. Cost increases are common for programs of this complexity and prior enterprise resource planning programs have had similar cost increases in acquisition. Table 2 below displays the differences between the estimates for comparable elements for acquisition costs during the implementation phase.

Table 2
Comparable Cost Elements in IDA Estimate ($ billion constant FY 2022)

Cost Elements	IDA Estimate	VA Estimate	Difference
Management (Acquisition)	4.6	2.5	2.2
Infrastructure (Acquisition, EHRM-Specific)	1.7	3.0	-1.2
Development (Acquisition, Non-Cerner)	3.8	1.3	2.4
Development (Acquisition, Cerner)	4.3	1.4	2.9
Site Activation (Acquisition)	9.8	7.9	1.9
Comparable Elements	**24.2**	**16.1**	**8.1**

Question 2: In the underlying contract with Cerner, was it already negotiated what the service level agreements (SLA) would be for backup recovery resiliency? Are they meeting those requirements right now?

VA Response: VA's implementation of the new EHR system is hosted in a Federal enclave, originally established by the Department of Defense (DoD) at Cerner's facilities. The shared Federal EHR system is hosted in this environment to enable VA/DoD interoperability. The SLA established by DoD is 99.9% uptime, or the time during which the system is fully operational. Since this is a shared environment, VA inherited DoD's 99.9% uptime SLA. Uptime is assessed monthly, and Cerner provides credits in accordance with the SLA when the uptime falls below 99.9%. Please see the response to Question 3 for information regarding Cerner's performance meeting SLA requirements.

Question 3: Have there been any contract milestones or SLAs that have not been satisfied?

VA Response: Cerner failed to meet the 99.9% SLA contractual commitment for system uptime 7 months out of the last 13 months (June 2021 through July 2022). This demonstrates the ongoing nature of this problem and Cerner's failure to adequately address system stability, scalability and performance.

VA sent a Letter of Concern to Cerner on April 28, 2022, requesting financial penalties/credits, in accordance with SLA requirements. As noted in the letter, for the months of July 2021, November 2021, December 2021 and March 2022, Cerner did not meet the 99.9% SLA contractual commitment for system uptime. In accordance with the subject contract at Attachment 16, Exhibit C, Hosting Scope of Work, Page 46, Proposed Application Availability and Remedy (SLA) for Infrastructure, VA sought consideration, as set forth in the SLA, in the form of credits for these outages due to the direct impact for the Agency to deliver patient care services.

In the April 28, 2022, Letter of Concern, VA directed Cerner to provide a formal plan to the Department outlining the steps they are taking to stabilize the EHR system and to prevent further outages and degradations from occurring. On August 5, 2022, VA sent a follow-up letter to Cerner reiterating these concerns and directing Cerner to provide their technical and operational roadmap to remedy ongoing system instability issues within 30 calendar days.

Question 4: What are the contractual ramifications for Cerner/Oracle if they fail to achieve the SLAs?

VA Response: The SLA or uptime requirement for all components of the Electronic Health Record Modernization (EHRM) production software is 99.9%. Based on their delivery against this SLA, Cerner will provide VA with a credit for hosting if they do not meet the 99.9% commitment. The SLA provides a specific table that depicts the Service Level Credit by uptime percentage per measurement period, if the uptime percentages are not met. See Table 3 below.

Table 3
Service Level Credit by Uptime Percentage per Measurement Period

Uptime Percentage Per Measurement Period	Service Level Credit
Above 99.9%	No credit
99.9% – 99.5%	$22,500
99.5% – 99.0%	$55,850
98.5% – 95.0%	$111,750
Below 95%	$279,215

As referenced in the response to Question 3, VA sought consideration as set forth in the SLA in the form of credits for these outages due to the direct impact for the Agency to

deliver patient care services. Failure to resolve the system instability issues may result in the use of any other contractual remedy within the Government's authority.

Question 5: What is the remediation plan for the various issues included in the recent Inspector General reports regarding the unknown queue and inaccurate reporting? Can you please outline which findings with which you agree, disagree, and what remediation plans are in place?

VA Response: For VA Office of Inspector General (OIG) Report No. 22-01137-204, "The New Electronic Health Record's Unknown Queue Caused Multiple Events of Patient Harm," VA concurred with both recommendations and has taken action to address them. VA provided documentation to OIG and requested closure of both recommendations on July 25, 2022.

Recommendation 1: The Deputy Secretary reviews the process that led to Oracle Cerner's failure to inform VA of the unknown queue and takes action as indicated.

VA reviewed the process that led to the unknown queue issue at the Mann-Grandstaff VA Medical Center (VAMC). VA notes that the unknown queue is a Cerner feature for all Cerner clients, including DoD and the commercial sector. When VA became aware of the backlog from this queue, action was taken, and facility staff were advised of its functions.
- This unknown queue feature is designed to catch all orders not routed properly to a scheduling request queue, including but not limited to:
    - Ordering error. When placing a scheduling order for an appointment or procedure, a scheduling location must be selected. If a location is not correctly mapped in the system, the order cannot be properly routed.
    - Build Decision error. Future orders for locations not yet built will be routed to the Unknown Queue.
- The queue ensures these orders will be captured and reviewed by local facility clinical staff to correct the errant order.

Upon learning of the patient-safety concerns raised about the unknown queue, VA immediately reviewed the process to identify any failures and conducted actions to resolve them. VA determined that there were configuration and location changes that should have been made previously and immediately implemented those changes and communicated the developed enhancements. VA also determined that additional training materials regarding maintenance of the unknown queue were required and developed such materials to incorporate into sustainment training. As a result of the review, VA is closely monitoring Cerner's actions to build out more scheduling locations and communicate those enhancements to all stakeholders.

Recommendation 2: The Deputy Secretary evaluates the unknown queue technology and mitigation process and takes action as indicated.

VA has evaluated the unknown queue and improved processes to ensure orders in the queue are routed to the right location or reentered, which includes completion of technical configurations to prevent orders from being unnecessarily or inappropriately routed to an unknown queue. Specific actions that were taken to resolve this issue included the following:

- Implemented a newly developed technical job to run daily in the background that automatically filters the VA Scheduling Location field to only show locations that will generate requests that can be routed to an available location. If there is a location build that is incorrect, new and/or not built, the system will automatically filter those out so that they are not available to providers to use while ordering.
- Ensured that there is an alert that notifies a provider if the default location will not generate a good request.
- Developed a Discern Report to allow sites to view the queue for their facility.
- Created a "VA Needs Scheduling Location" option that sends orders that need to be corrected or added to a new build to a separate queue.
- Deployed a Functional Support Team, from VA's Central Offices, for multiple weeks to support Veterans Integrated Service Network (VISN) 20 staff on-site at Mann-Grandstaff VAMC to review the unknown queue, triage and designate risk assignments and identify appropriate actions for each item.
- Identified personnel at Mann-Grandstaff VAMC to monitor the unknown queues daily to ensure those orders are rerouted or reentered appropriately.
- Developed training materials that were incorporated into sustainment training.
- Developed analytics tools to track trends and reporting of the queue.
- Worked with each deployment site to identify individuals that will monitor the queues, provide training and access, as needed, and ensure there is a process/workflow in place prior to future go-lives.

For OIG Report No. 21-02201-200, "Senior Staff Gave Inaccurate Information to OIG Reviewers of Electronic Health Record Training," VA concurred with the finding and the 4 recommendations as noted below.

Recommendation 1. Issue a clarifying communication to the office's personnel that all staff have a right to speak directly and openly with Office of Inspector General staff without fear of retaliation, and that, irrespective of any processes established to facilitate the flow of information, Electronic Health Record Modernization Integration Office personnel are encouraged to communicate directly with OIG staff when needed to proactively clarify requests and avoid confusion.

The Program Executive Director of the Electronic Health Record Modernization Integration Office (EHRM IO) issued a communication to all EHRM IO staff (Federal and contract employees), on July 19, 2022, to make clear the expectation of their right-to-speak directly and openly with OIG staff without fear of retaliation and to communicate

directly with OIG staff, as needed, to respond completely and accurately to their requests. Completed July 19, 2022.

Recommendation 2. Provide clear guidance that the office's personnel must provide timely, complete, and accurate responses to requests for all data or information without alteration, unless other formats are requested, with full disclosure of the methodology, any data limitations, or other relevant context. This includes prompt OIG access to entire datasets consistent with the Inspector General Act of 1978, as amended.

The Program Executive Director of EHRM IO reiterated and reinforced the December 2021 Deputy Secretary's memorandum to all EHRM IO staff (Federal and contract employees) of their duty to cooperate fully in OIG inquiries and the expectation to fulfill the requirement for timeliness, completeness and accuracy in all responses to OIG requests for information, without alteration and with full disclosure. Completed July 19, 2022.

Recommendation 3. Determine whether any administrative action should be taken with respect to the conduct or performance of the executive director of Change Management.

On June 5, 2022, the Executive Director of Change Management accepted a new position with the Veterans Health Administration (VHA) Office of Health Technology. EHRM IO advised the gaining supervisor of this report and referred it there for their review and appropriate action. Completed July 7, 2022.

Recommendation 4. Determine whether any administrative action should be taken with respect to the conduct or performance of Change Management's director for training strategy.

The Chief of Staff reviewed the record, conducted an analysis of the facts of the case and took the appropriate actions to correct the behaviors discovered and reported in this finding. However, VA does not share sensitive personnel-related details about its employees. Completed July 25, 2022.

Question 6: The Institute for Defense Analysis recently released a cost estimate of the VA's Electronic Health Record (EHR) rollout, finding the cost to be nearly $39 billion over 13 years. In addition, the report estimated a $17 billion expense for sustainment, which totals $40 billion beyond the cost estimate provided by the VA. The IDA's cost estimate sharply contrasts with VA's own estimates and suggests a continued pattern of VA overpromising and under delivering as it relates to EHR's, with our veterans ultimately paying the price for this bureaucratic dysfunction. How does the department reconcile these differences in cost estimates and expected timeline for completion?

VA Response: VA's estimate for costs associated with the implementation of the EHRM system spanned 10 years whereas IDA's estimate covers a timeframe of 13 years. VA's estimate was based on costs associated with the current 10-year contract. IDA's estimate of 13 years was derived from examination of data on historical enterprise resource planning programs, costs not totally covered by the existing 10-year contract.

In its estimate, IDA also includes the cost for some sustainment during the implementation phase, plus 15 years of sustainment operations once the system is fully deployed. The specific sustainment cost point estimates in the IDA life cycle cost are $4.1 billion during the implementation phase and $17.2 billion during the 15-year fully deployed phase. VA's estimate did not include some of the costs for operations and support during the implementation phase or any sustainment costs during the fully deployed phase.

In total, IDA's estimate includes an estimated $26.6 billion in costs for elements not in scope of VA's estimate. These additional elements, shown in Table 4 below, account for 75% of the cost difference between VA's estimate ($16.1 billion) and IDA's estimate ($50.8 billion).

Table 4
Additional Cost Elements in IDA Estimate ($ billion constant FY 2022)

Cost Elements	Phase	IDA Estimate
Operational Disruption (Acquisition)	Implementation	5.2
Sustainment	Implementation	4.1
Sustainment	Fully Deployed	17.2
Additional Elements		26.6

The remaining 25% difference between VA and IDA estimates is due to IDA independently producing higher cost estimates for some of the elements common to both VA and IDA estimates. These increased costs were derived from VA actual costs and the IDA-estimated 13-year implementation schedule. Cost increases are common for programs of this complexity and prior enterprise resource planning programs have

had similar cost increases in acquisition. Table 5 below displays the differences between the estimates for comparable elements for acquisition costs during the implementation phase.

Table 5
Comparable Cost Elements in IDA Estimate ($ billion constant FY 2022)

Cost Elements	IDA Estimate	VA Estimate	Difference
Management (Acquisition)	4.6	2.5	2.2
Infrastructure (Acquisition, EHRM-Specific)	1.7	3.0	-1.2
Development (Acquisition, Non-Cerner)	3.8	1.3	2.4
Development (Acquisition, Cerner)	4.3	1.4	2.9
Site Activation (Acquisition)	9.8	7.9	1.9
Comparable Elements	24.2	16.1	8.1

Question 7: Over the past two years, the Department of Veterans Affairs Office of the Inspector General (OIG) has issued 14 reports, providing over 60 recommendations to improve VA's troubled EHR rollout. One such issue outlined in these reports, highlights an "unknown queue" problem that has resulted in delayed health care for veterans. Our Veterans deserve a system they can rely on to consistently deliver critical prescriptions and medical services. As the department considers future implementation across additional VA facilities, including North Dakota's implementation planned for FY24, what steps has the department taken to ensure no veteran's safety will be impacted by technical problems related to the EHR system?

VA Response: Patient safety is VA's number one priority. VA's EHR modernization effort is imperative for the successful future of VA's health system and for Veterans' care. Our goal is to deliver a new EHR, in a safe and effective manner without patient harm. While all EHRs are subject to some level of risk, whether through technology or human factors—it is the nature of health care delivery, VA does not wait for issues to emerge but is proactively managing risk and doing everything possible to reduce it. VA has incorporated patient-safety activities into all aspects of deployment: pre-deployment, go-live and post-deployment.
- Pre-deployment:
    - Validating workflows and thorough testing of the system.
    - Incident management table-top exercise and a local patient-safety summit.
- Go-live/post-deployment:
    - Deployment of staff from VA's National Center for Patient Safety and EHRM IO's Patient Safety team to help triage Joint Patient Safety Reports (JPSR) for investigations, as well as ServiceNow and Cerner Remedy tickets marked as patient-safety concerns. Support is also provided by VHA's Office of Health Informatics.
    - Improved training and change management activities.

- o Site staff receive robust support during and after the go-live period to assist in their adoption of the EHR system and ensure continued timely care for Veterans. This support includes the following:
    - Super Users: Select VA end users who received super-user training provide peer-to-peer, at-the-elbow support to their colleagues throughout the EHRM program during and after go-live. Super users lead mitigation of end-user reported issues and ticket submission efforts. After go-live, super users will continue to support end users with issue logging and/or change request submissions.
    - Adoption Coaches: Cerner knowledge experts on solutions and services provide at-the-elbow support during and after go-live. These coaches guide end users on how to navigate and complete workflows in the new system, increase end users' confidence and adoption of system changes and maintain visibility in high-traffic locations and throughout assigned support areas.
    - National EHRM Supplemental Staffing Unit: VHA in-person and virtual experienced clinical staff trained in VistA and Cerner supplement areas of primary care, mental health, outpatient pharmacy, scheduling and nursing care during and after go-live to support VAMC clinical operations while the site's medical professionals are learning the new system.
    - Clinical Resource Hub (CRH): A VHA-support staffing tool which provides resources to medical facilities to assist with increasing access to health care services across Veteran populations facing geographic or social barriers to care and at deployment are available to support the VAMC sustain clinical operations. CRH support consists of primary care, pharmacy, mental health, care coordination and telehealth specialties.

These activities resulted in a significant decline in the number of patient-safety reports and few reports of alleged harm due to the new EHR, compared to that experienced at the first site almost 2 years ago.

The issues that caused orders to be routed inappropriately to an unknown queue have been evaluated and multiple measures have been taken to facilitate decreasing the number of items being sent to the unknown queue. We continue to work to further improve the processes surrounding the queue and will implement strategies as we test and validate their safe and value-added use for implementation in the EHR. Please see attached July 19, 2022, Patient Safety and EHRM Information Paper.

INFORMATION PAPER

Patient Safety and EHRM Information Paper

As of July 19, 2022

PURPOSE

The purpose of this paper is to provide information on VA patient safety activities related to the new EHR. VA's EHR modernization effort is imperative to the successful future of VA's health system and for the care for our nation's Veterans. VA's goal is to deliver a new EHR in a safe and effective manner without patient harm.

This paper also provides information demonstrating that post strategic review and the institution of a new EHRM leadership team, the four site deployments in 2022 were better coordinated and executed, adding activities to mitigate risk to patients. The work is not over and challenges remain, but VA is engaged in continuous learning to improve each subsequent deployment and ensure patient safety is always prioritized.

BACKGROUND

Patient Safety
The goal of any highly functioning health system is elimination of patient harm and reducing risk to the greatest extent possible. Healthcare is a complex activity delivered in complex environments that relies on people to deliver care and therefore eliminating risk is not achievable but eliminating harm should always be the goal.

Improving patient safety requires a multi-phased, multidisciplinary process beginning with the detection of actual injuries and/or near misses and ending with a mechanism for ensuring that improvements in patient safety are maintained. VA takes this a step further by identifying risks and concerns that could have the potential to cause patient harm. Determining patient harm is a lengthy process while understanding risks can be done upfront. VA, specifically EHRM-IO with VHA, aims to prevent patient harm by determining risks and the human factors associated with using a new EHR and instituting changes in the system, incorporating prevention measures and implementing mitigations to prevent the likelihood of harm.

VA is committed to transparency and routine information-sharing with our oversight bodies and, where appropriate, the media, which serve a critical role in ensuring VA is accountable for patient safety. This is balanced with the concern that premature negative attention to potential patient safety events, especially before the events have been validated and assessed, could prevent medical personnel from reporting these events, which is critical to VHA's safety culture. Furthermore, such attention has the potential to stifle the Department's ability to modernize and upgrade its EHR to an enhanced tool that will greatly improve quality, efficiency, and patient safety of the care delivered within the VA health care system.

VA receives hundreds of thousands of patient safety reports annually. These reports are critical for delineating risks and learning where to apply protective measures. However, a report does not necessarily indicate harm but rather a situation that could create a risk of harm. All patient safety reports are investigated. Those reports that allege patient harm, report near misses, or report a

high-risk situation are prioritized and receive additional investigation. These investigations otherwise known as "root cause analyses" take time to sort through the complexities in a process that includes, but is not limited to, reviewing medical records, interviewing those involved and, in some cases, consulting with experts not involved in the case so that there is a complete understanding of the system issue that led to the harm or event. Therefore, these investigations can take 45 days or longer to complete. Almost always, there isn't one root cause for the harm and there are many contributing factors that led to the event. Determination that the root cause of harm is due to the EHR requires expertise in how EHRs operate and how humans use these systems. This expertise exists in VHA's Office of Health Informatics where informatics experts in the human-factors-design work better understand risk in health IT systems. In fact, leaders and staff from the VA National Center for Patient Safety and EHRM-IO have partnered with these experts to develop, implement, and evaluate patient safety measure. As the new EHR implementation moves ahead, engaging in and planning activities that will lead to improvements in the system is paramount.

VHA strives to create and maintain a Just Culture, which provides psychological safety to ensure a robust culture of patient safety reporting. The key elements of a culture of patient safety include a shared belief that although health care is a high-risk undertaking, that delivery processes, including technology, can be designed to prevent failures and harm to patients. An organizational commitment to detecting and analyzing patient injuries and near misses is required. Further it is critically important that health care institutions maintain an environment that balances the need for reporting of events and the need to take disciplinary action. It is important to note that individuals who fear negative attention or disciplinary action may be less inclined to report. VA strives to ensure patient safety issues are reported to avoid harm to Veterans.

VA strongly encourages patient safety reporting. VHA and EHRM-IO staff in fact not only encourage deployment site personnel to submit reports, but also assist personnel with the reporting. These reports related to EHR deployment are how VA learns so that improvements to the technology, processes, workflows, training and change management activities can be instituted to mitigate risk and prevent future patient safety events. Much was learned from the first deployment site, Mann-Grandstaff and these lessons have been incorporated into all these areas.

DISCUSSION

EHR Modernization and Patient Safety
The reports of patient harm are from VA's first deployment site almost two years ago. Since then, VA has analyzed the hundreds of patient safety reports from that site and learned from this experience instituting many patient protective measures that have proven effective.

VA has incorporated patient safety, risk reduction activities in all aspects of the deployment effort including during the pre-deployment phase, at go-live and post go-live. Many of these activities were included based on lessons learned from the Mann-Grandstaff experience. When it was clear that the deployment to Mann-Grandstaff did not go smoothly, VA dispatched a team of patient safety experts in May 2021 to thoroughly investigate the issues causing concerns. The Department also investigated and conducted a "strategic review" where lessons learned were documented with a plan for forging ahead. The new EHRM leadership team emanated from the strategic review and became fully operational in January 2022. Upon arrival, the new EHRM
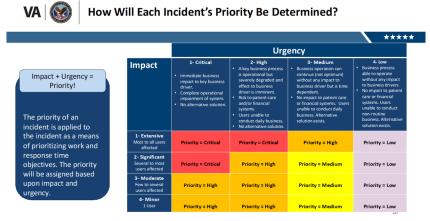
112

Program Executive Director, a physician, dispatched an EHRM team to Mann-Grandstaff to hear continuing concerns and communicate with staff on EHR improvements to date and those in the planning stages. The information brought back to VA headquarters was instrumental to the success of the next set of deployments.

Pre-deployment Activities to Prevent Patient Safety Events
Pre-deployment actions taken to ensure patient safety included validating the nationally approved workflows, thorough testing of the system, and the use of a site deployment readiness checklist, established in January 2022, that includes all tasks required for a successful and safe deployment. This checklist is similar to those used in high-risk health care environments such as the operating room and intensive care unit. Also, VA conducts a Patient Safety Summit with the local site and Veterans VISNs, as well as education for patient safety and informatics professionals that are additional risk reducing activities that were instituted based on lessons learned at Mann-Grandstaff.

At Go Live Activities to Prevent Patient Safety Events
Post cutover and during go-live, VA and Cerner have instituted a robust and comprehensive package of activities to capture patient safety events and assess for actual or potential patient harm. This includes a comprehensive reporting process. Staff from VA's National Center for Patient Safety are deployed to the site to work with the local, VISN, and Cerner patient safety and quality staff during the first weeks of go-live. Patient safety reports and system trouble tickets are immediately and expertly triaged based on the algorithm developed by Cerner depicted below, reviewed, and for those deemed "critical" or "high" risk by Cerner, immediately acted upon. Note that there have been no tickets evaluated as "critical" at any of the four sites in 2022. All Joint Patient Safety Reports (JPSR) are investigated, and trouble tickets that are submitted to the Cerner Remedy system are not considered fully resolved until there is feedback given to the individual who submitted the ticket.

VA | How Will Each Incident's Priority Be Determined?

Impact + Urgency = Priority!

The priority of an incident is applied to the incident as a means of prioritizing work and response time objectives. The priority will be assigned based upon impact and urgency.

Impact	Urgency			
	1- Critical — Immediate business impact to key business driver. Complete operational impairment of system. No alternative solution.	2- High — A key business process is operational but severely degraded and effect to business driver is imminent. Risk to patient care and/or financial systems. Users unable to conduct daily business. No alternative solution.	3- Medium — Business operation can continue (not optimum) without any impact to business driver but is time dependent. No impact to patient care or financial systems. Users unable to conduct daily business. Alternative solution exists.	4- Low — Business process able to operate without any impact to business drivers. No impact to patient care or financial systems. Users unable to conduct non-routine business. Alternative solution exists.
1- Extensive — Most to all users affected	Priority = Critical	Priority = Critical	Priority = High	Priority = Low
2- Significant — Several to most users affected	Priority = Critical	Priority = High	Priority = Medium	Priority = Low
3- Moderate — Few to several users affected	Priority = High	Priority = High	Priority = Medium	Priority = Low
4- Minor — 1 User	Priority = High	Priority = High	Priority = Medium	Priority = Low

The above graphic provides the current Cerner Major Incident Management process.

Perhaps most impactful of our prevention activities is the robust support given to the end users pre-deployment and during go-live. Training for Mann-Grandstaff was noted to be inadequate and problematic by end users and therefore significant improvements were made, including over 2,000 training content changes based on lessons learned at Mann-Grandstaff. VA acknowledges that despite these changes, there are still areas of training in need of improvement; therefore, VA issued a letter of concern and directed Oracle Cerner to engage an independent consultant for a thorough review with recommendations for changes based on industry best practices. Also, VA added several change management activities, pre and post go-live, to support end users' confidence in using the new technology, which is a key component for preventing errors. These change management activities included lunch-and-learn sessions, tip sheets, and other end user engagements that promote learning.

Perhaps most impactful is the robust onsite and virtual support at go live. For the first month post cutover, there are adoption coaches, superusers (who are the end user peers), solution experts and other VA and Cerner personnel that provide close and easily accessible support as end users are learning to use the system. Additionally, VHA maintains VISN EHRM Clinical Resource Hubs and the National EHRM Supplemental Staffing Unit (NESSU) program that provides supplementary personnel/support to sites in the first weeks of go-live. The purpose of this support is to ensure the continuation of clinical operations and seamless service to our Veterans.

Patient Safety Events at Deployed Sites
While there were instances of "critical tickets" and assessed potential patient harm due to the EHR deployment during the Mann-Grandstaff deployment, no tickets have been evaluated as "critical" for the subsequent four sites with minimal assessed potential harm to patients thus far. The chart below provides the current breakdown of patient safety events as reported in the Joint Patient System Reporting (JPSR). The vast majority of events (over 95%) have been classified as potential events, near misses, or no harm after review. It is important to note that patient safety issues are often latent, so the reliability of these data increases over time. However, even among patient safety events, mild, moderate, and severe harm are rare.

	Mann-Grandstaff 10/24/2020 – 7/12/2022	Jonathan M. Wainwright 3/26/2022 – 7/12/2022	Chalmers P. Wylie 4/29/2022 – 7/12/2022	Roseburg, OR 6/11/2022 – 7/12/2022	White City, OR 6/11/2022 – 7/12/2022
Days "live":	626	108	74	31	31
Unsafe Condition - potential event	775	182	223	48	16
Near Miss - did not reach patient	71	14	34	2	17
No Harm	183	45	33	28	28
Mild Harm	26	14	4	0	0
Moderate Harm	11	0	3	0	0
Severe Harm	3	0	0	0	0
Death	0	0	0	0	0
Blank	0	1	3	0	1
Total	1069	255	297	78	61

Definitions:
The following definitions are used in the Joint Patient Safety Reporting (JPSR) system "Degree of Harm" field, completed by the Patient Safety Manager.

Unsafe Condition - potential event	Conditions are present that could result in a patient safety event.
Near Miss - did not reach patient	Event occurred but was caught and corrected before reaching the patient.
No Harm	Reached patient but no harm was evident.
Mild Harm	Bodily or psychological injury resulting in minimal symptoms or loss of function, or injury limited to additional treatment, monitoring and/or length of stay.
Moderate Harm	Bodily or psychological injury adversely affecting functional ability or quality of life, but not at the level of severe harm.
Severe Harm	Bodily or psychological injury (including pain or disfigurement) that interferes significantly with functional ability or quality of life.
Death	Dead from event.

Assessment of Sites to Support Deployment Schedule and Determine Support for Operations Needed in the Months Before Deployment
Another lesson learned from Mann-Grandstaff that the EHRM-IO has incorporated in our planning is a healthcare facility operational assessment to evaluate site readiness for safe EHR deployments. The "Enterprise Readiness Assessment" was developed by EHRM-IO in consultation with VHA and incorporates existing VHA metrics in a scoring system. The purpose of this assessment is to guide development of the final deployment schedule and to provide information to VHA leadership on where VAMCs may need support to prepare for the new EHR.

The six domains measured in the Enterprise Readiness Assessment tool include:

1. **Strategic Engagement Needs Algorithm (SENA)** – *A patient safety proxy metric to identify VAMCs that might need quality improvement support based on performance*
2. **Productivity** – *More efficient provider practices are in better position for success*
3. **Targeted Vacancy –** *Lower vacancy rates provide consistent support to operations*
4. **Primary Care New Patient Wait Times** – *Timely access is foundational to quality care*
5. **Community Care Open Consults** – *Measures existing backlogs that could impede deployment success*
6. **Leadership** – *Leadership engagement is key to change management and system adoption*

As noted above, this Enterprise Readiness Assessment tool was created in response to lessons learned at VA's first ever EHR deployment in Mann-Grandstaff. Moving forward, utilizing this tool will help guide VA in selecting and deploying at future sites that are ready to receive and implement the EHR. Such a tool would have better informed VA of the appropriate site for deployment when VA initially rolled out the EHR. Additionally, VA acknowledges that consideration must also be given to a site's preexisting clinical operations and patient safety challenges and for other external factors (such as COVID-19 or the like) when evaluating patient safety reports and assessing potential patient harm during and post deployment. A lesson learned from Mann-Grandstaff is that major change efforts such as deployment of a new EHR requires careful attention to the pre-deployment status of the site.

CONCLUSION

EHR modernization is a critical imperative for VA. The new EHR is the tool that will support the VA health system in standardizing care across the enterprise to achieve efficiencies, improve quality and patient safety and ensure seamless care that VA's health care personnel deliver to Veterans. The first deployment, almost two years ago, experienced significant challenges despite the best efforts of healthcare staff, but VA learned from that experience, held a department-wide strategic review, and hired a new leadership team.

The new approach to deployments prioritizes patient safety and has been demonstrably better implemented at the four subsequent sites. Despite this success, VA realizes there is still much work to do to optimize the system, incorporate VA specific capabilities and improve training. As a learning organization, VA continuously learns from every site deployment.

As we continue our efforts to improve and modernize the EHR, we remain focused on patient safety, VA's top priority. We appreciate the continuing concerns expressed from our oversight bodies, whose interests align with VA - to safeguard patient safety and prevent patient harm as practicably as possible.

Prepared by the VA Electronic Health Record Modernization Integration Office and the Veterans Health Administration.

Question 8: The VA Pacific Islands Health Care System, which includes Hawaii, is anticipating that 40% of their current orders will not transfer to EHR.
    a. How is VA planning to support VAPIHCS and other health systems that need to devote significant staff time to manually inputting orders?
    b. Especially considering chronic staffing shortages and increased burnout among health care workers over the last few years, what actions has VA been taking to alleviate the additional burden on clinical staff and other users during the EHR transition?
    c. Has VA taken any steps to assess the potential impact to veterans – whether it be timeliness, quality of care, or another measure – if clinical and administrative staff are forced to spend time manually recording and inputting information or troubleshooting other aspects of the system, rather than caring for their patients?

VA Response: Based on lessons learned, VA approached historical data migration differently than DoD's strategy, to eliminate potential burdens on VA staff of manual data entry, which includes migration of active orders. VA made significant improvements through automation of data migration capabilities, which has provided significant relief of manual entry needs after a site's cutover to the new EHR system.

EHRM IO monitors the migrated data by domain to identify any potential migration failures requiring manual intervention prior to the cutover. EHRM IO works with local staff, along with VISN-level support, to ensure any manual tasks are identified and addressed through collaborative activities, which have been manageable and completed in a timely fashion for all VA sites deployed. Continued effort is being applied toward technical solutions to increase automation and therefore further reduce manual entry burdens. These improvements in data migration will continue to be used at future go-live sites, including the VA Pacific Islands Health Care System, which will enhance transfer of current orders to the new EHR system.

To address nationwide staffing shortages and burnout among clinicians, site staff receive robust support during and after the go-live period to assist in their adoption of the EHR system and ensure continued timely care for Veterans. This support includes the following:

- **Super Users**: Select VA end users who received super-user training provide peer-to-peer, at-the-elbow support to their colleagues throughout the EHRM program during and after go-live. Super users lead mitigation of end-user reported issues and ticket submission efforts. After go-live, super users will continue to support end users with issue logging and/or change request submissions.
- **Adoption Coaches**: Cerner knowledge experts on solutions and services provide at-the-elbow support during and after go-live. These coaches guide end users on how to navigate and complete workflows in the new system, increase

end users' confidence and adoption of system changes and maintain visibility in high-traffic locations and throughout assigned support areas.

- **National EHRM Supplemental Staffing Unit**: VHA in-person and virtual experienced clinical staff trained in VistA and Cerner supplement areas of primary care, mental health, outpatient pharmacy, scheduling and nursing care during and after go-live.
- **Clinical Resource Hub (CRH):** VHA-supported staff provide increased access to health care services across Veteran populations facing geographic or social barriers to care. CRH support consists of primary care, pharmacy, mental health, care coordination and telehealth specialties.

The improvements cited above, in automation of data migration and staffing support to the site during and after go-live, reduce potential impacts to Veterans and ensure timeliness and quality of care.

Question 9: VAPICS has been told no clinical notes will transfer from CPRS to the new EHR, meaning providers will need to navigate between two systems to access historical patient notes.

Question 9a: Should clinical staff be expected to work between two systems in order to access a complete picture of a patient's history?

VA Response: No. Clinical staff should not be expected to and do not need to work between two systems to access a complete picture of a patient's history. A complete picture of a patient's history is available through the new EHR system via the following three components: 1) clinical data that has been migrated directly to the new EHR system; 2) the Joint Longitudinal Viewer (JLV) which is available directly from the new EHR for VA (and DoD) clinical data that has not yet been migrated; and 3) the Outside Records MPage for clinical data from VA (and DoD) community partners who have provided care to Veterans.

Question 9b: Is VA anticipating that these clinical notes in legacy systems will eventually be lost?

VA Response: No. All of VA's clinical notes have been transferred into HealtheIntent for use in the new EHR system, and the migration of these clinical notes to the new EHR has always been part of the EHR modernization plan.

Question 9c: Is VA developing a way to ensure clinical notes will transfer with a patient's record?

VA Response: Yes. The EHRM program is focusing on transferring clinical notes into the new EHR to provide a more complete patient clinical history to VA's health care providers. Data migration validation testing (DMVT) for clinical notes (and other clinical documents, including but not limited to radiology reports, cardiology reports and anatomic pathology reports) with images began late Summer and will continue through

late Fall. Once DMVT is successfully completed, migration of these clinical notes and reports with images to the new EHR will begin.

Clinical notes without images are currently scheduled to be migrated to the new EHR via Seamless Exchange. However, as Seamless Exchange is not yet ready to implement, the EHRM program is evaluating changes to the bulk migration and Seamless Exchange plans and processes that would allow migration of these clinical documents, without images to the new EHR, via bulk migration.

Question 10: One area that I would like to explore further is the VA's plans to for ensuring the continued availability of key clinical applications that frontline VA clinicians use. While we often interchange the use of electronic medical record with electronic health record, the electronic medical record is just one piece of an overall health record ecosystem. When looking at private healthcare systems that have modernized their electronic health record, they have an electronic medical record alongside other applications that range from Picture Archiving and Communication Systems to Radiation Therapy planning software.

Please explain the VA's process for assessing software applications that support electronic medical records and outline those applications that the VA has chosen to integrate into CERNER's Millennium?

VA Response: A functional and technical current state review (CSR) is completed to assess and appropriately scope the requirements for site implementation. The CSR process is as follows: 1) A kickoff is held to determine the technical and functional CSR approach, work plan and project schedule; 2) Cerner and VA work in advance to identify and coordinate local site resources to generate service line lists for the specific VAMC and its associated facilities to ensure the appropriate stakeholders are identified for participation in the CSRs; and 3)VA provides a solution crosswalk for use during the CSRs and a brief, easy-to-understand explanation of each solution component to provide consistent answers to questions encountered during the CSR.

The functional CSR documents current state workflows and new workflows or processes and systems that need to be established at each site. To assess software applications, the technical CSR includes an analysis of software applications to and interfaces with medical systems to include medical devices and clinical applications, third-party systems and other data sets at each site. VA reviews the CSR technical and functional plans and pre-briefs and issues an Authorization to Proceed for Wave technical and/or functional CSR activities. The technical CSR ensures that performance management for integration implementation to the new EHR solution is planned to address site-specific gaps between the current assessed state and the target future state.

Question 11: Please describe how the V.A. will oversee efforts to ensure that critical supporting software applications are properly integrated with CERNER's Millennium.

VA Response: As described in the CSR process response to Question 10, the applications/systems that require integration to the Cerner EHR system are identified during the CSR process. For each new or enhanced system integration, the interface follows the system integration testing life cycle shown in Figure 1, which summarizes the interface testing life cycle and interface test coverage definitions that are followed to establish appropriate testing for each interface.

Not all interfaces undergo each of the testing phases. The test coverage is evaluated and dependent on whether 1) the interface is already deployed; 2) the interface is already deployed and being enhanced via an interface change request; or 3) the interface is already deployed but requires a net new connection or localized configuration as it is deployed to additional sites.

Figure 1: VA EHRM Interface Testing Coverage Definitions

Interface Testing Coverage Definitions

As of 02 August 2022 - Data as of 3:00 PM EST

★★★★★

BLUF

- All interfaces will have multiple forms of testing coverage. This will be driven based factors which include whether the interface is brand new, enterprise-based, enhancements or localized. The categorization of the interface and the configuration necessary, will be a primary driver in testing coverage.

Development Testing

Unit Testing
- Developers' testing on their own code before delivery for IST. Cannot be completed without connectivity. Must be signed off before IST starts.

QA Testing
- Testing of the contents of the interface message based on specifications made in the Interface Control Document (ICD). QA testing can be conducted when connectivity is not available and is optional.

Connectivity Testing
- Testing the network TCP/IP packets from source to destination endpoints according to what is captured on ports, protocols and service (PPS) load sheets. Validate network accounts exist, certificates are issued, and encryptions established at the Network Layer.

Smoke Testing
- Validate network account and application certificates are operational. Transmit/receive at least one message transaction for each integration type for each interfacing systems endpoint. Not all message types for an interface need to be tested as long as each unique endpoint/port is tested.

Interface Testing

Interface Solution Testing (IST)
- This testing effort is based on ICD requirements from which test cases are written. Validate the accuracy of data based on specification made in ICD. IST is triggered once an interface is first deployed to a non-production environment or an ICR created that generates a change to the ICD. IST is required for all new and enhanced interfaces.

Round Trip Interface Solution Testing (IST)
- Round Trip Testing is the final step of IST and will exercise both A and B side functional steps. These test cases will be developed that test the interface functionality focusing on key use cases and requirements of the interface. Round trip is required for all new and enhanced interfaces.

Interface Localization Validation (ILV)
- This validation activity occurs and is only required when already deployed interfaces require site specific configuration. Round trip test is usually performed, additional test cases will be added as needed for interfaces with a higher degree of localization/risk.

Extended Functional Testing
- Extended functional testing may be necessary when: 1) unique VA-specific development is introduced; 2) complex VA specific business rules and logic require multiple iterations and scenarios; 3) complex interfaces or integration. Additional approvals required for this testing.

Integration Validation (IV)
- Integration Validation is conducted at each site locally. The sites select specific workflows to include in the event. Depending on the workflows selected, a subset of interfaces will be incorporated into the scenario. Only applicable for interfaces included in site selected IV scenarios.

Production Cutover Validation
- Production End to End tests required to be performed on new or locally connected interfaces focused on ensuring functionality and messages are processed.
- Production Localized Validation is a simple test to confirm site specific messages are triggered.

Electronic Health Record Modernization Integration Office

Question 12: I am hearing from veterans in Arizona that there are delays in the V.A. receiving their medical records from community care providers. I am concerned this is causing a delay. From your experience, what do you think is the cause of this delay? Is it a delay caused by the V.A. side or the community provider side?

VA Response: VA has always prioritized strong care coordination between VA and community providers. Bi-directional communication and information sharing are a key component of VA's Veteran-centered, team-based care coordination model. With regard to medical records, the expectation for community providers is to submit clinical documentation to VA within 30 days after a Veteran's initial outpatient appointment or after discharge for inpatient services. The timeliness of medical records transfer to VA varies by community providers and across VA facilities. VA has also developed numerous ways to promote easier exchange of medical records with its community partners. These options have been developed as an easier alternative to the use of traditional fax and mail services, reducing any delays. These include the following:

- HealthShare Referral Manager (HSRM): HSRM is a secure, web-based system VA uses to generate and submit referrals to community providers. HSRM allows community providers and VA to better manage community care for Veterans. It fosters health information exchange (HIE) between VA and community providers through one unified platform.
- Veterans Health Information Exchange (VHIE): VHIE enables bi-directional sharing of Veteran Health Information between VA and participating community providers over a secure network.
- Azure RMS: This allows VA to securely exchange information with community providers using encrypted email.

Question 13: What steps are being taken to ensure communication and records transfer is a priority?

VA Response: As discussed in the response to Question 12, VA has developed numerous technological solutions to reduce barriers for community providers to submit medical records. VA also has a defined process for its facilities regarding community care referral completion and medical records management. It emphasizes that every effort must be made to work with community providers to ensure that the facility receives medical records timely for continuity of care for the Veteran. This includes timely follow-up with community care providers and requesting information if not previously received from providers.

Department of Veterans Affairs
October 2022

Attachment

Sen. Mazie K. Hirono
Questions for the Record
Senate Veterans' Affairs Committee
Examining the Status of VA's Electronic Health Record Modernization Program
07/20/21

Questions for David Case, Deputy Inspector General, Office of Inspector General, Department of Veterans Affairs

1. As VA OIG's many reports have laid out, this process has been fraught with reasons for concern, and the purchase of Cerner by Oracle in the midst of VA's rollout adds additional questions about EHRM in the long-term.
   a. Will the Inspector General's Office continue to monitor the impact of Oracle's purchase of Cerner on the EHRM rollout, specifically the planned migration to Oracle Cloud?

Answer: The OIG greatly appreciates the resources that Congress has provided to conduct oversight of the VA's EHRM program. The OIG will continue to monitor all aspects of the EHRM program and make recommendations that assist VA in the deployment of the system nationwide and improve veterans' care.

Sen. Sinema
Questions for the Record
Senate Veterans' Affairs Committee
Electronic Health Record Management System Hearing
07/20/22

Questions for Mr. David Case

1. In the course of investigating issues relating to the electronic health records management at the VA, did you come across any information indicating the DOD electronic health records system is limiting health care capacity?

Answer: We have not looked specifically at that question with regard to DoD. The VA OIG's oversight is limited to VA programs and operations, so we are unable to comment on DoD's EHR program. However, we did conduct a joint audit with the DoD Office of Inspector General (DoDIG) to assess the degree to which healthcare providers serving veterans can access a complete healthcare record. We found that while DoD, VA, and the Federal Electronic Health Record Modernization program office took some actions to achieve the level of interoperability between DoD, VA, and external care providers specified by Congress in the National Defense Authorization Act of 2020, more could be done. The VA OIG will monitor VA's EHRM program, and we will look for any instance where VA's healthcare capacity may be limited. We will also maintain communication with the DoDIG regarding areas of mutual concern.

2. A recent VAOIG report indicated that infrastructure costs for the VA Electronic Health Record Management Program were inaccurately and inappropriately underreported. Current estimates show that the future funding needs may drive up the cost vastly by billions. What options are needed to mitigate the increase in cost to focus funds on veteran care?

Answer: Our 2021 reports *Unreliable Information Technology Infrastructure Cost Estimates for the Electronic Health Record Modernization Program* (https://www.va.gov/oig/pubs/vaoig-20-03185-151.pdf) and *Deficiencies in Reporting Reliable Physical Infrastructure Cost Estimates for the EHRM Program* (https://www.va.gov/oig/pubs/vaoig-20-03178-116.pdf) indicated that existing physical and IT infrastructure at VA medical facilities was inadequate for the new system and pertinent life cycle cost estimates were unreliable and underestimated possibly by about $5 billion. VA's failure to satisfactorily complete the corrective actions associated with the reports' recommendations increases risks to patient safety and the ability to provide high-quality care as the system is implemented nationwide. Additionally, the recommendations can help minimize cost escalations and delays in future site deployments. On the date of this hearing, 10 of the 11 recommendations from the two reports remained open.

Since those reports published, VA has taken steps to understand the EHRM program's resource needs more completely. The OIG is encouraged that VA obtained an independent cost estimate from the Institute for Defense Analyses because it will help VA begin to understand its resource needs. However, as we noted in our report, *The Electronic Health Record Modernization Program Did Not Fully Meet the Standards for a High-Quality, Reliable Schedule* (https://www.va.gov/oig/pubs/vaoig-21-02889-134.pdf), VA must also develop a reliable, comprehensive schedule for full system implementation. Identified deficiencies could result in schedule delays and leave VA vulnerable to billions of dollars in cost overruns. Without that schedule, Congress cannot rely on VA's timelines for completing the work or be assured that the program will be completed within budget or in line with the independent cost estimate. Additionally, we recommended that VA ensure that the employee training program is conducted in an efficient and effective manner and improvements to the EHRM system are implemented speedily so that VA providers can return to predeployment productivity levels as quickly and safely as possible.

○