

ELECTRONIC HEALTH RECORD Comprehensive Lessons Learned



July 2021

VA



U.S. Department
of Veterans Affairs

Successful implementation of a modern EHR is essential in delivering lifetime, world-class health care for Veterans and their families, caregivers, and survivors. We must get this right.

Foreword

Denis R. McDonough
Secretary, U.S. Department of
Veterans Affairs



Serving our Nation's Veterans is a sacred trust. To that end, the U.S. Department of Veterans Affairs (VA) has long been a leader in technology and innovation. VA now must march forward into the modern era – one in which we continue to lead on interdisciplinary and whole-person care. Reflective of the transparency and management rigor required to deliver on that charge, I am pleased to provide you with this report on the recent comprehensive strategic review of the Electronic Health Record (EHR) Modernization (EHRM) program. I extend my gratitude to Congress for giving VA the opportunity to implement a joint record with the Department of Defense (DoD).

Achieving the full promise of a joint record between VA and DoD to enhance care and services for Servicemembers and Veterans will represent a quantum leap forward in American medicine. With unified, seamless, trusted information flow between VA and DoD, VA can further empower Veterans and their families, caregivers, and survivors to achieve health and wellness; enable VHA care teams to deliver best-in-class access and outcomes as a highly reliable organization, while creating joy in work; and enhance our ability to innovate and advance Veteran care and services. Furthermore, this effort improves interoperability between VA's new enterprise-wide inventory management system—the Defense Medical Logistics Standard Support (DMLSS), VA's new financial management system—Financial Management Business Transformation (FMBT), and the Veterans Benefits Administration (VBA) systems.

VA's first implementation of Cerner Millennium occurred on October 24, 2020 at the Mann-Grandstaff VA Medical Center in Spokane Washington. When I began my tenure as Secretary in February, proactive engagement with Veterans, Veterans Service Organizations (VSOs), VA employees, and Members of Congress revealed ongoing concerns with the project. Reports

from the Government Accountability Office (GAO) and Office of the Inspector General (OIG) reflected a range of issues, many of which have also been reflected in press reporting, and it troubled me that multiple stakeholders were citing a perceived lack of transparency on this project as a longstanding issue. On this basis, I directed a top-to-bottom strategic review of the Electronic Health Record Modernization program. President Biden gave me the charge of “fighting like hell” for Veterans, and to that end, this review was a necessary means.

At my direction, and under the supervision of the Acting Deputy Secretary, a diverse group of senior subject matter experts and leaders from across the enterprise conducted the comprehensive strategic review. I ordered the review period not exceed 12 weeks, so it did not become an endless bureaucratic process without tangible outcomes we can immediately action. These leaders and subject matter experts swiftly gathered a broad range of internal and external stakeholder perspectives, analyzed findings from GAO and OIG investigations, and conducted deep dives into a plethora of areas, including, but not limited to: patient safety; productivity; governance and management; cost, schedule, and performance; patient portal; testing; data; change management and training. Additionally, the group consulted with leading private sector health care systems with Cerner experience for their expertise, lessons learned and best practices.

During these 12 weeks, we worked diligently and collectively to listen to Veterans, frontline clinicians and employees, industry professionals, oversight partners and other external stakeholders. My team continues to synthesize findings, and I commit to keeping you apprised and provide full transparency as we reimagine our approach and develop a way forward.

To begin, the strategic review illuminated a broad range of issues on patient safety to diminished productivity that was further compounded by the effects of the COVID-19 pandemic. Through interviews and feedback from Veterans, VA learned that the patient portal experience was fragmented for Veterans in Spokane post “go-live” and clinical and interdisciplinary workflows were not tested in a manner that effectively reflected a real-world environment. VA understands that gaps remain in the ability to govern and manage data between the two EHRs and with DoD. In addition, change management and training were not effective in ensuring interdisciplinary employees both understood and had effective support in completing the key functions of their roles.

Moving forward, VA is implementing new cost controls and a unified, enterprise-wide governance structure that incorporates the perspectives of clinical, technical, acquisition, and finance leaders to bring joint functional expertise to the program, provide support and meet overall needs for successful EHR implementation.

This report describes the findings of the strategic review and outlines our reimagined approach for Electronic Health Record Modernization. We intend to achieve improvements that will enhance care and services, empower employees to deliver continued excellence, strengthen enterprise program integration and management oversight, and ensure our operations run as an integrated suite of benefits and services.

Throughout the report, you will find a consistent theme of the importance of effective management of people, processes, and technology for a transformation of this scope and scale as well as jointness and increased transparency.

At VA, Veterans are our top priority. We are committed, alongside DoD, to realizing the full promise of a modern, integrated record to cultivate the health and well-being of those we serve. I look forward to advancing our shared mission and to our continued partnership in ensuring the delivery of lifetime, world-class health care and services for Veterans.

Table of Contents

Foreword	i
Executive Summary	3
Approach.....	7
VA's Path to Success.....	9
Improving the Veteran Experience	11
Ensuring Patient Safety.....	13
Providing Extended Training to Frontline Employees	15
Building Confidence at VA Sites	17
Implementing Organizational & Program Improvements.....	20
Improving Operational Efficiencies.....	22
Making Governance Effective	25
Centralizing Data Management for Workers & Veterans.....	27
Reimagining VA's Approach.....	29
Appendix A. Acronyms and Abbreviations Used in This Report	31



“As I’ve often said, we as a nation have many obligations, but we only have one truly sacred obligation: To properly prepare and equip the women and men we send into harm’s way and to care for them and their families, both while deployed and when they return.

Every single Veteran deserves world-class health care and the support that they have earned — no matter their gender, race, disability, sexual orientation, or anything else. We owe you. It’s as simple as that.”

– President Joseph Biden, March 22, 2021



WHY VA CONDUCTED A STRATEGIC REVIEW

Following implementation of the new EHR System at the Mann-Grandstaff VA Medical Center in Spokane, Washington in October 2020, Veterans, employees, and external stakeholders raised concerns.

VA conducted a 12-week top-to-bottom Strategic Review of the EHR Modernization (EHRM) program to develop a comprehensive understanding of the status of the program and its impact on Veterans and employees.

HOW VA CONDUCTED THE STRATEGIC REVIEW

Under the supervision of the Acting Deputy Secretary, a diverse group of leaders and subject matter experts (in consultation with leading private sector health care systems with Cerner experience), analyzed findings from GAO and OIG investigations, and conducted deep dives into a plethora of areas to review issues and identify solutions to address them

Executive Summary

WHAT VA LEARNED DURING THE STRATEGIC REVIEW

VA established eight workstreams covering all aspects of the program to ensure successful EHR implementation across sites applying the comprehensive lessons learned. Below is a summary of the progress made so far and proposed objectives and performance measures.

Improving the Veteran Experience



Veterans and their families are frustrated by the transition to the Cerner patient portal and reported

a fragmented online experience. VA is addressing Veteran insights by using human centered design to integrate its current digital experience with the back-end Cerner system. Ultimately, VA.gov will become a single Veteran online experience that integrates all Veteran transactions—across health, benefits, and memorials.

Ensuring Patient Safety



Numerous patient safety concerns and system errors were identified during the strategic review. VA

established a Patient Safety Team to determine and resolve the EHRM patient safety concerns at Mann-Grandstaff. Mitigation plans are in place for the multiple issues identified. Through expanded training, and documented guidelines and workflow re-engineering, staff are able to better understand their roles and responsibilities.

Providing Extended Training to Frontline Employees



VA identified a need to standardize communication and improve training, so

employees better understand the change in their roles. VA created Change Leadership Teams responsible for guiding staff through change and is redesigning training leveraging adaptive learning to account for variations between facilities and a greater presence at sites. Going forward, VA is empowering its Change Leaders through a centralized repository with comprehensive readiness checklists. VA continues to empower the facility-based Informatics Steering Council (ISC) to resolve knowledge gaps.

Building Confidence at VA Sites



There is a need to improve site readiness planning and testing, reduce staff

shortages prior to go-live, and upgrade physical and IT infrastructure. VA is deploying sandbox environments to increase end-user testing to improve adoption and it is establishing an interdisciplinary team to oversee the quality of test plan development and execution. VA is establishing go-live dates that allow for sufficient time to finish infrastructure upgrades, change management activities, and interface development. A Joint Deployment Coordination Team responsible for all pre- and post- deployment activities will be established at each site.

Implementing Organizational & Program Improvements



VA must improve its management of the EHR program and integration by focusing on technical and organizational challenges. A review of the contract has been completed, and VA is updating the EHRM work breakdown structure (WBS) to include all program work, as well as developing an enterprise integrated master

schedule (EIMS) and Life Cycle Cost Estimate (LCCE) for greater transparency of the schedule and cost of the program. Improvements to EHRMs risk management processes have been made and dashboards as well as immersive visual designs have been developed to provide a transparent view of program status. Moving forward, VA will continue to review all aspects of EHR program management, including finalizing correlation between the EHRM WBS and the project schedules and assignment of risk mitigations to action owners, a risk dashboard to monitor progress, and clear criteria for risk severity analysis.

Improving Operational Efficiencies



VA needs to clarify and streamline enterprise-based roles within and across clinical and practice workstreams, optimize workflow configurations, identify root causes of productivity drop offs, and improve end user experiences. VA is optimizing clinical access to

the system and adding specificity to workflows to ensure essential functions are captured. VA is monitoring post deployment work productivity and system availability and deploying additional staff if needed. All ticketed end-user experience issues and change requests are being addressed. VA continues to identify and address operational issues from the Mann-Grandstaff experience and assess the lessons learned for applicability to future implementation sites. A current state end-to-end operational workflow review is also underway. A key finding at Mann-Grandstaff is the lack of an effective Revenue Cycle function in the Cerner product. Actions are being taken to address and fix this major deficiency which, if not resolved, will limit future deployments.

Making Governance Effective



Greater clarification and empowerment of a governance structure is needed, ensuring stakeholder

input, and enabling timely decisions communicated through one voice. VA is restructuring governance to ensure key stakeholders participate in all decisions. VA is considering several means to improve communications before and after all EHRM decisions. A priority moving forward includes that governance, performance, and risk management, reporting and analytics and decision-making activities are made in coordination and through a joint, unified voice.

HOW VA PLANS THE WAY FORWARD

VA is using the momentum of the Strategic Review to move toward a Veteran-centered approach to continue to identify areas of opportunity, make improvements at Mann-Grandstaff and increase future deployment site readiness.

A successful EHR deployment is essential in the delivery of lifetime, world-class health care for our Veterans. VA is committed to successfully deploy the new EHR system for the Veterans we serve and to drive the nation's health care industry forward.

Centralizing Data Management for Workers & Veterans



The current structure of EHRM data syndication is unable to meet facility and VISN needs, including a lack of data migration quality review cycle and a need for manual intervention of imported VistA data. There are also gaps in enterprise reporting and analytics due

to challenges with the usability, and complexity of managing the data. A Data Integrated Project Team (IPT) has been iterating, testing, and validating a common information model (CIM) to support data management, the issues of manual intervention, data quality and inconvenience to Veterans at the point-of-service. VA continuing and enhancing the Data IPT to ensure high quality data as well as strengthening a functionally focused team to develop a value realization plan and implementation strategy to include metrics at the local and enterprise levels. By December 2021, VA plans to publish the VA Data Strategy Roadmap integrating EHR modernization actions.

Vision

Empower Veterans, Service members and care teams, with longitudinal health care information to enable the achievement of health and life goals.

North Star

VA, in partnership with DoD, will ensure that unified, seamless and trusted information:



Empowers Veterans and their families, caregivers, and survivors to achieve health and wellness.



Enables VHA teams to deliver best-in-class access and outcomes as a highly reliable organization and creates joy in work.



Enhances VA's ability to innovate and advance care and services for Veterans.

The Strategic Review was approached holistically to cover all areas of operations affected by the EHRM program.

Approach

The strategic review was approached holistically and covered all areas of operations affected by the EHRM Program, including patient safety, productivity, training and change management, testing and validation, data model and management, programmatic integration, site readiness and technical integration, integrated governance management, Veteran and employee experience and cost, schedule, and performance: The Acting Deputy Secretary, with frequent engagement from the Secretary, led an enterprise-wide, joint effort with organizational partners from across the Department, including the Office of Electronic Health Record Modernization (OEHRM), the Office of Acquisition, Logistics, and Construction (OALC), the Veterans Experience Office (VEO), the Office of Information & Technology (OIT), the Office of Enterprise Integration (OEI), the Veterans Benefits Administration (VBA) and the Veterans Health Administration (VHA.), among others. From March through June 2021, key leaders and subject matter experts met to develop joint understanding of the status of key objectives, re-establish key performance indicators (KPI), identify dependencies and risks, and provide recommendations for addressing opportunity areas. A deep-dive analysis and review of EHR contract requirements, schedule management, spend plan and organization were conducted, and a range of key leaders, including the Secretary, traveled to Spokane to hear directly from Mann-Grandstaff employees. VA appreciates the Government Accountability Office (GAO), Office of the Inspector General (OIG)'s and all other stakeholder efforts in illuminating insights that match findings by VA and are included as necessary next steps for future deployments of EHR.



The table below describes the approach for conducting the Strategic Review, including the sources and inputs provided by various stakeholder groups, informing the analysis and guiding development of this report.

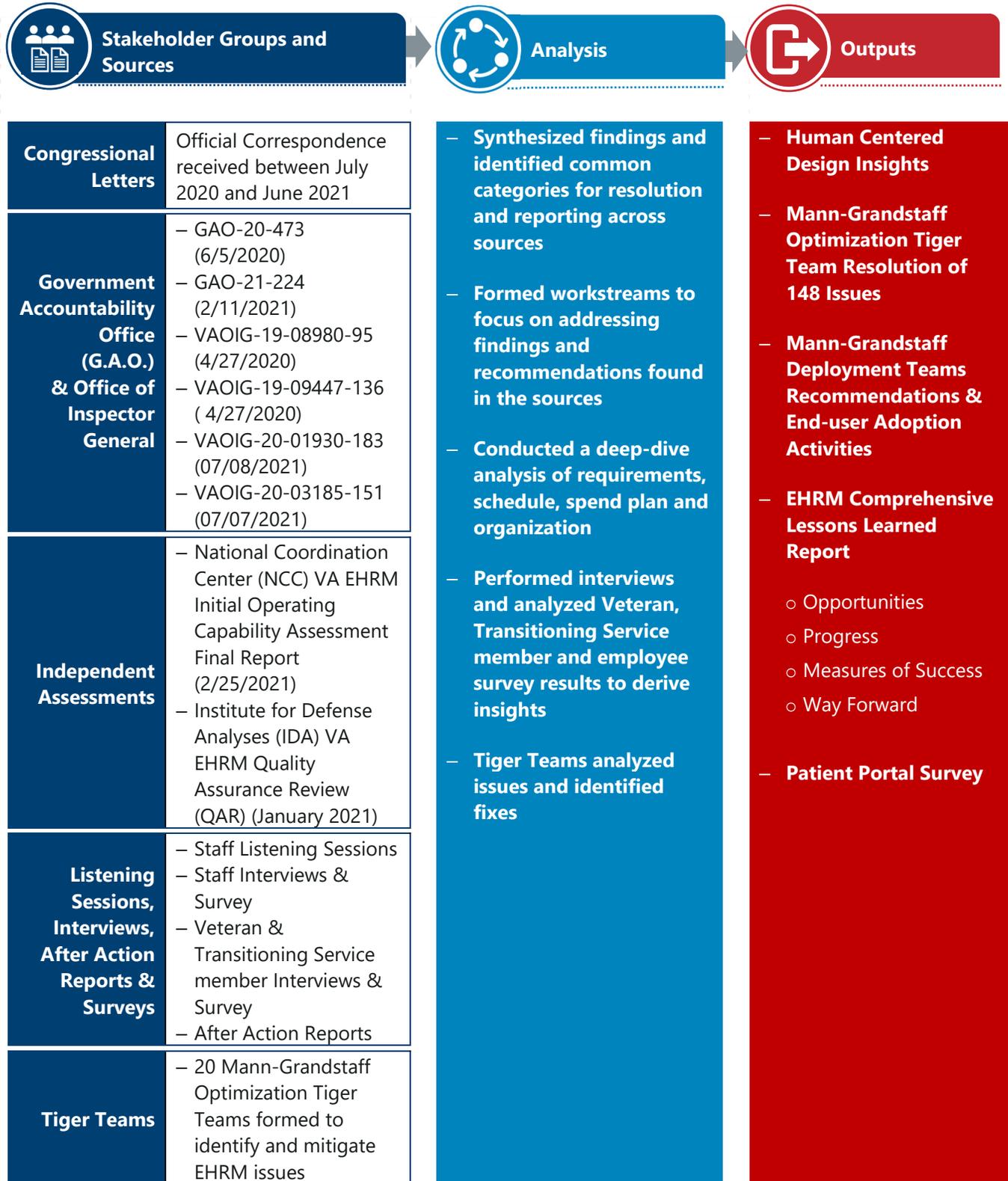


Table 1. EHRM Comprehensive Lessons Learned Approach

VA's Path to Success

This Strategic Review establishes a reimagined approach to ensure the success of EHR implementation and to prevent and reduce issues at future deployment sites.

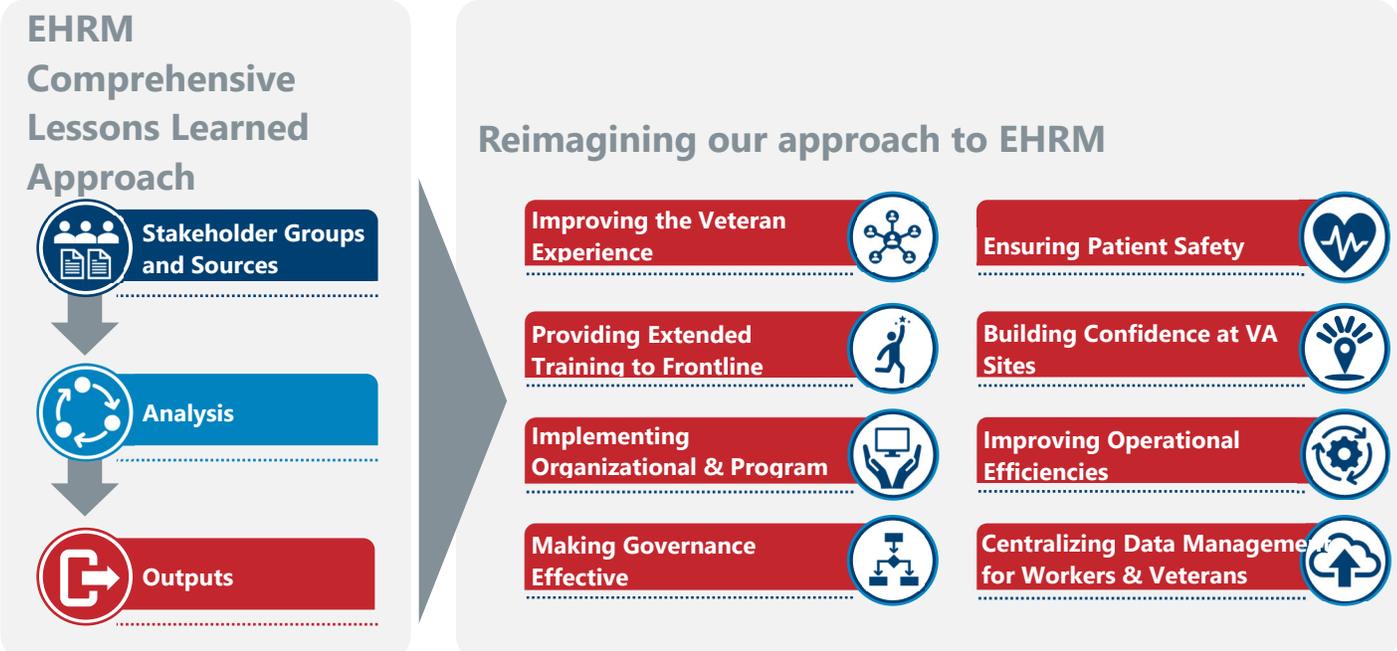
During the EHRM Strategic Review, VA identified areas for improvement and opportunities for progress and continues to work toward successful integration of EHR, while simultaneously providing optimal health care services and COVID-19 response efforts to our Veterans.

Through the systematic analysis of the findings and recommendations, VA organized itself into workstreams. The workstreams included Change Management, Communications & Training, Data Syndication, Governance & Operating Rhythm, Information & Infrastructure, Productivity & Patient Safety, Sandbox, Veterans Experience & Patient Portal.

In addition, contractual requirements, schedule, spend plan and organizational deep dives were conducted to ensure critical functional, technical, and programmatic issues are addressed.

By reimagining our approach to EHRM, VA has identified key areas listed in Figure 1, to ensure the success of future deployments and to prevent and reduce issues at future sites. This report describes the opportunities, progress, proposed measures of success and way forward.

NOTE: All measures of success and way forward are proposed and are currently under review.



Key Areas for EHRM

Improving the Veteran Experience



Moving forward to create a seamless and harmonized VA digital experience using a Human Centered Design approach.

Ensuring Patient Safety



Ensuring clinical and practice management systems are functional and providing staff with tools to deliver the safest, most effective and timely, evidence-based care to Veterans.

Providing Extended Training to Frontline Employees



Ensuring frontline employees have the right tools and training to make full use of the EHR features to provide world-class care to Veterans.

Building Confidence at VA Sites



Ensuring site and technical infrastructure is configured to meet system and user requirements, is well-tested, and is fully operational to support the provision of care.

Implementing Organizational & Program Improvements



Establishing effective management and project oversight to optimize cost, schedule, programmatic performance, and governance.

Improving Operational Efficiencies



Ensuring productivity and clinical workflows are optimized and the system is configured to maximize operational efficiency.

Making Governance Effective



Channeling data-driven decisions through a single governance body, incorporating stakeholder inputs and ensuring that good management discipline is applied, and risk-management is rigorous.

Centralizing Data Management for Workers & Veterans



Ensuring clinical and practice management systems are functional with a secure unified Veteran-centered data model.

Improving the Veteran Experience

Moving forward to create a seamless and harmonized VA digital experience using a Human Centered Design approach.

VA leveraged Human Centered Design (HCD) methodologies, to understand, address and improve the patient portal and overall VA digital experience for Veterans, Service members and VA staff, a unique experience to Veterans separated from service. VA assessed the landscape of its most-used digital products to capture the voices of Veterans, transitioning Service members and VA staff to better understand current and desired experiences. VA conducted interviews, observed user interactions with VA's online websites, reviewed artifacts and synthesized and analyzed qualitative data to identify the patterns and insights below.



Opportunities

- Veterans and their families are confused by the transition to the Cerner patient portal, often miss or overlook common communication methods and want to easy-to-follow or one-on-one guidance.
- Veterans have a fragmented online experience with multiple entry points and sign-in pages, creating confusion and frustration.
- In the new patient portal, Veterans struggle with refilling prescriptions, increasing the risk of missed refill orders.
- In My VA Health, Veterans can no longer see a list of the VA providers with whom they have a relationship, making it harder for them to initiate secure messaging to their Patient Aligned Care Team (PACT), potentially leading to a gap in communication.
- Mental health providers reported that Veterans can now only see the chief complaint of their progress notes in the portal, creating confusion and mistrust.
- Provider message pool design led to unclear Veteran reminders, lost messages, and excessive inbox messaging to providers, impacting appointment scheduling, resources, and workflow.

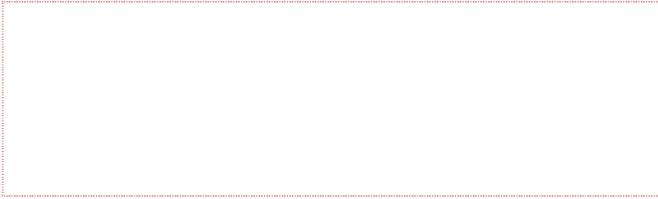


Progress

- VA's goal is to make the EHR transition invisible to Veterans by integrating VA's current digital experiences with the back-end Cerner system, providing Veterans the benefit of an integrated health record without the downside of a traditional patient portal transition.
- VA will integrate all Veteran transactions—across health, benefits, and memorials—into a single Veteran online experience on VA.gov to create seamless access to VA's unique and holistic suite of services, including health care information and transactions, benefits, billing/payments, record management, process/status tracking, and end-of-life benefits planning.
- VA used a human-centered design approach with direct interviews with Veterans, Service members and VA staff to capture user experiences and pain points. Findings included seven common themes and 19 insights with opportunity areas that will inform future system design updates.

Short-term fixes to address the current user experience:

- VA is working to streamline prescription refills within the current My VA Health portal, working with Cerner to enhance their commercial capabilities to better support Veteran prescription management. (e.g., default renewal settings and/or batch renewals of multiple medications.)



- A provider filter will be incorporated into the portal in June 2021 to improve the Veteran message reminder process and restrict erroneous messaging to providers with whom the Veteran has no relationship.



Measures of Success*

- Digital patient experience utilization measures: number of unique users per month, number of appointments made, number of secure messages sent, number of prescriptions refilled and renewed, number of health records viewed.
- Helpdesk tickets related to digital patient experience tools.
- Overall customer satisfaction with VA's online experience and specific health capabilities.
- Utilizing VA's customer experience framework as codified in 38 C.F.R. § 0.603, measure the Veteran digital experiences:
 - o I trust VA to create a digital experience that meets my needs
 - o It was easy to utilize VA's online health tools.
 - o I got the services I needed through the VA's online health tools.
 - o I feel like a valued customer when using VA's online health tools.



Way Forward*

- Using HCD principles, with collaboration across VA and Cerner, VA will prioritize user insights and develop a plan to achieve the system changes needed to harmonize the experience for all portal users so that VA's digital transformations are seamless and invisible to Veterans and other users.
- Using APIs provided by Cerner and Cerner's underlying system capabilities, VA will re-integrate the patient portal experiences at Cerner sites and VistA sites into VA's main digital experiences provided on VA.gov, making the Cerner transition invisible to Veterans as implementations of the modernized EHR proceed across the country.
- VA will empower Veterans with access to their own health record by implementing standards-based health data APIs that allow Veterans to access their joint VA/DoD record through a variety of approved third-party health applications.

* All measures of success and way forward are proposed and are currently under review.

Ensuring Patient Safety

Ensuring clinical and practice management systems are functional and providing staff with tools to deliver the safest, most effective, and timely, evidence-based care to Veterans.

Preventing and reducing risks to patients is of paramount importance to the VA Veterans must trust VA staff, their knowledge, and the facilities they visit and have confidence that their safety is of top priority. VA makes every decision with Veterans safety in mind and will continue to do so.



Opportunities

Patient Safety Reports

- Many issues were reported through the Cerner ticketing system and through other reporting mechanisms that were identified as potentially impacting patient safety.
- **While patient safety managers working in the Joint Patient Safety Reporting System use standard definitions and risk-severity scoring criteria, end users do not always follow those definitions when submitting tickets.**
- In addition, the same issue may be reported more than once. This has resulted in different counts of the total number of safety issues and the status of the issues.

Patient Safety Concerns

- Risks to patient safety related to incomplete data migration, usability issues, complicated workflows, busy screen, manual work arounds, lack of training and faulty data must be addressed.
- Safety concern that fixes are not delivered in a timely fashion.

Patient Safety System Errors

- Pertinent patient information (medical history, medication list, allergies) do not populate/import from Power Chart into EDRM.
- Referrals to some specialties did not match the actual programs in that specialty; the referral types did not exist in the system and staff resorted to sending encrypted emails to notify each other.
- Key forms were not correctly routed.



Progress

Patient Safety Reports

- **The patient safety definitions have been shared with the vendor and discussions are underway to streamline the reporting process to ensure that accurate numbers of incidents can be easily obtained.**
- All key stakeholders have completed their review of issues reported through any mechanism where patient safety concerns were raised. The issues were consolidated, reviewed using the common definition of a patient safety issue, risk stratified and categorized. Reviews are underway to assess all other issues reported during the post-implementation period. Risks and issues have different levels of impact and likelihood of occurring and are categorized by areas of focus. No incidents of significant patient harm related to the deployment occurred.

Patient Safety Concerns

- VA has established a Patient Safety Team to examine all EHRM patient safety related concerns at Mann-Grandstaff, devise a resolution strategy for addressing all patient safety issues, and ensure communication and feedback is shared with patient safety managers and end users from ticket submission to solution.

Patient Safety System Errors

- Mitigation plans are in place to address patient safety system errors.
- Training has been developed as part of mitigation strategies to assist future sites through the use of an enhanced testing and training environment. This

- Prescription delays or errors (e.g., Veterans not receiving their prescriptions when needed or receiving the wrong prescriptions).
- Errors tracking and placing orders because of lack of training on the system.

- will assist in providing evidence-based confidence in mitigation strategies.
- Veterans' identity management and data migration issues have been escalated for development of advanced business rules or evaluation of alternative strategies.
- Reports are being run daily to identify orders/consults or other data sent to the unknown queue so that they can be corrected.
- VA is developing guidelines for Veterans Integrated Services Network (VISN) and VAMC employees to ensure roles and responsibilities are clearly defined and understood.
- Training is being expanded to include desktop exercises and other forms of interdisciplinary training environments.



Measures of Success*

- All (or > 90%) of Patient Safety issues are resolved.
- Percentage of successfully completed pharmacy orders.
- Percentage of successfully completed diagnostic exams.
- Percentage of successfully complete patient referrals.
- VA will develop a mitigation strategy and timeline for all open issues by end of July 2021.
 - Full resolution dates will be known by August 30th, 2021.



Way Forward*

- VA will develop a mitigation strategy and timeline for all open issues by end of July 2021.
- Patient safety teams will continue to organize patient safety issues into common domains and determine causative factors and methods of approach toward resolution.
- A documented patient safety strategy is under development and will include a communication strategy with standardized communication for all safety-related issues; on-call schedule/phone numbers for strategic partners personnel, a strategy for national/VISN/and local-level clinical and informatics team collaboration, a mitigation timeline, Safety Incident Engagement Process; tracking process, issue taxonomy, recommendations and contact list of key partners.
- VA subject matter experts (SME) will address workflows, new roles and responsibilities for end users, alerts & reminders, summary of root cause analyses to date, testing to "break the system", and establish a "stop-the-line" function.

* All measures of success and way forward are proposed and are currently under review.

Providing Extended Training to Frontline Employees

Ensuring frontline employees have the right tools and training to make full use of the EHR features to provide world-class care to Veterans.

VA will provide the right tools to staff and ensure they are appropriately trained and prepared to make full use of the EHR features to provide world-class care to Veterans. The following recommendations refer to training, communications, change management, stakeholder engagement and organizational development activities.



Opportunities

Leadership

- An EHRM Enterprise solution must be pursued by VA leadership to minimize local variations and maximize functionality. Empowering the Informatics Steering Committee (ISC) is essential to ensure internal and external stakeholder engagement.
- Clearly defined and robust enterprise definitions, policies, roles, and procedures for the ISC User role assignments are a fundamental prerequisite for training and go-live that requires site supervisor approval.

Training and Coaching

- Employees at-large felt inadequately trained for their responsibilities that translated into operational errors. There was insufficient time to schedule and prepare for trainings, which resulted in employees confused about the purpose of the training activities and their roles in them.

Communication and Change Management

- There is a need for standardized communication and comprehensive communication planning across the VA/OIT/Cerner partnership. Improving the monitoring and management of change management deployment effectiveness needs to occur through centralized and standardized change management development, communication, and execution.



Progress

Leadership

- By establishing a maturity model, VA has determined the level of change capacity needed for leadership at all levels of the organization, recognizing existing variability across facilities and VISNs and setting a standard for expectations.
- VA is focusing on building change management skills for leadership roles across the organization, including empowering facility-based Change Leadership Teams and clearly defining the role, policies and procedures that will lead them to successfully guide their teams through change.

Training and Coaching

- VA is redesigning and expanding training to reflect an enterprise operating model and creating a new interdisciplinary training environment, as well as use adaptive learning to ensure adjustments are made based on facility differences. Sites will now be fully prepared with materials and guides to assist in training and best practices for training leveraging adult learning theory. VA is developing workflow-based training scenarios and additional site support to understand the "Why" for EHRM needs.

Communication and Change Management

- Collaboration approaches are being developed across VA, and stakeholders are meeting weekly to ensure current and correct knowledge sharing is occurring at all levels of the organization. VA is empowering its Change Leaders through a centralized repository of change management artifacts that will be developed upon determination of the sustainment training plan. OEHRM has created a VA EHRM page on VA's Insider news page with artifacts such as videos, fact sheets, toolkits,

and a style guide. A joint SharePoint site with created by OIT with Communication Plans (COMPLANs) is accessible by all VA EHRM communicators including VHA, OIT, OEHRM, Office of Public and Intergovernmental Affairs (OPIA), and OEI.

- Through a more comprehensive approach, VA has made many changes in response to the lessons learned:
 - Developing a comprehensive readiness checklist.
 - Developing a "Sandbox" environment that mirrors the production environment for training and testing.
 - Increasing engagement and using the expertise at the end user level to apply towards decisions at the councils.
 - Improving training methods to make knowledge transfer more effective to the end user by better equipping the super users and clinical adoption.
- VA is formalizing the development of informatics resources at deployment sites to support end users through deployment and sustainment of the new EHR



Measures of Success*

- Percentage of medical center users who express confidence in using the EHRM system.
- Percentage of users/critical superusers trained.
- ADKAR (Awareness, Desire, Knowledge, Acceptance, Reinforcement) progression (Percentage of identified stakeholders who have progressed in their ADKAR self-assessment based upon the stakeholder engagement/change management plan).



Way Forward*

- Change management is critical to successful deployment of the modernized EHR VA's plan moving forward includes synchronizing communication engagements for a single unified enterprise voice, as well as ensuring internal/workforce stakeholders are informed and have trust in the program and VA
- VA will focus on developing an end-to-end training framework that encompasses Cerner training while providing for a holistic team-based approach, incorporating supporting Health Information Technology within the clinical and business processes, and is based on best-practice business process re-engineering.

* All measures of success and way forward are proposed and are currently under review.

Building Confidence at VA Sites

Ensuring site and technical infrastructure is configured to meet system and user requirements, is well-tested, and is fully operational to support the provision of care.

Site Readiness and Infrastructure

VA is ensuring the EHR technical infrastructure is configured to meet user required experiences, is well-tested, and is fully operational to support the provision of care, even before the scheduled go-live date. VA will provide the tools to ensure staff are appropriately trained and prepared to make full use of the features to provide world-class care to Veterans. Site readiness integration includes facility-level training and change management activities, testing and validation, information technology and facility construction infrastructure activities. VA must support and encourage employees at facilities to continue working together to ensure capability and readiness of sites before go-live dates.

Testing

VA is committed to ensuring that EHR systems are tested and fully operational and meet system readiness requirements. Environments will be provided that assure technical Infrastructure development and implementation, system configuration and interface test planning activities.



Opportunities

Site Readiness

- Improve site readiness planning and assessment procedures to ensure resource availability, appropriate data acquisition, development and prioritization of test scripts, schedule development and planning and decrease the occurrences of common issues observed in previous EHRM systems implementation.
- Staffing shortages may impact go-live readiness and support resulting in increased user frustration.

Infrastructure

- Significant upgrades are needed to VA's physical and information technology (IT) infrastructure.
- Current state reviews do not include observations on physical infrastructure.
- Joint Legacy Viewer (JLV) has up to a two-minute delay and closes between patients, impacting provider usage of the system.

Testing & Validation



Progress

Site Readiness

- Assessed readiness through developing a Systems Readiness Test Plan, conducting thorough system testing, dry runs, and tabletop exercises to ensure readiness of systems for cut over and awareness of responsible parties, roles, and assignments.
- Incorporated lessons learned from earlier deployments to improve planning, including go-live communication, go-live staffing coverage and cut over process plans to test readiness.

Infrastructure

- VA is looking to and planning of essential infrastructure upgrades.
- VA site assessments will include an engineering review and assessing the adequacy of the physical infrastructure building off previous assessments; findings will inform the schedule.
- Infrastructure constraints contributing to JLV latency from data center to desktop are being investigated.

- The Systems Readiness Test Plan was inadequate to ensure resource availability, appropriate data acquisition, development and prioritization of test scripts, schedule development and planning.
- End users did not have access to an EHRM Sandbox to practice their workflows and learn system functionality.

Interfaces

- Initial deployment required 73 interfaces and will require due diligence and robust management to minimize net new interfaces to reduce additional complexity and cost.

System Issues

- Significant system issues were observed, including:
 - Partially established ticket and help desk operations, which impacted user functionality and satisfaction.
 - User fatigue resulting from excessive amount of medication alerts.
 - Burdensome effort to frequently log in/out.
 - There is no option to create "ad hoc" appointments for unscheduled phone conversations with patients, leading to lost credit and revenue.

Testing & Validation

- VA will enhance system testing (user acceptance, load, integration, and systems testing) to optimize go-live and support end-user adoption by employing the newly developed end user sandbox and focusing on increasing individual and team readiness.
- Developing an evaluation plan and establishing an interdisciplinary team to oversee the quality of test plan development and execution.

Interfaces

- VA will set go-live dates with sufficient time to finish interface development and testing that includes stakeholder engagement, ensuring resolution of issues related to interfaces.

System Issues

- VA and Cerner employees are actively engaged in addressing technical and operational issues. Issues are being systematically analyzed, categorized, and prioritized to be addressed. A dashboard is being built to provide transparency on the status of resolution of the tickets.
- The team has resolved alert log concerns and is reviewing scheduling and billing policies to submit modifications.
- Pharmacy is conducting ongoing review of medication alert logs. The Tiger Team identified nine changes that would significantly decrease the number of alerts.
- VA is reviewing current appointment scheduling and billing policies and needed modifications. and awaiting approval for a single-sign-on change request.



Measures of Success*

- Percentage of system and data test issues successfully remediated before a Go-Live.
- Average help desk ticket # of days to resolution, # of total open help desk tickets, % of open help desk tickets assigned to an analyst, % of help desk tickets in testing phases, % of closed help desk tickets.



Way Forward*

- VA will build trust and confidence with Veterans and VA staff through incorporating lessons learned, proactive planning, providing ongoing support, engaging end users throughout system design, testing, roll-out and optimization, to ultimately provide an EHR that meets the needs of the organization.

- # of total generated medication alerts per day, # of medication alert overrides, trending the % of medication alerts that result in a change to the medication order, % of prevented medication errors.

- VA is considering the stand up of an independent Test & Evaluation (T&E) function to increase confidence in the product deployed at sites.
- Plan for establishing a Joint Deployment Coordination Team responsible for all pre- and post- deployment activities at each site, consisting of a team of cross functional experts, to ensure a repeatable and consistent site readiness process across at each site. This would include all change management, on-site testing, and training coordination.
- VA will develop metrics for workforce readiness and will develop change management activities to address needs to resolve issues impending readiness. It will also consider development of criteria to delay implementation if readiness is not present. Deployment team would obtain signoffs to confirm satisfactory completion of all requirements for site readiness

** All measures of success and way forward are proposed and are currently under review.*

Implementing Organizational & Program Improvements

Establishing effective management and project oversight to optimize cost, schedule, programmatic performance, and governance.

Effective integration and program management is critical to ensuring timely clinical and practice management system implementation. This section highlights VA's overall approach for improving EHR program management and integration.



Opportunities

Requirements

- There are significant technical and organizational challenges which must be addressed.

Schedule

- The work breakdown structure (WBS) and Integrated Master Schedule (IMS) do not capture all work, particularly activities not funded by OEHRM.
- Lack of an enterprise integrated master schedule (EIMS).
- Evaluate the deployment schedule, including Capability Set 2.0, in relation to optimization activities and areas of focused assessment.

Spend Plan

- Develop a Life Cycle Cost Estimate (LCCE) that includes all costs throughout the life of the program.

Organization

- Ensure the EHRM program has the appropriate organizational structure, management, strategy, adherence to industry best practices, change management philosophy and oversight to ensure it delivers actual value to the end user.

Performance

- Identify desired outcomes of the program, select metrics to align with these outcomes and develop a leadership dashboard to track the program's progress toward these outcomes.



Progress

Requirements

- A review of the contract has been completed and if necessary, additional task orders will be created to support the success of future deployments.

Schedule

- VA is updating the EHRM (WBS) to include all program tasks and work.
- An EIMS is under development, along with a corresponding dashboard that provides greater transparency on the schedule and the status.

Spend Plan

- VA is developing an LCCE that includes all costs throughout the life of the program.

Organization

- Review of the EHRM organization was conducted and changes needed to address issues are under evaluation.

Performance

- Lessons learned were captured, along with an analysis of performance measures and KPIs.

Risks

- Risk management process and EHRM risk register were reviewed, and improvements identified (tighter integration between schedule, scope, budget).

Dashboards

- Design for an ecosystem of tools has been built to integrate the various inputs and tools used for tracking lessons learned, performance data, risks, issues, action plans and decisions, with a knowledge

Risks

- Shortcomings in schedule, cost and risk management practices revealed deficiencies in VA's program management processes.
- Lack of identification of enterprise risks. Risks are not adequately aligned with organizational goals and objectives.

repository of information artifacts that support effective mitigation of risks.

- Dashboards and immersive visual designs have been developed to provide a consolidated and transparent view of the program status and the achievement of strategic outcomes that can be leveraged at appropriate governance forums.



Measures of Success*

- All schedule dependencies are reflected in an I.M.S.
- All costs for the entire lifecycle of Priority Initiatives (PIs) are reflected no matter who has budgetary authority.
- Percentage of schedule key milestones met (this measure should eventually be replaced by a Schedule Performance Index measure once a maturity level is reached in the Integrated Master Schedule).
- Percentage of capability elements in the I.M.S. with defined cost estimates based on the program Life Cycle Cost Estimate (LCCE) ((this measure should eventually be replaced by a Cost Performance Index measure once a maturity level is reached in the Integrated Master Schedule).
- Effectiveness of risk management process (Percentage of risks adjudicated within the targeted timeframe).



Way Forward*

- VA will continue to review all aspects of EHR program management through an iterative process and ensure there is a continuous assessment of schedule, costs and operations needs and support.
- VA is resolving task dependency network issues and verifying existence of task baselines.
- The correlation between the EHRM WBS and the project schedules guiding EHRM deployment efforts will be finalized.
- VA will consistently adhere to the policies and standards described in the EHRM Schedule Management Plan which defines the policies, standards, processes, and procedures governing EHRM schedule management practice.
- Clear linkage between schedule milestones and associated risks will be established. and vice versa. Risk mitigations will be assigned to an action owner and monitored until risk is mitigated. Clear criteria will be applied for risk severity analysis and all risks will be reported via a risk dashboard.

* All measures of success and way forward are proposed and are currently under review.

Improving Operational Efficiencies

Ensuring productivity and clinical workflows are optimized and the system is configured to maximize operational efficiency.

VA is committed to ensuring clinical and practice management systems provide staff with tools to deliver high-quality, cost effective, timely and safe evidence-based care to Veterans. Integrated operations refer to end-to-end process workflow development, design and configuration activities, functional and baseline mapping and activities that optimize the user adoption in all relevant environments including clinical, administrative, and business operations. By focusing on operations' technical details, VA ensures that each process functions at its optimal level and that employees are empowered to work effectively and efficiently. As VA updates processes throughout its healthcare system, the dedicated staff who care for our Veterans provide recommendations to maximize operational efficiency without sacrificing patient safety. In this way, VA empowers its employees deliver high-quality, cost efficient, timely and safe care to Veterans.



Opportunities

Lack of Role Clarity and Duplicative Roles

- Clarify and streamline roles within and across clinical and practice workstreams so all users have the access they need while protecting patient privacy to ensure there are no duplication between roles and unnecessary redundancy.

Workflows

- Optimize workflow configurations to allow the right level of agility and aid productivity to avoid confusion, miscommunication, and rework.

Productivity

- Monitor post-development work productivity, specifically system availability to address staff and patient needs.
- Identify root causes of productivity drop-off at Mann Grandstaff post go-live and address. Focus on four key areas to be improved, measuring success through key KPIs since go-live, which include bills generated, billing collections and referrals.
- Apply lessons learned to future implementations.

End-User Experience

- Improve end-user experience, especially functionality issues, prioritizing tickets that affect



Progress

Lack of Role Clarity and Duplicative Roles

- VA is reviewing roles to ensure that all members of the clinical and VBA teams have appropriate access to view the same content and enter data appropriate to their roles. As additional facilities deploy, roles will continue to be optimized to reflect an enterprise definition of specific utilization of the Cerner product.
- VA is instructing managers and leadership across the enterprise to work with their users and encourage their involvement in ensuring challenges are identified, addressed, and resolved before go-live.

Workflows

- VA is determining essential functions of roles and teams and how they must be adjusted in existing workflows. Once workflows have been finalized, the appropriate level of testing and training will be performed.

Productivity

- VA is monitoring post deployment work productivity, site performance and system availability and prioritizing the availability of additional post deployment staff to maintain site readiness.

quality, safety and efficiency of care and decreasing alert fatigue from system notifications.

- Improve processes to identify user role mapping to ensure that domain group, training and workflow assignments are correct.
- Clinical staff spent significant time reconciling a range of clinical information from the different systems, as well as printed documents, to get through a single visit.

- Clinical reconciliation of migrated data is critical to ensure the safest and most efficient care after deployment. The complete end-to-end process of review and reconciliation will be documented and opportunities for improved efficiency identified and implemented.

End-User Experience

- ISC at medical facilities are prioritizing concerns and necessary configuration changes and communicating operational challenges and potential resolutions to VHA leadership. For example, VHA Revenue Operations is working with Cerner on several issues and has developed a workplan that will incrementally improve timely billing until reaching the target claim rate metric agreements.
- Alert and notification systems are being managed better and address concerns of providers who reported "alert fatigue."
- In a VISN 10 pilot, User Role Access Coordinators and the individual Site Service Chiefs are validating that their personnel and roles (primary and secondary) are appropriately assigned. If successful, this pilot will be used as a model moving forward.
- All end-user experience issues that have tickets and change requests are being addressed. Work groups are making significant progress in areas including referral management, new encounters, behavioral health, and others.
- VA is re-engineering ticket and change request functionality to ease transfers from each system and reduce the level of technical knowledge required. This will help address issues and gaps not captured in the National Councils' requirements development processes.



Measures of Success*

- Claims are filed within seven days of a clinical encounter; auto-biller error rates reach contracted targets.
- Seamless transfer items from ticket system to change request system.
- Number of tickets post go-live related to User Role Assignment (U.R.A.), patient safety, time to resolution of critical and major issues.
- Percent of documentation completed after hours.
- Provider satisfaction scores.
- All potential patient safety risks are resolved prior to Columbus go-live.
- All high-impact workflows have quality, safety, and productivity metrics, with 80% of staff trained on their use.
- Development and delivery of a workforce development training work plan and maturity model for staff for a minimum of the top five critical workflows in each department (with step-by-step, click-by click instructions with screenshots).
- Operational metrics on stabilization of workflows.
- Percentage of auto-posting accuracy for 3rd party claim payments.
- Average time to complete initial patient intake in the EHRM system.
- Average number of patients seen per day.



Way Forward*

- VA is continuing to address operational issues from the Mann-Grandstaff experience and assess the lessons learned for applicability to future implementation sites.
- Develop pre- and post- implementation support to better manage change.
- Evaluate VISN 10 role-mapping pilot for applicability to future implementation sites.
- A current state end-to-end workflow review is underway. VA will develop a future state workflow process and design that will include identification of necessary specialties, workflow optimization to desired future state and identification of respective workflows. As more facilities undergo current state reviews, VA will optimize enterprise workflows that truly reflect the end-user functionality of the system, not facility-based customization.

* All measures of success and way forward are proposed and are currently under review.

Making Governance Effective

Channeling data-driven decisions through a single governance body, incorporating stakeholder inputs and ensuring that good management discipline is applied, and risk-management is rigorous.

VA is using continuous learning and risk mitigation techniques to achieve timely actions and decisions, ensure patient safety and improve the Veteran experience. A priority moving forward includes that governance, performance, and risk management, reporting and analytics and decision-making activities are made in coordination and through a unified voice.



Opportunities

Governance Framework and Decisional Hierarchy

- Clarify and empower the program and enterprise governance structure to ensure overlaps with functional governance and that decision authorities are resolved and EHRM governance is decided on and communicated through one voice.

Integrated Initiative Governance and Transparency

- Strengthen key stakeholders' engagement throughout the governance structure to improve transparency and decision-making, particularly for integrated initiatives.
- VA did not effectively communicate with leadership regarding representation at workshops; therefore, relevant stakeholders did not have a voice at the table.
- Integrate the workforce's views into decision-making for the new EHR system deployment line.

EHR Councils

- Enhance two-way communication with front line employees throughout the implementation process.
- Re-engineer the National Councils to better integrate with VHA. governance, create agile feedback loops and drive transformation.



Progress

Governance Framework and Decisional Hierarchy

- VA is restructuring program-level governance forums to ensure key stakeholders participate in all decision making.

Integrated Initiative Governance and Transparency

- VA is maturing its decision framework, including authorities, program controls and escalation thresholds, to clarify roles and empower decision-makers at all levels. Evaluations were developed for every deployment and change management activity to assess stakeholder engagement and confidence. Results will be shared with site leadership to enforce participation.
- VA analyzed and recommended ways for key stakeholders to be involved in program decision-making and improve consensus-based approaches to EHRM decisions.
- VA is implementing a decision support tool to provide leadership timely, evidence-based inputs for time-sensitive decisions that support EHRM goals and objectives.

EHR Councils

- VHA is assessing the Electronic Health Record Councils (EHRC's) to ensure they are aligning with VHA. chain of command and assuring communication, enterprise engagement, transparency, and prioritization.
- Councils are being re-engineered and roles are being reevaluated to ensure appropriate subject matter experts are engaged.

- Improved communication tools are being developed to ensure open communication across the councils.
- VA is appointing service line chiefs to support the council structure.
- EHR council leaders have been interviewed and changes to better define the roles, escalation flows and feedback loops for the councils are being developed.
- VA will provide expanded orientation and training for council members. The Council members will be exposed to Cerner functionality so can make decisions informed by the software's capabilities and limitations.
- VA is working on developing a sandbox that replicates the production environment and may be used by council members to inform their decision making.



Measures of Success*

- Decision authorities are clearly understood and adhered to.
- Decisions are communicated to key stakeholders.
- Decisions are implemented.
- Decision forums are using the dashboard to inform decisions.
- Stakeholder consensus on C.S.R. approach and results (Y/N). "KPI for completion - Percentage of information requirements designed and built into dashboard. KPI for effectiveness - Percentage of governance forums using dashboard as a significant input for decision-making." All test findings closed/resolved.
- Speed of decision-making (Percent of decisions made in targeted timeframe).



Way Forward*

- Specific recommendations to adapt and mature the existing integrated priority initiative governance are drafted and being socialized throughout VA
- VA will analyze additional staffing requirements to support governance management, including support to strengthen program management review functions.
- VA is considering several means to improve communications before and after all EHRM decisions.
- There will be a formal orientation process for council members so that their decisions reflect enterprise goals.
- National Council members will have the opportunity to visit sites that have gone live to gain exposure to the EHR in a real-world environment to support iterative optimization as appropriate understanding that visits are disruptive to patient care.

* All measures of success and way forward are proposed and are currently under review.

Centralizing Data Management for Workers & Veterans

Ensuring clinical and practice management systems are functional with a secure unified Veteran-centered data model.

VA is ensuring clinical and practice management systems are functional, with a secure unified person-centered data model under VA data management policy and strategy. This recommendation focuses on activities aimed at improving centrally led data management and related infrastructure. VA's aim is standardization across medical facilities, with a focus on updates to the IT structure as VA continues to improve EHR. data captures to depict a wholistic view of the Veteran at the point-of-service, enterprise reporting and analytics, and an accurate assessment of progress and successes.



Opportunities

Data Syndication and Data Strategy

- Lack of data migration quality review lifecycle which is needed to ensure clinical workflow integrity.
- Significant variation between Cerner and VistA data that is required to support reporting, analytics, and research.
- Portions of data imported from VistA presented migration issues, necessitating a need for manual intervention of the data.
- Additional integration activities are required to migrate images into the VA EHRM solution.
- Current constitution of EHRM data syndication is unable to meet facility and VISN needs for real-time operational metrics because of inherent data processing delays.

Data Reporting

- Gap in enterprise reporting due to challenges with the usability of the data, including a lack of consensus regarding the root cause of reporting gaps.
- Mapping Cerner data to critical VA reports and creating a usable repository of analytic data is a complicated task of unprecedented magnitude for either organization.
- Reporting discontinuities of some enterprise reports that are infrequently updated (e.g., VA public reports and Medicare reporting for VA facilities) due to Cerner's varied approaches for



Progress

Data Syndication and Data Strategy

- A Data Integrated Project Team (IPT) has been iterating and testing and validating a common information model (CIM) to support data management between Millennium and VistA.
- In the context of validating the enhanced approach to data management, analyzed immunization data across the migration-syndication roundtrip.
- Validating a unified, objective, rules-based and operationally useful managed, Veteran-centric integration of the data as a prime targeted outcome.
- Addressed the issue of manual intervention of the data through establishing data decisions and workflows.
- Ensuring that additional integration activities can successfully migrate images into the VA EHRM solution through the CareAware MultiMedia (CAMP) v7.0 rollout.
- Work is currently being done on interface requirements to meet real-time data needs.

Data Reporting

- A new management dashboard has been developed for VAMCs as a result of a VHA assessment of EHRM reporting capabilities and gaps within Cerner, including the root cause of those reporting gaps.
- Confirmed path to training plan and timeline that included comprehensive training on reporting. Cerner Wiki was provided for additional information

capturing and calculating health quality and timeliness metrics.

- Some Cerner processes are so different that enterprise reporting continuity cannot be assured, necessitating re-baselining.

on commercial standard reports until training can occur.

- Using Key Analytic Questions (KAQs) method to drive development of a data model in VA enterprise data platform and map all syndicated data into that model so that discontinuous time periods can be accounted for and the data applied to meet VA enterprise reporting needs.
- VA is creating a Post Migration Data Analytics Team to ensure data is accurately identified, scrubbed, ready for testing and migrated for site readiness.
- VA is developing a value realization plan and implementation strategy, built on a solid foundation of managed data, to include the defining and establishment of metrics at the local and enterprise levels.



Measures of Success*

Measures are focused on foundational clinical data management. The following measures will be baselined, then periodically refreshed:

- % of entity-attributes (or comparable atomic-level objects) that are populated with data from Cerner, from VistA, or both (by domain).
- % of VA governance-approved Key Analytic Questions (K.A.Q.s) that can be answered using data from each primary store, or both together (by source).
- # of data-quality issues reported and trended over time against governance approved K.A.Q.s: number reported, (their severity,) number resolved, average time to resolution, stock-flow velocity (time of flight, time in flight), and type of issue (e.g. patient safety, semantic loss or divergence, etc.)



Way Forward*

- Complete evaluation and planning for the of the CIM to support site readiness assessments via site-specific data quality measures and feedback.
- Engage with external stakeholders and publish the data policy and supporting analysis to support creation of the CIM.
- Complete the joint data policy review with DoD and publish recommendations.
- Develop, test, and publish the end-to-end initial framework process, KAQs, and key metrics VA intends to be used to realize value by operationalizing the North Star.
- Strengthen API management in collaboration with Cerner to achieve unfettered access to VA data for use with third party applications to support health care at the point of service as well as sophisticated forms of data analytics.

* All measures of success and way forward are proposed and are currently under review.

Reimagining VA's Approach

We have listened intently to Veterans and frontline employees and understand there is much to be done. As a result, VA is reimagining its approach and is establishing a more strategic, integrated approach for guiding the EHRM Program going forward.

The Strategic Review provided the opportunity for a deep look—top to bottom—of the EHRM program. It afforded an opportunity to continue to engage with Veterans and frontline employees, including valued clinicians and other interdisciplinary and administrative professionals. If anything, this effort has underscored the complexity, scope, and importance of the effort we are undertaking to benefit Veterans and to move the health care industry forward.

VA has learned much from the strategic review and will apply these lessons to future health IT implementations. VA understands that there is much to be done and will continue working towards progress in identifying areas of opportunity to realize improved productivity and is using human centered design to make Veteran-centered improvements, including to our patient portal. VA is implementing additional optimization activities at Mann-Grandstaff that focus on Veteran safety & experience, revenue cycle and workload improvements. VA has also enhanced training, creating a "sandbox"—requested by users—to facilitate their ability to learn about the new system, and is integrating and aligning clinical data management under our VA Data Strategy and Roadmap.



Leveraging the improvement opportunities associated with the initial deployment at Mann-Grandstaff is critically important but not by itself sufficient. The EHRM is a major enterprise-wide transformation effort touching people, process, and technology. We are taking swift and decisive action to incorporate the management rigor and enterprise jointness required for this program to deliver on its intended purpose: seamless excellence in VA care for Veterans. This will include maintaining an EIMS that captures the interdependencies between the key milestones across various EHRM workstreams related schedules enabling critical path analysis. In addition, a dashboard and immersive and interactive visualization ecosystem of tools will be utilized to improve program management controls. The new approach will incorporate the inputs from lessons learned and performance measurement (operational, programmatic, and contractual KPIs) to identify and quantify risks. Immersive and interactive visual models will be used to proactively mitigate risks and ensure timely actions/decisions are taken to ensure patient safety and improved Veteran experience. This will also enable leadership decision-making by providing a foundation for sound governance and will ensure integration across VA's modernization programs. The new governance model will reduce the barriers for timely risk mitigation and increase collaboration and trust across all the key stakeholders.

As the deployment continues, VA will pursue a surge of activity in the coming weeks and months, intently focused on Veteran experience, patient safety and employee engagement. Specifically, VA will establish technical-only ("sandbox") deployment of Cerner technology at previously planned sites in Veterans Integrated Service Networks (VISNs) 10 and 20 – ensuring technical readiness without affecting Veterans or frontline clinical employees. In parallel, we will accelerate technical infrastructure upgrades required to deploy the EHR system as well as establish an integrated test and training environment for a dedicated enterprise end user team to continue to evaluate the functionality of the system. This will enable us to evolve our processes, training, and change management – and test our approach to build evidence-based confidence in the success of our next deployment before we "go-live" again.

VA will conduct enterprise-wide Current State Reviews, both technically and qualitatively, of all our facilities concurrently which were previously planned to be completed site-by-site over the life of the project - to assist in establishing an evidence-based view of enterprise site readiness and in developing an optimized deployment schedule for facilities beyond VISN 10 and VISN 20. This new approach will result in a shift from sequential site engagements over the next decade, to integrated enterprise readiness and planning.

VA is focused on improving the organizational structure and governance to become more responsive and effective as well as invest in training and change management capabilities to better prepare the workforce for the Cerner solution to be implemented at their individual locations.

VA will continue to listen carefully to Veterans and frontline employees, gather lessons learned and use this information to continuously improve future health IT implementations and the EHRM Program. A successful EHR deployment is essential in the delivery of lifetime, world-class health care for our Veterans. VA is committed to get EHR right for the Veterans we serve and to drive the nation's health care industry forward.

Appendix A. Acronyms and Abbreviations Used in This Report

Abbreviation	Definition
AAR	After Action Review
CAMM	CareAware MultiMedia
CIM	Common Information Model
COMPLANs	Communication Plans
DMLSS	Defense Medical Logistics Standard Support
DoD	Department of Defense
EDRM	Electronic Dental Records Management
EHR	Electronic Health Records
EHRM	Electronic Health Record Modernization
EIMS	Enterprise Integrated Master Schedule
FMBT	Financial Management Business Transformation
GAO	Government Accountability Office
HCD	Human Centered Design
IDA	Institute for Defense Analyses
IMS	Integrated Master Schedule
IPT	Integrated Project Team
IT	Information Technology
ISC	Informatics Steering Committees
JLV	Joint Legacy Viewer
KAQ	Key Analytic Questions
KPI	Key Performance Indicators
LCCE	Life Cycle Cost Estimate
NCC	National Coordination Center
OEI	Office of Enterprise Integration

Abbreviation	Definition
OEHRM	Office of Electronic Health Record Modernization
OIT	Office of Information and Technology
OPIA	Office of Public and Intergovernmental Affairs
PACT	Patient Aligned Care Team
PI	Priority Initiatives
QAR	Quality Assurance Review
SME	Subject Matter Expert
SOP	Standard Operating Procedure
URA	User Role Assignment
VA	Department of Veterans Affairs
VAMC	Veterans Affairs Medical Center
VBA	Veterans Benefit Administration
VHA	Veterans Health Administration
VISN	Veterans Integrated Services Network
WBS	Work Breakdown Structure