



INNOVATION AND ADVERSITY: THE IMPLEMENTATION OF A UNIFIED ELECTRONIC HEALTH RECORD FOR U.S. VETERANS

INTRODUCTION

In the predawn stillness of a crisp Washington morning, Dr. Priya LaManna confronted a digital deluge that threatened to overwhelm her nascent leadership role. As the newly appointed director of quality, safety, and value for the electronic health record modernization at the U.S. Department of Veterans Affairs (VA), she found herself at the epicenter of a complex organizational transformation that was evaluating the boundaries of technological implementation and institutional change management. The electronic health record (EHR) “go-live” in Spokane, Washington, had ignited a firestorm of criticism that now populated her inbox with a torrent of increasingly hostile communications. Each email represented not just a complaint, but a potential inflection in a multibillion-dollar modernization initiative that carried profound implications for health care delivery for America’s veterans.

LaManna’s professional trajectory had uniquely positioned her for this pivotal moment. Her career had traversed the complex landscape of health care technology, including a significant tenure at Cerner, where she had led the Patient Safety Council, and a subsequent role as chief medical information officer at a prominent academic medical center. Her dual expertise in patient safety and medical informatics made her an ideal candidate to navigate the turbulent waters of this massive technological integration.

The initial EHR implementation at the VA had faced such a public outcry that Congress had called for a “reset” before progressing. LaManna took a deep breath, took a sip of her mint tea, and considered how to tackle the emails and never-ending calls regarding safety issues, workforce dissatisfaction, and congressional inquiries.

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Change Management

Health care organizations were under unprecedented pressure to address concerns about cost, quality, and access, the so-called Triple Aim. A common solution to these challenges was enhancing organizational productivity, and leaders were looking to technology, from electronic health record systems to artificial intelligence (AI) and computer vision, as a pathway forward. But technology innovation did not lead to productivity gains in isolation—technology innovation and business process innovation needed to be implemented concurrently to have a real impact on the bottom line. This would require organizational change—the most challenging management task in any organization. Change management in health care offered an even greater challenge than for other types of organizations due to the sector’s complexity and regulatory requirements, and because of the paramount importance of maintaining the quality of care during technology and business process transitions.

Health care delivery required support from a series of multiple interconnected systems. When a hospital implemented a novel technology—for example, telemedicine—this affected not just the technical infrastructure, but also clinical workflows, patient interactions, billing processes, and regulatory compliance. Each of these elements had to be carefully managed to ensure patient safety and care remained uncompromised.

Successful organizational change required understanding the sector’s distinctive characteristics. Health care administrators and clinical personnel often operated in distinct hierarchical structures with established protocols and processes, making organizational change particularly challenging. Further, physicians, nurses, and other clinical staff would develop specific clinical routines based on years of experience and training. Any proposed change had to demonstrate clear benefits to gain their support.

Communication strategies also had to be carefully crafted to address the needs of diverse audiences. Clinical staff required different information than administrative personnel, for example, and patients needed yet another level of communication. Successful health care organizations often established multiple communication channels and tailored messages to each audience while maintaining consistency in overall objectives.

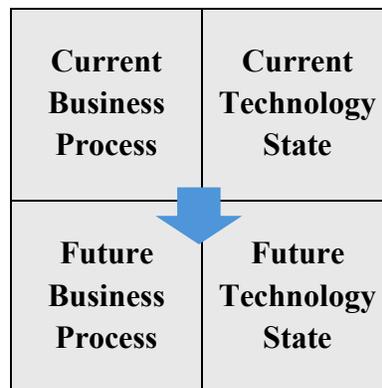
Stakeholder engagement became particularly crucial. Distinct groups—physicians, nurses, administrative staff, IT professionals, and patients—each brought unique perspectives and concerns. Change leaders had to create forums for meaningful dialogue and incorporate feedback to proposed solutions from across these multiple stakeholders. At its core, successfully implementing any technology required people to change not just what they do, but how they think about their work.

Success in technology implementation also required creating an environment where all users felt safe and supported while experimenting with new ways of working, where mistakes were viewed as learning opportunities (in careful feedback loops), and where the organization collectively developed new norms and practices to leverage the technology while preserving the human essence of health care delivery.

The sustainability of change depended on building new behaviors and work processes into the organization’s culture. This required ongoing reinforcement, celebration of successes, and continuous adjustment based on feedback and results. Leaders had to remain visible and engaged throughout the process, demonstrating their commitment to the change and its positive impact on patient care. The success of change management depended on carefully balancing the need for transformation with the imperative to maintain safe, high-quality patient care.

STRATEGY AND IMPLEMENTATION

Ideally, strategic planning for health information technology development would have four distinct stages, as shown in the figure below. The first stage would be to assess the current state of the business processes. The second stage involved the assessment of the current state of technology, including a technology inventory and architecture assessment. Based on this framework, the most critical input in planning—and the third stage—was a description of the future state of clinical services to be enabled by technology. Utilizing this assessment, in the fourth stage the organization could decide to extend the current capabilities of the existing technology or migrate to a new platform altogether if the existing technology could not meet the business requirements for the new services.¹ The overall result would be that the technology supported the desired business process.



Source: Casewriters.

Implementing an EHR system did not follow this path directly. Large software systems had been developed to meet the needs of multiple different health care systems in the market. Further, in contrast to a business application like word processing software or an e-mail system that might have some impact on how employees do their work, an EHR included clinical workflows and business processes built into the technology to transform the work process entirely. So, EHR implementation ended up as an attempt to minimize workflow disruptions while building new business processes around the new technology.

Implementing an EHR required a systematic approach:

1. Planning and assessment
 - Create a leadership team and governance structure

¹ Edward H. Shortliffe and Lynette I. Millett, editors, “Strategies and Priorities for Information Technology at the Centers for Medicare and Medicaid Services,” National Research Council/The National Academies Press, 2012.

- Assess organization readiness
 - Adopt a change management methodology
 - Establish goals and requirements
 - Select an EHR vendor
2. Pre-implementation
 - Define project scope, budget, timeline, and needed resources
 - Create a project plan and project governance
 - Review the current technical infrastructure
 - Review the current stat to clinical, administrative, and business workflows
 3. Implementation
 - Prepare the new technical infrastructure: establish necessary hardware, back-up systems, security protocols, and testing environments
 - Configure the new system:
 - ◆ Define user roles
 - ◆ Establish and validate future clinical, administrative, and business workflows
 - ◆ Create macros and configure decision-support
 - ◆ Test and validate application interfaces
 - Manage data:
 - ◆ Crosswalk legacy data fields with new data fields
 - ◆ Migrate the legacy data to new databases
 - ◆ Test and validate the migrated data
 - Provide end-user education and training
 - EHR system go-live:
 - ◆ Establish a command center and system downtime procedures
 - ◆ Reduce productivity requirements for end-users
 - ◆ Establish 24/7 support
 - ◆ Provide real-time issue management
 4. Post-implementation
 - Measure adoption metrics
 - Optimize workflows
 - Add new features²

CARING FOR U.S. MILITARY SERVICE MEMBERS

For people in military service or for people who had retired from the U.S. military, the Department of Defense (DOD) was the primary provider of medical care. The DOD also had a health insurance program to serve military dependents. The Department of Veterans Affairs served veterans—those who had served in the U.S. military but who did not retire from the service (for example, people who did one tour of duty in a branch of the U.S. military). The VA also served two distinct service-connected populations: those wounded in military service, and those who developed medical conditions or suffered a disability while in the service. While all veterans were eligible for VA

² Please see: “Health IT Playbook: Electronic Health Records Implementation,” The Office of the National Coordinator for Health IT, May 7, 2025, <https://www.healthit.gov/playbook/electronic-health-records/#Adopt-Implement-summary>; “Steps Forward: EHR Transitions—Best practices for Implementing a New EHR System,” American Medical Association (2024), <https://edhub.ama-assn.org/steps-forward/module/2820544>; Michael Hickin, “10 Steps to a Successful EHR Implementation,” Oracle Health, June 23, 2025, <https://www.oracle.com/health/ehr-implementation/>.

services, service-connected veterans qualified for additional programs and services. The distinctions between the health care missions of the DOD and the VA, two separate federal government departments, were shaped by the different populations they served.

The Department of Defense

The Department of Defense's health care system, the Military Health System (MHS), was managed by the Defense Health Agency (DHA), part of the Department of Defense. Previously, the delivery of health care was managed by the individual military branches. In 2019, the DHA became the primary manager of the MHS when it took over the management of all military hospitals and clinics from the service branches.

In 2025, the Military Health System included:

- Military medical treatment facilities (MTFs)
- TRICARE health insurance program, serving civilian personnel of the Department of Defense and family members of military personnel
- Medical research and development
- Medical education and training
- Public health initiatives for military personnel and beneficiaries

In 2025, the Military Health System had an annual budget of \$61.4 billion, and employed 130,000 civil and military personnel at 700 hospitals and facilities.³

The Department of Veterans Affairs

The origins of the VA dated to the 1790s, when the U.S. federal government began to implement a pension system for soldiers.⁴ The scope of the VA expanded to health care in 1865, when President Abraham Lincoln's second inaugural address recognized the need to support veterans of the U.S. Civil War. Lincoln declared:

With malice toward none with charity for all with firmness in the right as God gives us to see the right let us strive on to finish the work we are in to bind up the nation's wounds, to care for him who shall have borne the battle and for his widow and his orphan ~ to do all which may achieve and cherish a just and lasting peace among ourselves and with all nations.⁵

In 1988, President Ronald Reagan signed legislation elevating the Veterans Administration to the cabinet-level Department of Veterans Affairs. This transformation of the VA signaled a strategic recognition of the repayment of veterans' services as a critical national priority.

³ Defense Health Agency website,

<https://dha.mil/#:~:text=We%20are%20an%20integrated%20combat,in%20the%20Military%20Health%20System>.

⁴ VA History Summary, U.S. Department of Veterans Affairs, <https://department.va.gov/history/history-overview/>.

⁵ Lincoln's Second Inaugural Address, March 4, 1865, National Park Service, <https://home.nps.gov/linc/learn/historyculture/lincoln-second-inaugural.htm>.

In 2025, the VA had three branches: the Veterans Benefits Association (VBA), the National Cemetery Association (NCA), and the Veterans Health Administration (VHA), serving approximately 9 million veterans annually with a \$336 billion annual budget (FY2024; Exhibit 1). The VHA's evolution represented a remarkable transformation, from a system of care delivered in soldiers' homes, to the nation's largest integrated health care system with over 1,700 health care facilities (Exhibit 2). Health care was the VHA's primary focus, with advances in "wraparound care" such as a robust physical and emotional support effort for unhoused veterans.

VHA was a leader in medical research, with innovations such as the first liver transplant, development of the nicotine patch, and prosthetics development. It is also a leader in health care delivery innovations such as the national formulary system, integrated mental health services, and telehealth advancements, such as "hospital at home" care delivery models.

Information technology at the VHA

In the 1970s, the VHA embarked on an ambitious project that would fundamentally transform health care delivery: the development of the Veterans Health Information Systems and Technology Architecture (VistA). This was not merely an electronic record system, but a comprehensive health care management platform developed by clinicians and technologists working collaboratively. VistA was a complex system, comprising about 170 clinical, financial, and administrative applications that supported health care delivery at more than 100 medical facilities (Exhibits 3 and 4). The VA had approximately 130 versions of the system in deployment.⁶

The Computerized Patient Record System (CPRS) within VistA introduced comprehensive electronic order entry in the 1990s, which created several benchmarks for all electronic health record systems that followed. CPRS allowed for the creation of standardized order sets that could be shared, implemented drug-drug interaction checking at order entry, and had built in allergy checking against medication orders. It also highlighted clinical decision support innovations, such as drug safety warnings, clinical protocol deviations, preventive care due dates, and population health management tools, such as disease registries. VistA also enabled sophisticated knowledge management tools like standardized care protocols and evidence-based order sets.

EHR modernization

As part of the American Recovery and Reinvestment Act of 2009, the Health Information Technology for Economic and Clinical Health (HITECH) Act was enacted to spur EHR adoption across the private health care sector. This legislation represented a transformative approach to health care information technology. The three primary goals of the HITECH Act included accelerating EHR adoption, enhancing patient care quality, and strengthening health data privacy and security. There were financial drivers tied to compliance for providers, through Medicare and Medicaid incentives. A staged approach to implementation was guided by a prescribed framework, called "the meaningful use framework."

As private sector hospitals adopted this new technology, the VHA started to see deficiencies in the legacy VistA system, which had once been a technological marvel but was now showing its age. One critical issue was the lack of interoperability between the VHA and the Military Health System (MHS) for active-duty military personnel.

⁶ "Electronic Health Records: VA Needs to Address Management Challenges with New System," U.S. Government Accountability Office, May 2023, <https://www.gao.gov/assets/gao-23-106731.pdf>.

The MHS utilized a homegrown EHR system, the “Armed Forces Health Longitudinal Technology Application” (AHLTA), which was developed as a comprehensive military health record system. AHLTA focused on active-duty medical readiness and battlefield medicine, while VistA was designed for comprehensive long-term veteran health care management. Integrating the two technological platforms would be impossible, due to incompatible data standards, differing system architectures, unique medical coding systems, and disparate security protocols. The organizational challenges included distinct cultural differences, separate budgetary processes, and complex procurement requirements.

Without reliable interoperability, military personnel who transitioned to VHA care were forced to transport their paper records from the DOD to the VHA. For decades, veterans experienced frustrating gaps in their health care records. Crucial health information might be incomplete or lost, creating a significant patient safety risk. The lack of interoperability between AHLTA and VistA sealed their fates in the eyes of leadership of these agencies.

To bridge the disconnect, in 2012, the DOD and VA launched the Joint Legacy Viewer (JLV), an initial attempt to create a shared visualization platform across their EHR platforms. This solution allowed health care providers to view records from each system separately, but no information was shared between AHLTA and VistA. Later, a Consolidated Health Information Exchange (CHIE) was developed to establish standardized data exchange protocols between the systems; however, data sharing was incomplete.

Under the Obama administration, the VHA and the DOD were directed to implement the Military Health System Genesis project, which would create a single electronic health record for VHA and the DOD. The DOD acted before the VHA, awarding a contract for this effort to Leidos and Cerner (now Oracle Health) in July 2015. Leidos served as the primary contractor for the DOD’s MHS Genesis implementation. Leidos had overall responsibility for program management, change management, and systems integration, while Cerner, as a subcontractor to Leidos, provided the electronic health record software platform. The contract was valued at \$4.3 billion over 10 years.

Later, under the first Trump administration, the VA selected Cerner in 2017 as their primary contractor for Genesis, via a \$10 billion no-bid contract. The decision to choose Cerner exclusively was made to align with the DOD, ultimately pursuing seamless interoperability between the DOD’s version of the Cerner EHR and the VHA’s version. The timing of the VA’s commitment to Cerner was significant, as this allowed the VA to observe early MHS Genesis implementation challenges at DOD facilities; however, the full implications of the DOD’s implementation challenges may not have been apparent at this stage.

The VHA was excited to communicate the benefits of this new effort to veterans (Exhibit 5).

The implementation efforts

The implementation plan for MHS Genesis followed a wave-based approach across geographical regions. The first wave started in 2017 as the initial operating capability (IOC) in the Pacific Northwest, followed by a second wave in 2019, and a third wave in 2020.

This sequential strategy was intended to allow each subsequent wave to incorporate lessons learned from previous deployments in the launch to improve the efficiency of the go-live process over

time. The methodology was broken into three parts, which consisted of pre-deployment, implementation, and structured support. Each of these steps was buttressed with rigorous processes. During pre-deployment preparation, staff training and readiness assessments, workflow analyses and optimization, data migration planning, and infrastructure upgrades were performed. In the implementation sequence, staff training and workflow support were activated prior to the system go-live date. Post-deployment software and workflow optimization were subsequently enabled. The structured support included clinical champions and training teams at each site, with 24/7 technical support and a robust command center during the go-live process to manage issues in real time. This methodical, region-by-region approach allowed for refinement of processes and addressing issues before moving on to new locations.

The VHA established the Electronic Health Record Modernization (EHRM—see Exhibit 6) Integration Office to oversee this critical strategic initiative. The office was positioned at the intersection of clinical operations, technology, and organizational transformation within the VHA. EHRM reported directly to VHA senior leadership, working horizontally across all VA medical centers, interfacing with the Department of Defense and coordinating with Cerner. The VA envisioned the scope of the system: “The Federal EHR connects VA medical facilities with the Department of Defense (DOD), the U.S. Coast Guard (USCG), National Oceanic and Atmospheric Administration (NOAA), and participating community care providers, allowing clinicians to easily access a Veteran’s full medical history in one location.”⁷ At EHRM, the Core Leadership positions included the executive director; the chief technology officer; the director of quality, safety and value; and the chief medical information officer. Their accountability consisted of quarterly strategic review boards with the House and Senate committees on veterans’ affairs, and discussing progress with legislators as well as executive branch leadership, including the VA secretary. EHRM also held monthly operational governance meetings and conducted ongoing stakeholder engagement reviews.

The EHRM had overall responsibility for program management, change management, systems integration, and coordination between VHA facilities, Cerner, and the various stakeholders. The EHRM was the central authority for managing this transformational Genesis project. Organizationally, it was a VA entity external to the VHA, yet it was tasked with managing the expectations of the civil servants working within the VHA.

To help understand the complexity of this personnel challenge, it was important to note that the federal government employed two distinct types of personnel: political appointees and civil servants. The president was responsible for identifying political appointees, and the most senior political roles required Senate confirmation. Political appointees served at the pleasure of the president, and set the direction for the agency in line with the administration’s policy agenda. The Department of Veterans Affairs had 13 leadership positions that required Senate confirmation. The balance of the VA workforce, over 300,000 people, were civil service employees. These were full-time employees of the Department of Veterans Affairs. Their employment was designed to be independent of the political process, in accordance with the 1883 Pendleton Act. This legislation established a merit system of government employment and supervision, which superseded the previous patronage system that awarded government jobs based on political connections.⁸ As civil

⁷ Transforming Health Care for Veterans, Revolutionizing Health Care for All, VA/EHR Modernization, <https://digital.va.gov/ehr-modernization/>.

⁸ Pendleton Act (1883), National Archives, <https://www.archives.gov/milestone-documents/pendleton-act>.

service employees, U.S. government workers had protection against politically motivated firing and demotions.

The EHRM created 20 Advisory Councils, made up of subject matter experts that represented clinical service lines or venues of care. These Councils were tasked with designing the clinical workflows and care pathways, essentially creating the future state for the new EHR. In turn, the EHRM and Cerner were to implement each Council's recommendations. However, a number of impediments affected communications and decision-making: 1) no EHRM members were on these Councils; 2) Council members did not have access to the EHR environment; 3) the EHRM meetings included solution experts (clinical staff that were trained on the new EHR), but the solution experts were excluded from Council meetings; and 4) solution experts had no voting rights on the EHRM.

EHRM's implementation plan for their Cerner EHR system began with an initial operating capability site in October 2020 at a hospital and associated clinics in Spokane, Washington. The second deployment, in March 2022, was to take place in Columbus, Ohio. The plan included standard implementation elements, such as infrastructure preparation, staff training, data migration, and go-live support with post-deployment optimization.

Collaboration efforts

There were several processes set up to promote alignment both within the VA and with the DOD. For example, a Joint Committee was formed to ensure that changes made by the VA to the Cerner software were approved by the DOD. The committee met weekly and reviewed every proposed change, understanding that it would affect the systems operated by the MHS and the VA.

A combined patient safety committee was proposed, attempting to unite three patient safety entities: the VHA Informatics Patient Safety group, the EHRM Safety group, and the National Center for Patient Safety (NCPS). However, the charter lingered in committee for over a year before approval. During that year, the team collaborated, unofficially, but the effectiveness of this effort was constrained by data-sharing restrictions.

To help the VA, the DOD established a pay-it-forward program by deploying some of their experienced solution experts to assist in new VHA implementations. While valuable, the effectiveness of the program was limited by the availability and interest of DOD personnel.

Challenges

Technology migration quickly became a major issue at the VHA. This effort still required an understanding of the current technology state, and the services provided by the VistA system. As this was a home-grown system, describing the services and the detailed architecture of VistA was a challenge since documentation was not consistent for all VistA features and applications.

VistA had core functions and data structures that could be configured and managed locally, and these capabilities shared data with the centralized functions. VistA also had a research infrastructure that allowed access to the data collected in the system for quality assessment, business process improvement, and research. Because the system had been in place for over 30 years, the challenges to implementation of the new system were enormous. Interoperability was not a core strategy when the system was first established. Rather, because the system was designed to be configured locally, each facility had customized VistA to meet local needs, creating hundreds

of unique versions of the system and with unique data architectures. Data standardization was an added complexity because each location had established their own site-specific formats, terminologies, and naming conventions.

Another serious issue was a deep resistance to change among VA employees. For example, medical staff were facile in their interactions with VistA, and local facilities wanted to maintain customized workflows they had developed. Communications remained opaque between all parties involved. The EHRM office became a revolving door of leaders, clinicians, and administrators. LaManna, charged with leading patients' safety and the quality and value of VA services, had been hired a mere six weeks prior to the first implementation. Challenges included, but were not limited to, governance, communications, leadership tactics, organizational culture, and stakeholder engagement.

An escalating crisis

The VHA was able to go live with their initial test site in Spokane in 2020. But the effort did not go smoothly. There were significant concerns related to performance problems, workflow disruptions, and patient safety. There were documented cases of prescription errors, scheduling difficulties, lost referrals, and provider burnout related to increased time spent navigating the new system (Exhibit 7).

The most significant concerns were the patient safety issues. As the rollout of the EHR began, patients began to feel the effects of a poorly functioning EHR. Simple orders, such as consultations with specialist offices, were being lost in the system. One veteran spoke to *NPR* reporters about a lost referral to the urologist, which resulting in delayed evaluation and treatment of his prostate cancer: "I was kind of irritated because, basically, they'd used us as guinea pigs on a system that they had never evaluated, and Cerner was saying it was OK."⁹

Public accountability

Congressional reporting language associated with the VA appropriations for fiscal years 2020 through 2022 contained provisions for GAO to review VA's EHR deployment. GAO's objectives were to determine the extent to which VA had (1) followed leading organizational change management practices for the EHRM program, (2) assessed satisfaction with the new system, and (3) identified and addressed EHR system issues.¹⁰

GAO evaluated VA's activities against leading change management practices. It also reviewed the results of surveys that VA conducted to determine users' satisfaction with the new EHR, conducted interviews with selected users, and interviewed officials on user satisfaction goals. Further, GAO analyzed VA data on the contractor's performance meeting timeframes for addressing system trouble tickets.

The GAO assessment was damning (Exhibit 8). VA's 2021 and 2022 surveys showed that users were not satisfied with the system's performance or [user] training. About 79 percent of users (1,640 of 2,066 survey responses) disagreed or strongly disagreed that the system enabled quality care. In addition, about 89 percent of users (1,852 of 2,074 survey responses) disagreed or strongly

⁹ Quil Lawrence, "An electronic health records system for veterans is causing unnecessary suffering," *NPR*, May 1, 2023, <https://www.npr.org/2023/05/01/1173141145/an-electronic-health-records-system-for-veterans-has-caused-unnecessary-sufferin>.

¹⁰ "Electronic Health Records: VA Needs to Address Management Challenges with New System," loc. cit.

disagreed that the system made them as efficient as possible. Further, GAO reported that the VA has not established goals to assess user satisfaction. As a result, the VA lacked a basis for determining when satisfaction had sufficiently improved so that the rollout could continue to additional sites. Such a basis was needed to ensure that the system would not be deployed prematurely, which could risk patients' safety.

The VA Office of Inspector General released multiple reports on the VHA efforts identifying specific challenges:

- Patient portal functionality
- Clinical documentation workflow challenges
- System reliability and downtime
- Training adequacy
- Help desk response times

Many lawmakers expressed concern over the continued failings of the EHRM. Senator Jon Tester (D-Montana), chairman of the U.S. Senate Committee for Veterans' Affairs, said, "It's clear that the new EHR system is failing veterans, medical personnel, and taxpayers, and we need aggressive measures to right this ship and get a better return on investment through this contract."¹¹

In April 2023, the VA was forced to discontinue further rollouts of the system until, the department noted, "VA is confident that the new EHR is highly functioning at current sites and ready to deliver for veterans and VA clinicians at future sites"¹² (Exhibit 9). The VA made headlines when it renegotiated what had become a \$16 billion agreement. One account noted, "The Department of Veterans Affairs renegotiated its contract with Oracle Cerner to beef up accountability for tech glitches and patient safety issues with its beleaguered electronic health records project."¹³ The budget estimate reflected implementation delays, additional infrastructure requirements, unexpected training expenses, and support cost escalation (Exhibit 10).

Looking forward

As the first rays of morning light began to pierce through her office windows, LaManna faced a critical leadership challenge: How would she address the mounting resistance, restore confidence in the new system, prevent patient harm, and ultimately drive the successful implementation of a transformative health care technology platform? How could she address the safety concerns while assuring the future go-lives would be safer?

¹¹ Rebecca Kheel, "Overhaul of VA's Troubled Health Records Program Eyed by Senators," *Military News*, March 30, 2023, <https://www.military.com/daily-news/2023/03/30/overhaul-of-vas-troubled-health-records-program-eyed-senators.html>.

¹² VA announces reset of Electronic Health Record project, *VA News*, April 21, 2023, <https://news.va.gov/press-room/va-announces-reset-of-electronic-health-record-project/>.

¹³ Heather Landi, "VAN renegotiates \$10B Oracle Cerner HER contract with stronger performance metrics, bigger penalties," *Fierce Healthcare*, May 17, 2023, <https://www.fiercehealthcare.com/health-tech/va-renegotiates-10b-ehr-contract-stronger-performance-metrics-bigger-penalties>.

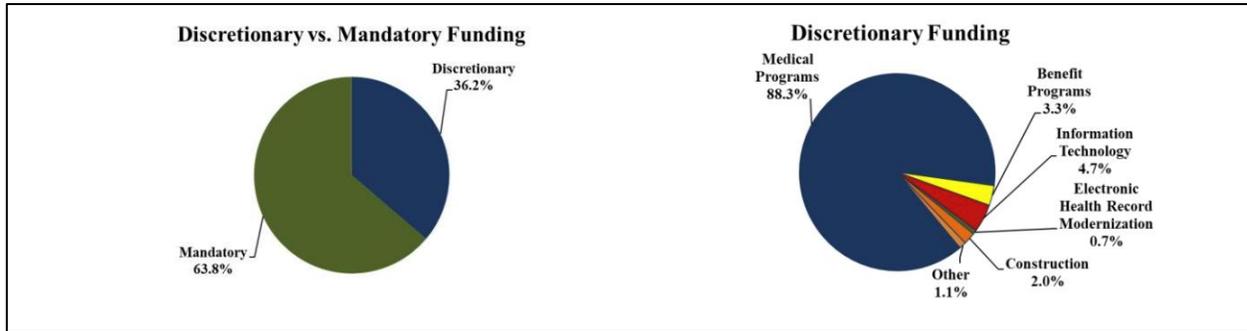
DISCUSSION QUESTIONS

1. Describe the motivations, concerns, perspectives, and time frames of each stakeholder. Also describe their level of accountability for the success of this effort.
 - VA political appointees
 - VA/VHA career civil servants
 - VHA medical staff
 - EHRM team members
 - Cerner Corporation
 - Consultants
 - Veterans
 - Congress
2. The eyes of senior leadership of the VA, the White House, and the U.S. Congress were on the VA given the importance of this program. If you were serving in the EHRM office, how could you have ensured the success of this implementation effort? What core management strategies would you have needed to deploy to make this effort successful?
3. How does the relationship between political appointees and career civil service personnel add to the challenges of the EHRM program?
4. This is a major opportunity for the Cerner Corporation given the dominance of Epic Systems in the EHR market. But, going in, Cerner knew this implementation effort would be challenging. What could Cerner have done to ensure the success of this effort in the contracting process? In ongoing management of the contract?
5. What strategy would you adopt if you oversaw directing the reset in 2023 from the VA side? From the Cerner side?
6. What lessons can be generalized from this case to an EHR implementation at a different public or private health care system, or to other large system implementations (for example, a new plan for upgrading the FAA air traffic control system¹⁴).

¹⁴ “[Brand New Air Traffic Control System](#),” U.S. Department of Transportation, 2025.

Exhibits 1 Department of Veterans Affairs Budget

Funding Type	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Mandatory ³	95.1	92.5	105.5	112.3	110.9	124.7	137.7	157.5	168.7	193.5	235.3
Discretionary	65.1	70.9	74.3	81.6	86.6	92.0	104.6	113.3	135.0	137.9	129.3
Medical Collections (MCCF)	3.2	3.5	3.5	3.5	3.9	3.4	3.1	3.9	3.8	4.3	4.4
Transformational Fund (RETF)	0	0	0	0	0	0	0	-0.8	1.0	0.7	.3
Total VA Funding	163.5	166.9	183.3	197.4	201.4	220.1	245.4	273.8	308.8	336.4	369.3

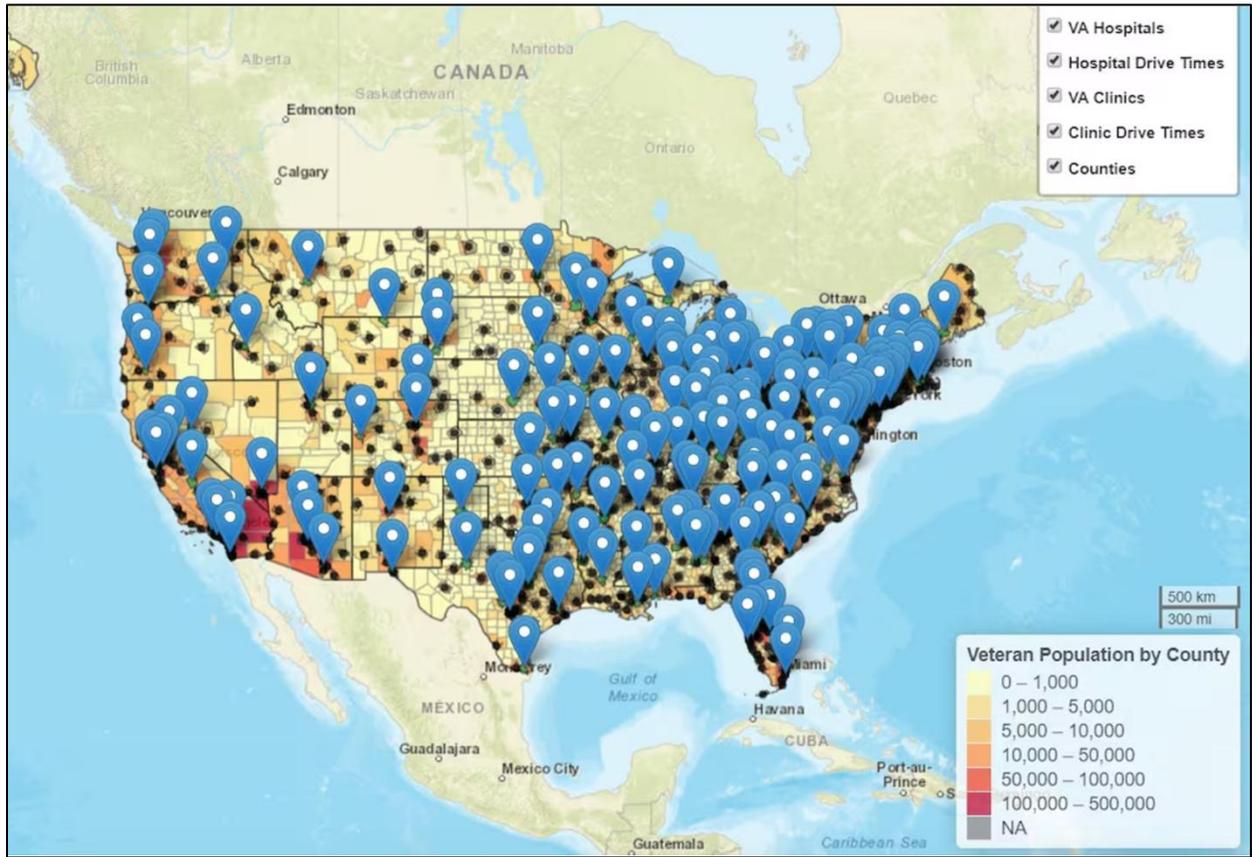


Source: U.S. Department of Veterans Affairs FY 2025 Budget Submission, March 2024, <https://department.va.gov/wp-content/uploads/2024/03/fy-2025-va-budget-in-brief.pdf>.

Veterans' Disability Compensation and Pension Programs												2025-2029	2025-2034
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034		
DISABILITY COMPENSATION													
Millions of dollars, by fiscal year													
Veterans													
Outlays Estimated in Baseline	144,576	168,174	180,576	193,650	223,745	197,878	225,872	235,849	246,103	278,257	271,946	964,023	2,222,050
Adjustment for Payday Shift ^a	12,219	0	0	0	-17,981	17,981	0	0	0	-21,404	-3,975	n.a	n.a
Total Benefits for Veterans	156,795	168,174	180,576	193,650	205,764	215,859	225,872	235,849	246,103	256,852	267,971	n.a	n.a
Number of Veterans (Thousands of people)	5,951	6,233	6,556	6,864	7,128	7,328	7,491	7,641	7,787	7,929	8,069	n.a	n.a
Average Annual Benefit (Dollars)	26,348	26,981	27,544	28,211	28,867	29,457	30,152	30,868	31,606	32,392	33,210	n.a	n.a
Survivors													
Outlays Estimated in Baseline	10,500	12,110	12,369	12,909	14,870	13,055	15,150	15,835	16,667	19,023	18,782	65,313	150,770
Adjustment for Payday Shift ^a	887	0	0	0	-1,195	1,195	0	0	0	-1,463	-275	n.a	n.a
Total Benefits for Survivors	11,387	12,110	12,369	12,909	13,675	14,250	15,150	15,835	16,667	17,560	18,507	n.a	n.a
Number of Survivors (Thousands of people)	522	534	557	568	589	600	624	638	657	677	698	n.a	n.a
Average Annual Benefit (Dollars)	21,813	22,678	22,207	22,726	23,218	23,750	24,279	24,819	25,368	25,938	26,514	n.a	n.a
Total Outlays for Disability Compensation	155,075	180,284	192,945	206,559	238,616	210,934	241,022	251,684	262,770	297,280	290,728	1,029,338	2,372,822
VETERANS' PENSIONS													
Millions of dollars, by fiscal year													
Veterans													
Outlays Estimated in Baseline	1,765	1,778	1,641	1,512	1,498	1,173	1,178	1,084	1,056	1,064	914	7,602	12,898
Adjustment for Payday Shift ^a	160	0	0	0	-107	107	0	0	0	-76	-10	n.a	n.a
Total Benefits for Veterans	1,925	1,778	1,641	1,512	1,391	1,280	1,178	1,084	1,056	988	904	n.a	n.a
Number of Veterans (Thousands of people)	138	124	112	101	91	82	74	66	60	54	48	n.a	n.a
Average Annual Benefit (Dollars)	13,927	14,291	14,648	14,990	15,322	15,659	16,003	16,356	17,694	18,391	18,699	n.a	n.a
Survivors													
Outlays Estimated in Baseline	1,015	1,015	930	850	836	650	648	591	581	585	498	4,281	7,184
Adjustment for Payday Shift ^a	92	0	0	0	-59	59	0	0	0	-42	-5	n.a	n.a
Total Benefits for Survivors	1,107	1,015	930	850	776	709	648	591	581	543	493	n.a	n.a
Number of Survivors (Thousands of people)	98	87	78	70	62	56	50	44	40	36	32	n.a	n.a
Average Annual Benefit (Dollars)	11,330	11,626	11,917	12,195	12,465	12,740	13,020	13,306	14,637	15,294	15,531	n.a	n.a
Total Outlays for Veterans' Pensions	2,780	2,793	2,571	2,362	2,333	1,823	1,825	1,675	1,637	1,648	1,412	11,882	20,081

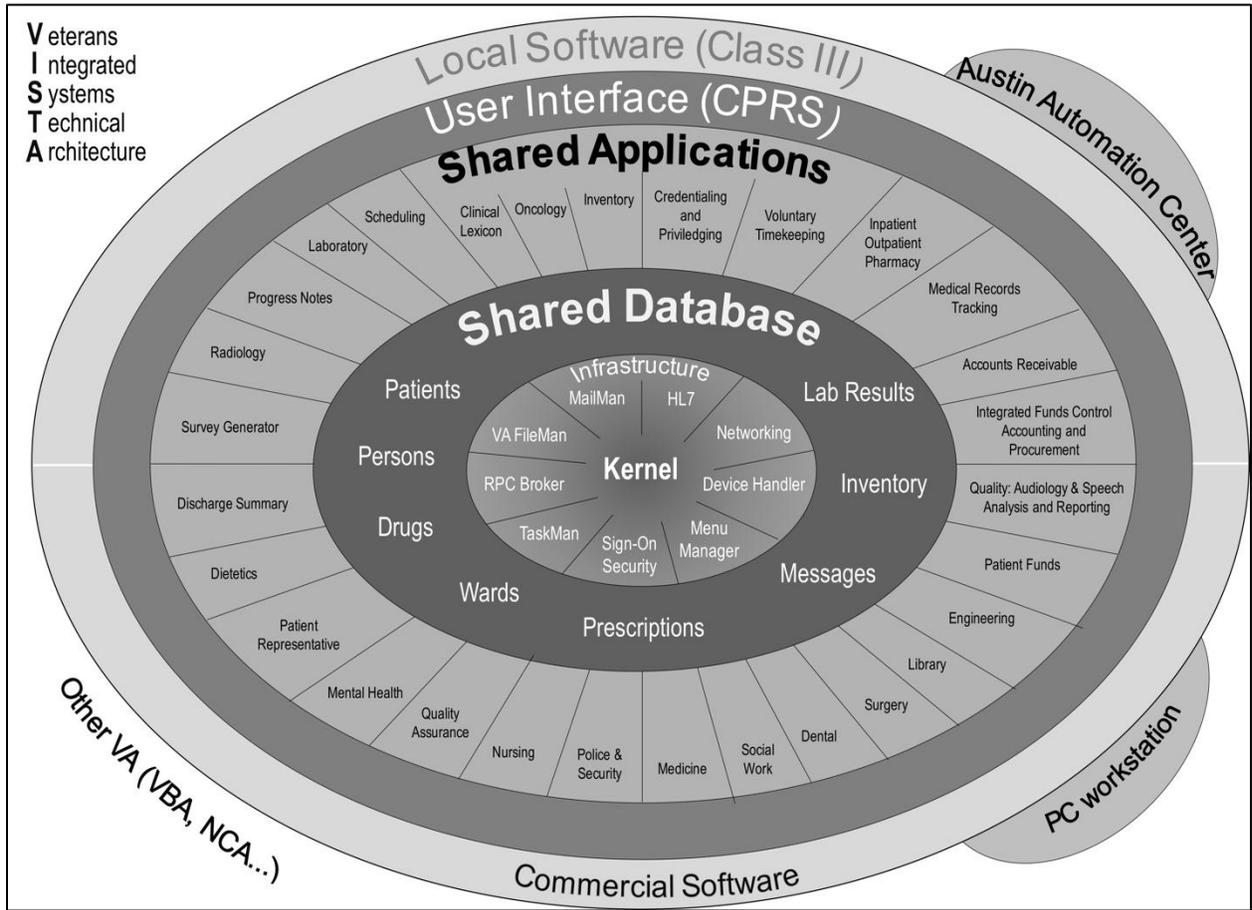
Source: Congressional Budget Office Baseline Projections, February 2024, <https://www.cbo.gov/system/files/2024-02/53725-2024-02-veteransbenefit.pdf>.

Exhibit 2 VHA Facilities Map



Source: "Find a VA location," U.S. Department of Veterans Affairs, <https://www.va.gov/vetdata/maps.asp>.

Exhibit 3 The VistA System Architecture



Source: (cc) Figure by [Ashtango](#), via Wikimedia Commons.

Exhibit 4 Alternative: The VistA System Architecture

VA EHR Capability Requirements		
Access Management		
Eligibility Management	✓	VA
Master Person Index	✓	
Registration	✓	
Scheduling	✓	
Acute Care Delivery		
Computerized Physician Order Entry	✓	VA
Infection Control	✓	
Medication Administration Record	✓	
Nursing Care	✓	
Physician Documentation (with Voice Recognition (Dragon))	✓	
Ambulatory		
Ambulatory Referral Management	✓	VA
<i>Discern nCode</i> [®] (Computer Assisted Coding)	✓	
<i>PowerChart Ambulatory</i> [™]	✓	
Practice Management: Pt Accounting	✓	
Practice Management: Reg & Sched	✓	
Behavioral Health		
Behavioral Health: Acute Care	✓	VA
Behavioral Health: Ambulatory	✓	
CareAware & Device Connectivity		
iBus Device Connectivity	✓	VA
Manager Driver Library License	✓	
Cardiology		
<i>PowerChart Cardiovascular</i> [™]	✓	VA
<i>PowerChart ECG</i> [™]	✓	

Source: James Breeling, MD, “EHRM Transition for RACGWVI,” Veterans Administration, September 5, 2018, https://www.va.gov/RAC-GWVI/meetings/sep2018/EHRM_Transition_Breeling_508compl.pdf.

Exhibit 4 (continued) Alternative: The VistA System Architecture

VA EHR Capability Requirements			Support Services		
Laboratory			Point of Care & Mobility		
		VA			VA
Anatomic Pathology (Millennium)		✓	Barcode Medication Administration		✓
Anatomic Pathology (CoPathPlus)			Bedside Transfusion Management		✓
Anatomic Pathology RFID Tracking		✓	CareAware Connect™		✓
PathNet®: General Laboratory		✓	Handheld Specimen Collection		✓
PathNet: Helix		✓	POC Device Integration		✓
PathNet: HLA		✓	PowerChart Touch™		✓
PathNet: Microbiology		✓	Population Health & Analytics		
PathNet: Transfusion		✓			VA
Oncology			HealtheAnalytics™		✓
		VA	HealtheAnalytics: Revenue Cycle		✓
PowerChart Oncology™		✓	HealtheCare™		✓
Patient Accounting			HealtheDatalab		✓
		VA	HealtheEDW™		✓
Patient Accounting		✓	HealtheRecord™		✓
Perioperative			HealtheRegistries™		✓
		VA	Quality & Performance Improvement		
Anesthesia		✓	Quality Outcomes		✓
AORN Syntegrity Content		✓	Regulatory Reporting		✓
SurgiNet®: Perioperative Nursing Management		✓	Radiology		
SurgiNet: Surgery Case Tracking		✓			VA
SurgiNet: Surgery Management		✓	ACR Select		✓
Tissue and Implant Management		✓	Integrated Digital Dictation		✓
Pharmacy			RadNet®: Mammography Management		✓
		VA	RadNet: Radiology Information System		✓
ePrescribe		✓	Research		
Multum Drug Database		✓			VA
PharmNet®: Inpatient Pharmacy		✓	Health Facts®		✓
PharmNet: Outpatient Pharmacy		✓	PowerTrials®		✓
Prescription Drug Monitoring Program		✓	Supply Chain		
		VA			VA
		✓	Clinical Supply Chain		✓
		✓	Point of Use		✓
		✓	System Access		
		✓			VA
		✓	724 Access® Downtime Viewer		✓
		✓	P2Sentinel™		✓
		✓	Single Sign-On		✓
		✓	Skybox™ Mobility		✓
		✓	Transaction Services		
		✓			VA
		✓	Address Validation		✓
		✓	Automated Messaging		✓
		✓	Claims Management		✓
		✓	Contract Management		✓
		✓	Electronic Prior Authorization		✓
		✓	Eligibility Verification		✓
		✓	Letters		✓
		✓	Medical Necessity		✓
		✓	Patient Statements		✓
		✓	Transplant		
		✓			VA
		✓	OTTR Complete Cellular		✓
		✓	OTTR Complete Organ		✓
		✓	Women's Health		
		✓			VA
		✓	FetaLink: Fetal Monitoring		✓
		✓	PowerChart Maternity™: Acute		✓
		✓	PowerChart Maternity: Ambulatory		✓
		✓	Workforce & Operations		
		✓			VA
		✓	Asset Management		✓
		✓	Capacity Management		✓
		✓	Demand Management		✓
		✓	Patient Driven Acuity		✓
		✓	Workforce Management		✓

Source: James Breeling, MD, "EHRM Transition for RACGWVI," Veterans Administration, September 5, 2018, https://www.va.gov/RAC-GWVI/meetings/sep2018/EHRM_Transition_Breeling_508compl.pdf.

Exhibit 5 VHA Project Communications: Announcement to Veterans

With VA's new EHR system, Veterans will:

- 

No longer need to keep up with printed health records, repeat tests or provide basic info, such as drug allergies, with each provider.
- 

Have potential health risks tracked and identified earlier.
- 

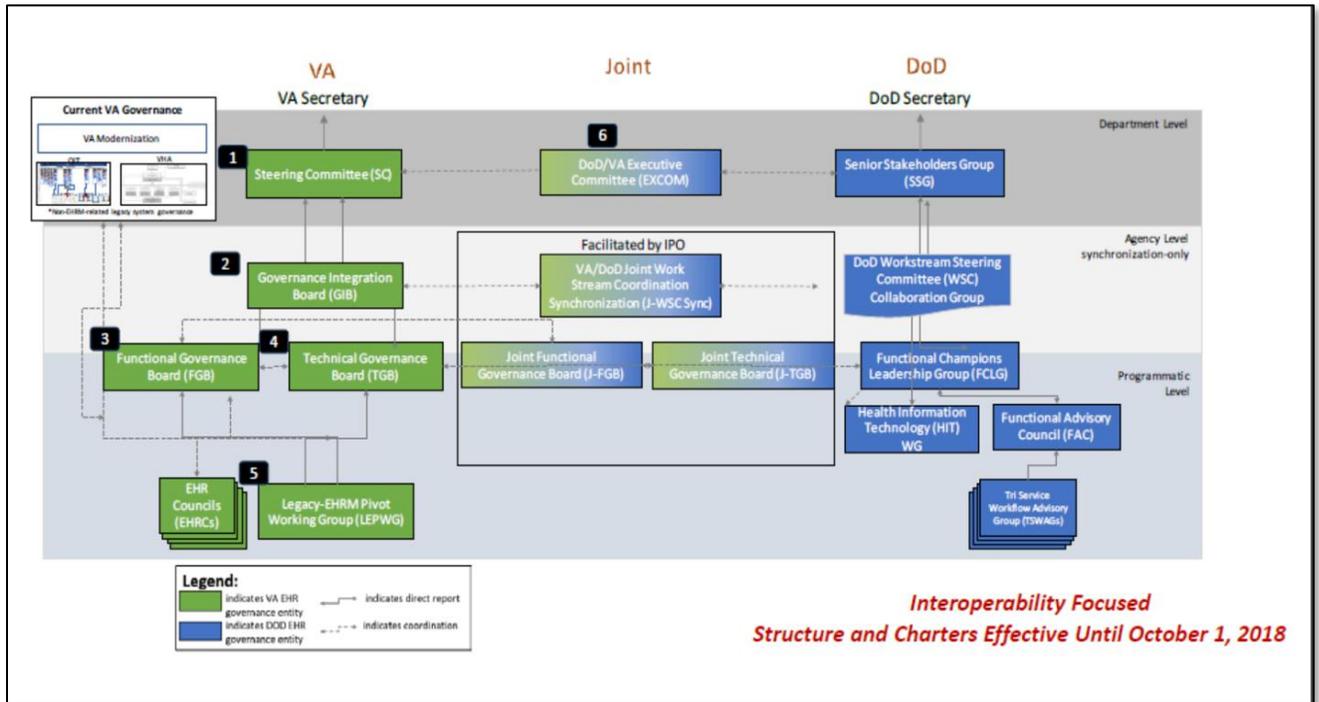
Receive preventive care with treatments based on where and when they served.
- 

Benefit from improved strategies to address suicide risk and post-traumatic stress disorder.
- 

Be protected from opioid abuse, with prescribers using a national prescription drug monitoring report to inform medication decisions.

Source: "How VA's Electronic Health Record Modernization Effort Will Benefit Veterans," VA/EHR Modernization, <https://digital.va.gov/ehr-modernization/how-vas-electronic-health-record-modernization-effort-will-benefit-veterans/>.

Exhibit 6 VA and MHS Genesis Governance Diagram



Source: James Breeling, MD, “EHRM Transition for RACGWVI,” Veterans Administration, September 5, 2018, https://www.va.gov/RAC-GWVI/meetings/sep2018/EHRM_Transition_Breeling_508compl.pdf.

Exhibit 7 User Assessment of Pilot Implementations

Table 2: Department of Veterans Affairs Electronic Health Record (EHR) Modernization Program Post-deployment Feedback on New EHR System

Site	Dates	Average summed system usability scale score
Mann-Grandstaff VA Medical Center	February – March 2021	24.38
Jonathan M. Wainwright (Walla Walla)	May – June 2022	32.33
Central Ohio (Columbus)	July 2022	24.14
Roseburg	July – August 2022	23.19
Southern Oregon (White City)	August 2022	24.72

Source: GAO analysis of Department of Veterans Affairs reported data.

Scale: 1-100, with score of 68 considered average (response rate: 12-22%).

Source: “Electronic Health Records: VA Needs to Address Management Challenges with New System,” U.S. Government Accountability Office, May 2023, <https://www.gao.gov/assets/gao-23-106731.pdf>.

Exhibit 8

Extent to Which the Electronic Health Record Modernization (EHRM) Program’s Activities Were Consistent with Organizational Change Management Leading Practices

Leading practice	GAO Assessment
Developing a vision for change	Partially consistent – The department developed a vision to have a comprehensive electronic health record (EHR) accessible across the Department of Veterans Affairs (VA), the Department of Defense (DOD), and community care providers to enhance the quality of health care through a new EHR system and standardized clinical practice workflow processes. However, VA has not established a VA-driven strategy for change. A Veterans Health Administration commissioned report from April 2021 noted the need for a VA-driven change management strategy to formalize the structure and people capabilities to support the readiness of end users and drive adoption. As of January 2023, it had not provided documentation of a VA-driven change management strategy.
Identifying and managing stakeholders	Partially consistent – The program identified stakeholder groups, created a stakeholder communication strategy and plan, and conducted numerous workshops at the national and local level for the purpose of engaging, identifying, and analyzing stakeholders. However, we previously reported that VA did not always effectively communicate information to stakeholders, including medical facility clinicians and staff, to ensure relevant representation at local workshop meetings and that the department did not have a stakeholder register to identify and engage key stakeholders for the EHRM program. ^a We recommended that VA develop such a tool. EHRM program officials said that in August 2022 they began conducting workshops with Directors from future implementation sites to focus on site stakeholder engagement. If VA continues to focus on site stakeholder engagement, this should better position the department to effectively identify and manage stakeholders, while addressing our open recommendation.
Communicating effectively	Partially consistent – The program defined a stakeholder communication plan to engage with stakeholders involved with the EHR system implementation and deployment. The program used various methods to communicate with program stakeholders and documented over 5,000 completed communications between December 2018 and October 2022. However, users of the system indicated that information on system changes and the status of trouble tickets were not effectively communicated after initial system deployment. Further, in November 2020, the program identified a risk that a communication plan had not been established to inform VA end users of changes, major incident management, upgrades, and package releases and as of July 2022, this risk was still open and a communication plan for changes in sustainment had not been finalized. In October 2022, EHRM program officials said that rather than developing the sustainment communication plan they were communicating through weekly user updates. However, department documentation of feedback from sites continued to show the need to distribute more frequent updates on change requests and system downtimes.
Assessing the readiness for change	Partially consistent – The program assessed its readiness for change by conducting change readiness questionnaires to serve as a baseline assessment across the initial deployment sites and to allow a tailored change effort to address gaps. According to the program office, as of January 2023, VA conducted 55 questionnaires at 28 deployment sites. However, VA received limited responses to questionnaires assessing readiness for change and results from the questionnaires indicated that users were not ready for the change. Further, the program did not have assurance that it had resolved potential problems in a timely fashion.
Increasing workforce skills and competencies	Not consistent – Numerous assessments and reports identified that training has been a weakness for the program. EHRM program officials acknowledged that training did not meet users’ expectations and effectively supported the transition because the contractor-provided training focused on using the system. However, users needed additional training and support for learning the new workflow processes simultaneously. They said the program took a number of actions to address training issues, including adding additional clinical experts to support onsite training and increased use of a hands-on practice environment (i.e., sandbox). In addition, in September 2022, the department’s contractor, Oracle Cerner, announced that it would work with an outside entity to make the training more efficient, applicable, and useful for caregivers. To address the lack of familiarity with VA workflows and processes, the department noted it worked with Oracle Cerner to define additional change management activities through development of role-focused adoption pathways. Nevertheless, with the halt in future deployments, VA has not yet been able to demonstrate whether these actions to increase workforce skills and competencies have been effective.
Identifying and addressing potential barriers to change	Partially consistent – The program identified activities to monitor resistance to change. For example, VA conducted site visits and change readiness questionnaires, to gather feedback and propose actions or recommendations to address feedback. In addition, the Secretary conducted a Strategic Review, which identified barriers that needed to be addressed. As of January 2023, VA had

Leading practice	GAO Assessment
	completed 45 of 69 actions identified in the review, and 24 were in progress. VA planned to complete these action items by October 2024.
Establishing targets and metrics for change	Partially consistent – The EHRM program proposed various metrics for change such as the amount of time spent in the EHR system, and the number of patients seen in an ambulatory setting. The program also identified metrics for the performance of the new system such as measuring veteran experience, health care operations, workforce support, and quality and safety. However, VA had not fully established targets to measure the adoption of the change. In addition, the department did not have a plan that outlined the metrics, including agreed upon targets, to measure the results of the change. VA reported in November 2022 that it was continuing to refine functional and technical quality standards to define success, including metrics to define access to care and clinical operational efficiency, but did not provide a timeline for when it would be final.
Assessing the results of change	Partially consistent – To measure adoption, the EHRM program collected data, such as amount of time spent in the EHR system and the number of patients seen in an ambulatory setting. Further, the program has been tracking performance metrics such as veteran experience, health care operations, workforce support, and quality and safety since initial deployment in October 2020. However, VA had not fully identified specific targets and users shared examples of concerns about their productivity using the new system and veterans’ access to care. In addition, the program had not demonstrated that it had taken action needed to ensure that the change has been reinforced and sustained. For example, a March 2021 survey aimed at measuring Mann-Grandstaff users’ perspective on their ability to use the new system noted that 82 percent of users agreed or strongly agreed that the new EHR was cumbersome to use, and 84 percent agreed or strongly agreed that the new EHR was unnecessarily complex.

Legend: **Consistent** – VA provided evidence that it conducted organizational change management activities mostly consistent with leading practices. **Partially consistent** – VA provided evidence that it conducted organizational change management activities consistent with some of the leading practice criteria, but some key parts were not followed. **Not consistent** – VA did not provide sufficient evidence that it followed leading practices. Source: GAO analysis of VA data. | GAO-23-106731.

^a GAO, Electronic Health Records: Ongoing Stakeholder Involvement Needed in the Department of Veterans Affairs’ Modernization Effort, GAO-20-473 (Washington, D.C.: June 5, 2020) and Electronic Health Records: VA Needs to Address Data Management Challenges for New System, GAO-22-103718 (Washington, D.C.: Feb. 1, 2022).

Source: “Electronic Health Records: VA Needs to Address Management Challenges with New System,” U.S. Government Accountability Office, May 2023, <https://www.gao.gov/assets/gao-23-106731.pdf>.

Exhibit 9 April 2023 VA Press Release: Reset of EHR Project

WASHINGTON — Today, the Department of Veterans Affairs announced that future deployments of the new Electronic Health Record (EHR) will be halted while we prioritize improvements at the five sites that currently use the new EHR, as part of a larger program reset.

During this reset, VA will fix the [issues with the EHR](#) that were identified during the recent [“assess and address” period](#), continue to listen to Veterans and clinicians about their experience with the EHR, and redirect resources to focus on optimizing the EHR at the sites where it is currently in use: Spokane VA Health Care System, VA Walla Walla Health Care, Roseburg VA Health Care System, VA Southern Oregon Health Care, and VA Central Ohio Health Care System.

Additional deployments will not be scheduled until VA is confident that the new EHR is highly functioning at current sites and ready to deliver for Veterans and VA clinicians at future sites. This readiness will be demonstrated by clear improvements in the clinician and Veteran experience; sustained high performance and high reliability of the system itself; improved levels of productivity at the sites where the EHR is in use; and more. When these criteria have been met and the reset period concludes, VA will release a new deployment schedule and re-start deployment activities.



Source: “VA Announces Reset of Electronic Health Record Project,” April 27, 2023, press release, U.S. Department of Veterans Affairs, <https://www.va.gov/roseburg-health-care/news-releases/va-announces-reset-of-electronic-health-record-project/>.

Exhibit 10

Updated 2023 Financial Analysis

- VA contracted with the Institute for Defense Analyses to provide an independent cost estimate for the program. In September 2022, the Institute reported that the EHRM life cycle cost estimate was \$49.8 billion:
 - \$32.7 billion for a 13-year implementation phase and
 - \$17.1 billion in sustainment costs for the following 15 years.
- VA has reported obligating about \$7.98 billion on EHRM from fiscal year 2018 through the first quarter of fiscal year 2023. This includes three areas:
 - the EHR contract (\$4.49 billion),
 - IT infrastructure (\$2.61 billion), and
 - program management (\$882 million).
- In addition, VA reported obligating about \$1.27 billion and \$170 million on the program from the Veterans Health Administration (VHA) and the Office of Information and Technology (OIT), respectively.

Source: “Electronic Health Records: VA Needs to Address Management Challenges with New System,” U.S. Government Accountability Office, May 2023, <https://www.gao.gov/assets/gao-23-106731.pdf>.