



**Statement of Mike Sicilia, Executive Vice President Industries
Oracle Corporation**

Before the

**U.S. Senate
Committee on Appropriations
Subcommittee on Military Construction, Veterans Affairs
and Related Agencies**

Hearing on

**“VA’s Electronic Health Record Modernization: An Update on Rollout,
Cost and Schedule”**

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Introduction:

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

I am Mike Sicilia, Executive Vice President for Industries at Oracle. I am responsible for Oracle's Global Health Business Unit, including Oracle Cerner.

Today is my first appearance before your Committee, so I want to begin by committing to you to be completely candid and transparent about where we are, where we are going, and what changes Oracle can bring to the federal EHR.

I also want to thank you for your past and current support of the EHRM program. We expect any program of this magnitude to receive intense scrutiny and oversight, and we understand concerns about delays and costs, which I will discuss further in my testimony. As VA's new partner in this effort, we have committed to getting the program on track and keeping our costs in line. In the coming months we hope to demonstrate to the Committee that we can deliver for the VA and our nation's veterans so that we will continue to earn your support for the program.

Oracle is a leading enterprise software vendor 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 hyperscale cloud service provider with global reach across industries and governments. Of added importance here, Oracle operates fully certified government cloud regions under the Intelligence Community's Commercial Cloud Enterprise ("C2E") program and is fully qualified under the DoD's upcoming Joint Warfighter Cloud Capability Program ("JWCC").

Oracle is also a leading cloud applications company with Software as a Service ("SaaS") products across Enterprise Resource Planning, Human Capital Management, Supply Chain,

and Customer Experience as well as industry specific cloud applications ranging from pharmaceuticals to banking and retail to utilities. Our systems are performant, scalable and secure, and there is nothing in the federal EHR scope outside of our core capabilities. Importantly, we have a demonstrated track record rewriting extremely complex applications from client-server technology to new, modern, stateless web applications which we plan to do here as well.

As you know, this past June Oracle completed its acquisition of Cerner. With this acquisition we brought 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 together with Cerner's clinical expertise is a very powerful combination that we believe will serve our nation's veterans and their caregivers extremely well.

Our rationale for acquiring Cerner was straightforward. Healthcare IT in this country and around the world is significantly out-of-date and the associated health data is stove piped. Systems are aging without any hope of bringing modern technology innovations like analytics and machine learning to improve patient outcomes. Compared to banking, telecommunications, transportation, utilities, or any other mission critical sector, healthcare IT is furthest behind the modernization curve. Across the healthcare industry, EHR systems are often bespoke and running on-premises. The VA's current system – VistA – is certainly one example of extremely old technology incapable of bringing state of the art capabilities to our nation's veterans.

Our intention is to lead the way with a new generation of modern, cloud-native, highly performant and secure EHR applications embracing mobility, self-service, analytics and ease of use, including virtual care, such as telemedicine, leading to better patient outcomes. Better patient outcomes inevitably lead to reduced health care costs. And modernization provides a rare chance to ensure caregivers are enabled by the tools they use, decreasing the administrative burden on caregivers. Unlike Cerner alone, Oracle brings an order of magnitude more engineering resources and scale to this formidable challenge and opportunity.

While Oracle is new to the EHR business, Oracle does have 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 COVID-19 vaccine clinical trials and then supported the CDC with the creation of the v-Safe After Vaccination Health Checker and the Health Partner Ordering Portal (HPOP) 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. We are accustomed to rising to the moment to handle large, complex tasks when our nation needs it most.

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 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.

The EHRM program is the largest health IT modernization project in history. The point of the program is three-fold: First, to offer a single interoperable longitudinal health record from a person's enlistment with DoD through lifelong care at VA. Second, to replace the current system conceived in the 1970s and deployed in the 1980s that is plainly and objectively past its prime. And third, to improve patient outcomes by deploying modern technologies across the entire data set of active duty and retired service members to ensure the highest quality of care. Doing so would literally leap-frog the commercial, private care systems and put DoD and VA at the leading edge of health care technical innovation.

When fully deployed across the VA healthcare system, 171 medical centers will go from using 130 different instances of the current VistA EHR to using a single enterprise-wide EHR that is shared between VA, DoD and Coast Guard. Problems currently experienced with VistA go away, such as: data silos creating gaps in patient data and care, veterans being tethered to specific medical centers, non-standardized workflows across the VA healthcare system, and a patchwork of VistA instances that inhibits the full potential of data analytics. These benefits of a modern EHR remain an extremely important goal worth protecting as they deliver significant improvements in healthcare services and outcomes for our nation's service members and veterans.

To date, the Millennium EHR has been fully deployed for the Coast Guard and is deployed at more than half of DoD medical facilities serving over 200,000 end users. I think a fair assessment is that the Coast Guard and DoD deployments are on track and proceeding successfully.

At VA the story is a little different. Millennium is deployed at five medical centers and their associated facilities, which is far slower than anticipated, and work is underway at over 40 medical centers for their upcoming deployments. Some of the delays were due to the COVID

pandemic, but it is also true that there have been substantial technical and training challenges at VA facilities. As we have examined the underlying causes for these delays and technical and training challenges, our conclusion is that we have found nothing that can't be addressed in reasonably short order, in part because we have shifted Oracle's top talent to work on the DoD/VA EHR system as the company's number one priority.

We believe this moment is a unique opportunity to leapfrog VA into the future and make VA's EHR the gold standard for EHR modernization globally. But I also need to be clear that modernization requires change. There is no amount of money and no amount of work that can transform VistA into a modern system capable of delivering for our nation's veterans.

We can and will do our part to deliver the most performant, feature-rich technology within the existing budget envelope for the current scope of work, but caregivers must also invest in training and learning a new system. Because a system is different does not make it unworkable. I am highly attuned to over-worked caregivers who are being asked to invest in learning a new technology without an immediate improvement in their day-to-day work. But I am also highly attuned to what a modern longitudinal health record with all health data in the same system can do to improve the care for our nation's veterans.

Here is how we plan to address the current problems and get this system back on track:

Performance: On August 4, 2022, in Kansas City, we hosted a Federal Leadership Summit with VA, DoD, the Federal Electronic Health Record Modernization office (FEHRM) and Leidos to discuss the federal EHR system's performance and recent stability issues. Coming out of that meeting, we have a two-fold plan.

First, we are working on more than 40 different technical operational improvement projects for the Federal Enclave that we expect to lead to improved performance and greater stability. We have made progress already, completing four projects and expecting seven, potentially eight, more to be complete by the end of the year. As we work on these projects, we will continue to analyze the system and make other fixes as needed. These plans are detailed in a letter we sent to VA on September 2, 2022, and which is attached for your reference.

Second, at the end of July I announced our intention to move the Cerner application – with, of course, the approval of VA, DoD and Coast Guard – to a modern, hyperscale cloud data center, which will deliver a foundation for better performance and stability for end-users.

Once achieved, this move will provide a scalable, modern platform for us to deliver the kind of modern technologies users have come to expect like mobility and predictive analytics. This is the same Generation 2 Cloud infrastructure that underpins Oracle's customers' most critical workloads in sectors like Financial Services, Telecommunications and Utilities.

Another advantage of moving the EHR system 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 which is a major cause of security vulnerabilities. Oracle maintains all the highest government security classifications.

Moving to our cloud data center will be provided *at no extra cost* to the Coast Guard, DoD or VA, and as I will explain later we believe it will help substantially compress costs in the long-run.

We are cognizant of our federal partners' concern raised at the August 4th summit that the entire Federal Enclave first be stabilized and are prioritizing that work in conjunction with the move to an Oracle cloud data center. We commit to maintaining the right balance of Oracle expertise, Oracle technology, and Oracle infrastructure to meet both goals.

Finally, we are working with VA to approve expanding our relationship with our current partners to assist with the work of making the Federal Enclave more stable and performant. We hope to announce this expansion soon, and believe that this expanded partnership will bring much-needed expertise and capabilities for a system as complex as this one.

Design: The second category of issues relates to system design. We have heard from providers about challenges with workflows and design that is not as easy or intuitive as it should be. While workflows are decided by the VA's National Councils and in coordination with DoD we will be engaging with the councils where we believe design changes can be made to improve clinical efficiency and productivity.

And of course, one widely known design issue, the so-called "unknown queue," was recently reported on by the VA Inspector General. Despite its name, the unknown queue was not a bug, it was a backstop 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.

While that has largely been corrected and current instances of orders entering the queue are minimal, we still committed to providing updates that would further reduce the chance of an order being entered incorrectly. On August 1, 2022, we delivered updates to VA to alert providers in their message center when an order is unable to be scheduled. A second update alerts providers when they go to close a patient's chart. VA has these updates for testing, and we will implement them when VA is ready. These updates were provided by us at no cost to VA. Screenshots of the updates are attached for your reference.

We also are working with VA related to the rescheduling of canceled appointments and the potential that some appointments were not properly rerouted. We will keep the Committee updated as we learn more.

Functionality and Millennium's Future: When it comes to functionality of the EHR, there are small things that become big things in practice and deserve rapid improvement. For example, we learned that in Columbus lab employees have not been printing in batches, which delays printing labels for vials of blood when multiple bloodwork tests are ordered. We have learned the check-in process for appointments has been slowed. These are two seemingly small examples in an overall EHR modernization, but they have a big impact on the amount of time a user spends in the EHR instead of with the veteran, and how much time the veteran spends in the facility. We are working to fix these and other similar issues that we are aware of to make the system more functional and efficient.

In previous testimony in July, I spoke to functionality concerns with the pharmacy module. Following VA's updated pharmacy requirements, we are currently working on seven important updates to pharmacy that will be delivered over the course of the next year and will make the pharmacy module function much better for users and veterans. The first three updates will be provided to VA by early next year.

At the same time, as I promised in July in testimony before the authorizing committees, we are developing new pharmacy functionalities from the ground-up. After starting this work, it quickly became apparent that we need to develop these pharmacy functionalities not as a separate module but as an integrated part of the new, modern EHR.

We are currently investing substantial resources to progressively rewrite the Oracle Cerner Millennium EHR as a modern, stateless web application, which will include pharmacy functionality. The system will have a modern web-based user interface. It will be mobile friendly, meaning users can bring their own device. It will include voice recognition, and ML-based clinical decision support and analytics that are built-in from the ground up. In short, it will be a fully modern cloud-based EHR system. Not only will this deliver the longitudinal record from enlistment through retirement and lifelong care at VA, but also includes the hierarchical view of the entire DoD/VA population against which analytics, AI, and machine learning can be deployed. We will keep VA, DoD and Coast Guard updated and engaged as we work on this modern EHR system, and of course will seek appropriate approvals for deployment as necessary. And while I don't want to over-promise here, our intent is to deliver a beta version of the new EHR, with pharmacy functionality included, in 2023.

Our plan – and our commitment to you – is to deliver all this functionality as an upgrade to the current system as part of our existing obligations under the current contract, *at no extra cost*

to the government. Let me say that again – we plan to deliver a fully modern cloud-based EHR for the DoD, Coast Guard, and VA as part of our existing contract with the government.

Additionally, in the short-term we plan to show VA users and veterans a glimpse of what the future system will look like. As I mentioned before, during the pandemic Oracle created direct patient facing applications like v-Safe. We are expanding these patient facing applications so that patients can easily keep their providers informed – each day if they like – about their health status. It is a simple, intuitive application that patients will be able to use to connect with their providers, view appointments and keep up to date on new benefit announcements. These new features will be added to Oracle Cerner EHR commercial products and therefore will be available to VA and DoD at no additional cost. We plan to meet with VA, DoD and Veterans Service Organizations to explain these features and assess applicability for focused areas like mental health or burn pit exposure awareness as two examples. It is the kind of addition to the system that will benefit veterans nationwide, all at once, while the longer hospital by hospital implementations progress. I have attached to this testimony sample screenshots of the new application. We look forward to working with VA and DoD to obtain their thoughts around rolling out some or all of these features in the coming months. Nonetheless we will continue to invest in new technologies that we believe can assist our nation's veterans in short order, regardless of where their local VA center is on the system rollout schedule.

Training: Modern applications should require little to no training. 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 and expectations. When we do that, we believe we will create greater user satisfaction and combat inertia for acceptance of the new system.

Over time we will achieve that goal, especially when we eventually move Millennium to a modern stateless web application. But in the short-term, we recognize that training must be improved for users new to the Millennium system. Unless a VA provider recently joined VA from another healthcare system that used Millennium or another commercial product, VA providers are used to VistA and unfamiliar with Millennium. This is of course natural – VistA has been in use for several decades, so VA users know its tricks, shortcuts and workflows. Similarly, it is important to understand that Oracle Cerner EHR's are deployed in tens of thousands of healthcare facilities across the country without incident.

We understand the challenge that change presents and the answer is two-fold. First, as I mentioned making the system more intuitive will help. Second, we are working with VA to revamp training. We recently engaged a third-party firm to evaluate the current training program. We have preliminary results and expect final recommendations in the coming two

to three months. We will be engaging Accenture to implement the needed changes and work with us to make the training much more efficient, applicable and useful.

We know that nobody wants to sit through hours of training to learn a new system, so we will make it more targeted and impactful – and in so doing hopefully create better momentum and inertia for user adoption at rollout sites in 2023 than we have seen in the past.

Transparency: Another issue that has clearly been a problem is the dissemination of timely and accurate information, whether positive or negative. That has led to increased oversight by Congress and by the VA OIG, both of which we welcome. I of course commit to continue to come before this Committee and to work with you as often as is necessary, but to begin this work, we recently launched an [electronic dashboard](#) that we will make available to all of you which catalogues our “to do” list and progress being made. We hope this dashboard will supplement VA’s monthly reporting, assist in the Committee’s tracking and oversight, and keep everyone focused on deliverables and dates.

Timing: With new site deployments set for next year, we have the time to make fixes and updates to the system related to stability and performance as I discussed earlier. We expect to be ready to pick up with a full deployment schedule next year as set forth by VA and DoD, including at major facilities in Seattle, Portland, and other cities. By the end of next year DoD will be fully deployed, and we anticipate VA will have nearly 30 additional facilities live on the new EHR.

Under the original deployment schedule, more facilities would be using Millennium by the end of 2023, and we acknowledge that the rollout is behind. The pandemic obviously caused some of this delay and presented challenges with the initial rollout in Spokane that might otherwise have been avoided. But, as is often said, we are where we are – so from our perspective we look at how we can gain efficiencies in our deployment methodology to get back on a course to deploy more efficiently, and we look forward to working with VA on a full master schedule.

We believe that the combination of steps I have described – improved system performance and stability, design and workflow fixes, enhanced functionality, revamped training and more – will put us in a position to accelerate deployments in 2024 and beyond. The number one thing we can do is make a system that VA providers want – and are willing to learn and adopt. That happens with a modern system that makes work easier and where tangible benefits are seen for patients.

We know we have a lot to prove with deployments next year at larger more complex sites. We view the next year as a key window for building momentum and turning the corner, just as we have done at DoD where initial adoption was similarly challenging and is now proceeding apace and with strong results.

Cost: The Inspector General has written that it believes there will be cost overruns, and we have seen the Institute for Defense Analyses (IDA) preliminary cost estimates for the next 28 years of lifecycle of the EHRM system. While I am not able to critique the IDA report one way or another, I will make four points.

First, as for Oracle's part, we intend to deliver the EHR system across the entire VA for the amounts contemplated in the current contract under the current scope. This Committee rightfully focuses on the cost of the EHRM program. We recognize that our portion of the program is the lion's share of the budget, and we take seriously our responsibility to be good stewards of these taxpayer dollars.

As such, we intend to deliver even more than was ever originally contemplated as we upgrade Millennium to our data center and modernize it to a stateless web application. Those upgrades will be done at our cost, not the government's.

Of course, if there are big new pieces of functionality not included in the current scope of the contract, that's a different discussion. However, if there are significant cost overruns related to the current contract, we are prepared to bear those costs and remain within the existing budget envelope. So let's talk dollars and cents, this is a 10-year, \$10 billion contract that already has had \$700 million or so in additional funding. That's \$10.7 billion. Even with delays and perhaps an extended timeline for deployment, that's the number we intend to deliver for – again, barring some big new piece of functionality being added that is not currently contemplated in the contract.

Second, having been in this industry for almost 30 years, I am unaware of any point in history where the cost of technology has gone up, not down, nor am I sure I can predict the state or the cost of technology 28 years from now. I would anecdotally point out that 15 years ago mobile devices and cloud computing didn't even exist. Mobile computing and the cloud have turned the economics of technology upside down.

Third, and again we have not seen the full final IDA report, but from the preliminary slides it does not appear that a cost comparison was done against the cost of maintaining or upgrading VistA for 28 years. VistA has 130 different instances running using various VA-owned and maintained data centers. VistA is programmed in a language with a limited programmer-base where finding programmers in the coming decades will only become more difficult and expensive. As MITRE reported in 2015, VistA's ability to deliver new capabilities is stalled and is in danger of becoming obsolete. At the end of IDA's budget window, VistA would be 68 years old, would continue to fragment, and would have no viable path for modernization.

It seems intuitive that a system conceived and developed in the 1970s and 80s, by definition, would have a far greater lifecycle cost than a modern cloud EHR at scale developed in the 2020s. And once a modern cloud enterprise EHR is fully deployed, cost benefits from improved healthcare delivery will exist.

Fourth, with Millennium, VA is moving to an enterprise approach with one system instead of operating 130 instances, and eventually this system will move to the cloud. IDA of course couldn't have known our plans here as it conducted its analysis, but we believe the appropriate baseline for this program is not the current Millennium system but the next generation cloud product we are developing and that will be the system running for the lifecycle.

I can't contemplate a scenario where operating Millennium could cost more than VistA. In our experience, as technology improves, costs go down, and we believe we can compress costs in the coming years. Moving to a cloud-based system by definition will reduce the cost of maintenance dedicated to physical infrastructure for the Federal EHR. It also puts the onus – and staffing requirements – on Oracle as we will be responsible for running the data centers, providing updates and security patches and making upgrades for capacity needs freeing VA employees from many of those tasks in their own data centers.

Conclusions:

In conclusion, four months into owning Cerner, we are confident that the problems with the VA rollout can be fixed in a relatively short amount of time, and additionally that we can deliver a far superior and modern Federal EHR on an aggressive time schedule as part of our existing contract with the government. We have committed to providing the Committee with full transparency as we move forward, including with the recent launch of our dashboard. And we are dedicated to providing whatever resources are necessary to deliver to both DoD and VA a system that exceeds expectations without exceeding the contracted cost.

Oracle is excited to be VA and DoD's new partner in this one-of-kind, transformational EHR modernization effort. We are confident that our energy, commitment and resources will benefit this program greatly. 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.

Attachments:

- September 2, 2022 letter from Oracle Cerner to VA
- Screenshots of Unknown Queue updates
- Screenshots of new patient facing application