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Introduction

This report outlines the activities of the Federal Electronic Health Record Modernization (FEHRM) program office during calendar year 2020 (CY2020) as required by the National Defense Authorization Act for Fiscal Year 2020 (NDAA FY2020).

The FEHRM was chartered on December 4, 2019. During its first year of operation in CY2020, the FEHRM drove the single, common federal electronic health record (EHR) modernization effort forward. Today, the FEHRM delivers common capabilities that enable the Department of Defense (DOD), Department of Veterans Affairs (VA) and Department of Homeland Security's U.S. Coast Guard (USCG) to deploy the federal EHR.

A federal EHR helps DOD, VA, USCG and other partners effectively deliver health care and benefits to more than 27 million eligible beneficiaries by bringing a common record to patients and providers. This effort is vital; the DOD and VA's separate, legacy EHR systems are outdated and unable to create the seamless care experience offered by the federal EHR.

The federal EHR supports more effective and efficient clinical decision-making and provides enhanced patient care. To deliver this needed capability, the FEHRM continues to partner with DOD, VA and USCG on technical, functional and programmatic issues. Additionally, the FERHM works closely with the Office of National Coordinator for Health Information Technology (ONC) and national standards organizations to improve the continuity of care among and between public- and private-sector providers.

The FEHRM achieves its mission goals by actively managing risks and the operation of the joint Federal Enclave; minimizing risks to EHR deployment and implementation; identifying opportunities for efficiency, standardization and system and process optimization; and advancing interoperability across both the federal and private sectors.

Since inception and throughout this reporting period, the FEHRM has focused on the following priorities: operationalization and convergence; determining organizational funding and resource alignment; developing a communications strategy and tools; conciliating joint issue lists and establishing a framework to manage risks, issues and opportunities; establishing a formal decision forum to reconcile issues; managing joint software releases and configuration; analyzing and planning for joint/synchronous deployments; establishing and enhancing the joint health information exchange (HIE); and developing and operationalizing the Interoperability Modernization Strategy.



FEHRM Activities Toward Implementing A Single, Common Federal EHR

The FEHRM Role in the Federal EHR Space

The FEHRM delivers common capabilities in support of the shared mission of the DOD, VA, USCG and other partners to deploy a single, common federal EHR. These common capabilities refer to the common solutions, tools and activities the DOD, VA and USCG identify as needed in order for them to effectively deploy the federal EHR. In the EHR space, the FEHRM leads common capabilities, while the DOD, VA and USCG lead EHR deployments.

Common capabilities include:

- Advancing interoperability, supporting the meaningful use and exchange of data, including working closely with the ONC and national standards organizations to improve the continuity of care among and between public- and private-sector providers.
- Overseeing configuration and content changes to the EHR that are agreed on by the DOD and VA through a joint decision-making process facilitated by the FEHRM.
- Providing software upgrades and solutions to optimize EHR performance.
- Tracking joint risks, issues and opportunities as well as lessons learned regarding EHR implementation enabling proactive response and continuous improvement.
- Maintaining an integrated master schedule to help coordinate EHR activities and minimize the Departments' risk to deployment.
- Managing the Federal Enclave, which is a shared environment to contain the federal EHR and supporting systems.
- Managing the joint HIE, a data-sharing capability.

These capabilities drive federal solutions to support effective, patient-centered health care. The FEHRM provides health care providers with information technology (IT), bringing the right data about the right patient for the right encounter to enhance decision-making.

The FEHRM analyzes deployment activities at joint sharing sites. These sites, where resources are shared between DOD and VA, require a concerted de-confliction effort, but also present opportunities for efficiencies. In situations such as this, the FEHRM fosters careful collaboration, facilitates joint decision-making and contributes to a thorough understanding of the possible effects of asynchronous EHR deployment. With the FEHRM's contributions and solutions, DOD, VA and USCG can lead the deployment of the federal EHR.



FEHRM Partnerships in Enhancing Health Care

The FEHRM partners with multiple stakeholders at scale and complexity in this endeavor, as seen in Figure 1.

Figure 1: FEHRM Partners in Enhancing Health Care







In August 2020, the FEHRM named Mr. Bill Tinston Director and Mr. Ed Reyelts, Deputy Director. They report to the Deputy Secretary of Defense and the Deputy Secretary of Veterans Affairs. While the FEHRM Charter and the NDAA FY2020 give the FEHRM significant decision-making authority within the joint space, the FEHRM works through collaborative processes, procedures and forums to facilitate joint decision-making and issue resolution between the Departments at the lowest possible levels. In partnership with DOD, VA and USCG, the FEHRM created an environment, including collaborative processes, procedures and forums, to enable joint decision-making and issue resolution related to the federal EHR at the lowest possible levels between the Departments.

In addition to its work with DOD, VA, and USCG, the FEHRM works with private sector partners to pursue a seamless care experience for the more that 60 percent of DOD beneficiaries and more than 30 percent of VA beneficiaries who receive care within the private sector.

The FEHRM also engages with federal and standards organizations and private sector partners to advance interoperability standards that enable the exchange of information across all sectors of industry and Government, a key driver to effective transformation.



COVID-19 Response

In support of the federal COVID-19 response, the FEHRM remained focused on delivering capabilities to clinicians on the front lines, and their patients, throughout the reporting period. Progress with the single, common federal EHR did not slow down. In fact, COVID-19 demonstrated the success and critical need of a federal EHR. The federal EHR quickly adapted to the changing demands on the system and supported providers during the pandemic. It is far more adaptable and configurable than legacy systems. For example, with the FEHRM's support, DOD implemented COVID-specific configuration changes in the federal EHR within four hours. Comparatively, the same changes in legacy systems took nearly four weeks to implement.

While active EHR deployment activities were suspended temporarily to allow DOD and VA health care providers to focus on the COVID-19 pandemic response, the FEHRM focused on activities to advance technical solutions, capability delivery and joint initiatives without onsite engagement. For example, during the pandemic, the FEHRM, DOD and VA went live with the joint HIE capability. Currently, there is a single front door for health information exchange between DOD, VA and the private sector. The joint HIE increased data sharing with private sector partners from 18% of hospitals to 65% of hospitals.

In response to COVID-19 and the new normal of virtual health care, the FEHRM focuses on how the capabilities the FEHRM delivers can support the new normal. For example, COVID-19 demonstrated virtual health as a priority. The FEHRM explored joint opportunities to deliver telemedicine via connected virtual care capabilities. For example, the FEHRM, along with DOD and VA, leveraged VA's patient-facing video platform to develop a parallel platform for DOD.

During the pandemic, the FEHRM supported DOD's development of a mass vaccination process to assess the status of Service member vaccinations in order to ensure readiness—the ability to deploy. Cerner adopted this highly successful process, making the solution part of its baseline product. It's now available to all of their commercial customers. The FEHRM and DOD also integrated an Immunization Forecaster into the federal EHR to help pediatricians know when patients need the next round of appropriate vaccines. These efforts and more are especially timely to facilitate COVID-19 vaccinations.

Value-added Activities Supporting EHR Deployments

Despite the significant operational impacts of COVID-19, the FEHRM delivered value added capabilities integral to federal EHR modernization. These activities included managing common capabilities such as the EHR baseline; the Federal Enclave; monitoring activities; software releases and upgrades; and cybersecurity. Throughout CY2020, the FEHRM worked closely with DOD, VA and USCG functional, technical and site leadership to mitigate challenges and prioritize activities to advance solutions, capability delivery and joint initiatives supporting their requirement.



In CY2020, the FEHRM supported multiple notable events that advanced the single, common federal EHR, including the:

- FEHRM deploying the Joint EHR Software Capability Block 3.0 on August 7, 2020.
- VA deploying the VA Centralized Scheduling Solution (CSS), which streamlines appointment scheduling, in Columbus, Ohio on August 21, 2020.
- USCG going live at four initial USCG sites on August 29, 2020.
- FEHRM, DOD and VA publishing the DOD/VA Interoperability Modernization Strategy.
- DOD going live with Wave NELLIS on September 26, 2020.
- FEHRM, DOD and VA launching and expanding the joint HIE to include the CommonWell Health Alliance on October 9, 2020.
- VA going live at Mann-Grandstaff VA Medical Center on October 24, 2020.
- DOD going live with Wave PENDLETON on October 31, 2020.

The results of these activities proved significant. The federal EHR saves providers time and enables more standard workflows to support enhanced clinical decision-making. The federal EHR supports a better patient experience and better health care delivery by bringing a common record to patients and providers. Providers report spending less time on documentation, and more time on direct patient care and interaction.

Additionally, the federal EHR enhances patient safety. Barcoding and medicine reconciliation features substantially reduce inpatient medication harm events while automatic alerts notify providers of potential harm when administering medications containing opioids.

Interoperability Modernization Strategy

Publication of the Interoperability Modernization Strategy

During CY2020 Q1, the FEHRM established an Interoperability Modernization Strategy to support the development of the kicked off the development of the DOD and VA Interoperability Modernization Strategy.

The Advisory Group adopted the goals from the Office of National Coordinator for Health Information Technology (ONC) 2020-2025 Federal Health IT Strategic Plan to align with national health IT priorities. The FEHRM and the Advisory Group formed an Integrated Product Team (IPT) of DOD and VA subject matter experts across disciplines.

The FEHRM directed the strategy through formal coordination with both departments in quarter three and the DOD and VA Interoperability Modernization Strategy was signed by the DOD and VA Deputy Secretaries and delivered to Congress in CY2020 Q4.



Interoperability Progress and Accomplishments

The FEHRM's partnerships with DOD, VA, USCG and the private sector advanced interoperability significantly. Under the FEHRM's leadership and guidance, the departments and the private sector made significant progress in EHR interoperability. The following are examples of interoperability advancements during CY2020.

Electronic Health Record Modernization

Throughout the CY2020 reporting period, the FEHRM focused on operationalization and convergence in its mission to provide a single, common federal EHR. This operationalization and convergence strategy (Figure 2) unified efforts and delivered the common capabilities that add value to deployments including the EHR baseline; configuration and content management; software releases and upgrades; the Federal Enclave; cybersecurity; and virtual health. Further, during this reporting period, the FEHRM performed activities that advanced the creation of a common operating picture, identified joint opportunities and captured lessons learned.

Joint Content Strategy Risks, Issues Environments Joint Sharing and and Architecture Exchange and Sites Configuration Opportunities Roadmaps JSaAB Joint Register EMOC Joint HIE Asynchronous Deployment Modernization Strategy Playbook Functional Integrated Master National Standards **FHCC EHR Decision Group** Joint Software Release **Deployment Support** Joint Terminology Cybersecurity **Discovery Assessments** Mapping Assess joint impact and Analyze technical arena to Assess potential impacts of Establish and build on Outline and communicate Champion joint process, foster joint functional risks, prioritize and translate functional asynchronous EHR the joint foundation for a new interdepartmental streamline decisiondeployment at joint sharing expansion of national HIE. analysis/decision-makina requirements into interoperability strateay. providing more health care making, oversee execution executable action and sites, and recommend and enable operations for framework and roadmap. mitigation activities to the single joint baseline. and create and analyze mitigate risk to the shared data, faster. extending beyond EHR. the integrated schedule. operating environment. alleviate operational disruptions or synchronize deployment activities

Figure 2: FEHRM Operationalization and Convergence Efforts

Joint Health Information Exchange

In CY2020 Q2, the FEHRM launched the joint HIE, building upon the success of the DOD and VA's health information exchange work. The joint HIE connects DOD and VA providers with hundreds of private sector partners and serves as an expansive network of providers across the United States who agreed to securely share clinical information with their DOD and VA provider counterparts. This network enhances the ability of DOD, VA and USCG providers to



quickly and securely access patient electronic health information from participating private sector providers and vice versa.

This capability was further expanded during CY2020 Q4 with the integration of the CommonWell Health Alliance into the joint HIE. This expansion brought a nationwide network of 15,000-plus hospitals and clinics to the 46,000 community partners already part of the joint HIE. The CommonWell connection allows providers in the DOD, VA and USCG to access information on their patients' prescriptions, allergies, illnesses, lab and radiology results, immunizations, past medical procedures and medical notes to make the best care decisions.

Following the launch of the joint HIE, the FEHRM continued to support enhancements including enhancing patient matching double checks to accurately match patient data exchanged, a pre-fetch toggle to turn functionality on or off for individual partners and the option to bypass the joint HIE cache to send new patient discoveries and documents queried and received to all external partners.

Interoperability Standards

Throughout the reporting period, the FEHRM advanced several interoperability standards and activities through its government and industry partnerships. Examples of these efforts include:

- Basic Provenance: The 21st Century Cures Act and supporting draft ONC rule required providers to share "provenance" when sharing other patient data, but provided no testable, technical interpretation of that requirement. ONC asked the HL7 community to develop technical guidance, specifically requesting representatives from the FEHRM to drive the effort. The outcomes from this effort included the following:
 - The FEHRM convened providers, health IT vendors and policymakers to reach consensus that "author's organization" and "author's timestamp" matter the most for tracking data provenance.
 - Technical guidance on "Provenance" for C-CDA Patient Care Summaries was published and required by ONC's final rule.
 - Technical guidance on "Provenance" for HL7 FHIR Application Program Interfaces was published and required by ONC's final rule.
 - Basic Provenance for C-CDA and FHIR was published through HL7 in June 2020, establishing industry best practice for sharing basic provenance. It was also included in ONC's 2021 Interoperability Standards Advisory as an Emerging Standard for implementers to consider.

US FHIR Core: The US FHIR Core published on August 28, 2020, and the FEHRM monitored for additional changes to submit in future errata. The US Realm Steering



Committee and Cross Projects Work Group approved the proposed US Core Release Cycle timeline.

- Health Level 7 (HL7) Engagements: As a Benefactor Member of HL7, the FEHRM played a significant role in driving the development and implementation of health data standards, ensuring DOD and VA had a voice in the development and future direction of industry standards and interoperability.
 - Following each 2020 ballot cycle (January, May, and September), the FEHRM successfully developed and distributed the ballot cycle evaluation reports, which summarized accomplishments and status for projects and ballot outcomes.
- **ONC Engagements:** In CY2020, The FEHRM Director met with Dr. Don Rucker, the National Coordinator for Health IT, to discuss ONC health interoperability initiatives and challenges and determine ways for the ONC and FEHRM to collaborate. The FEHRM Director also briefed the Federal Health IT Coordinating Council (FHIT CC) during an ONC-hosted meeting with federal stakeholders. This engagement resulted in movement towards convening a meeting of federal purchasers and users of EHRs to enable ONC and FEHRM to improve their understanding of the federal EHR user landscape. The meeting is anticipated to occur in 2021 as part of the Federal Health IT Coordination Council (FHIT CC).

The FEHRM hosted the 10th Industry Interoperability Roundtable in November 2020 with panel discussions on the federal EHR and social determinants of health (SDOH).

Metrics and Analysis (M&A)

The FEHRM monitors, analyzes and reports progress towards interoperability and health data sharing across the Departments and private sector as well as the execution of the Departments interoperability modernization strategic goals and objectives.

- M&A Roadmap: The M&A Roadmap was signed on December 22, 2020. The M&A Roadmap prioritizes the measure identification, analysis and reporting activities for FY2021, articulates supporting methodologies and defines associated deliverables.
- M&A Integrated Product Team (IPT) and M&A IPT Charter: In CY2020, the FEHRM established the M&A IPT to advance and harmonize interoperability modernization measurement and reporting among the Departments and other federal partners. The M&A IPT Charter was signed on September 3, 2020. The M&A IPT supports the development of real-time data availability, recommends and supports the analysis and reporting of new measures, and established the FEHRM's Health Data Interoperability (HDI) Measurement Framework, which organizes metrics for reporting on the progress of interoperability modernization between the Departments and with



other federal and community partners. The framework is updated on an annual basis to represent the current state of reporting by the FEHRM and the Departments. The baseline HDI Measurement Framework includes four Interoperability Dimensions:

- Community Partnerships: Monitors the Departments' progress toward consistent, secure and reliable health data exchange by tracking eHealth Exchange partner onboarding, as well as joint HIE transactions between the Departments and private care partners.
- Department Integration: Tracks utilization of legacy and modern EHRs, which enables departmental leadership and Congress to assess the reliability of legacy systems and evaluate the Departments' progress in transitioning from legacy systems such as AHLTA and Veterans Health Information Systems and Technology Architecture (VistA) to the more interoperable modern EHR.
- Patient Engagement: Monitors metrics that demonstrate progress towards what the NDAA FY2020 defines as "seamless health care," in which health care is optimized through patient access to integrated, relevant, and complete information about their clinical experiences, social and environmental determinants of health, and health trends over time.
- Standards Adoption: The FEHRM's mission includes promoting the adoption of interoperability health data standards and oversight of Department implementation of such standards. Standards use enables the seamless integration of health records between DOD, VA and private sector providers.
- HDI Metrics Dashboard: During the reporting period, the FEHRM routinely evaluated HDI metrics to track progress toward modernization and enhancement of interoperability. Within the HDI Metrics Dashboard, each metric is displayed in its own graph. These graphs are grouped together based on their interoperability dimension (per the HDI Measurement Framework). The HDI Metrics Appendix is a more comprehensive document and includes each individual metric visualization as well as a thorough description of each metric and analysis of its change during a given quarter. In CY2020, the FEHRM delivered five HDI Metrics Dashboards and Metrics Appendices, four of each for the FEHRM's Interoperability Progress Quarterly Report, and one each for the FEHRM's CY2019 Annual Report to Congress. Figure 3 shows a snapshot of the baseline metrics from CY2020.



FEDERAL ELECTRONIC HEALTH DATA INTEROPERABILITY (HDI) METRICS DASHBOARD

(7 2020, Presented By: Federal Electronic Health Record Modernization (FEHRM) Program Office

Department Integration

Community Partnerships

Community Partnerships

Fig. 20

Fig. 10

Figure 3: Baseline Health Data Interoperability Metrics (January 2020 – December 2020)

FEHRM Goals for CY2021 and Beyond

Looking ahead, the FEHRM will continue to operationalize and focus on convergence in its effort to advance interoperability and drive the single, common federal EHR. To achieve these goals, the FEHRM will:

- Continue its unifying efforts and delivery of common capabilities that add value to deployments including the EHR baseline; configuration and content management; software releases and upgrades; the Federal Enclave; cybersecurity; and virtual health.
- Maintain an integrated master schedule.
- Track joint risks, issues and opportunities.
- Manage the joint HIE.
- Position itself as the single operator of the federal EHR.
- Identify and lead joint sharing site efficiencies and opportunities.
- Capture lessons learned to inform continuous improvement.
- Lead efforts to onboard federal agencies to the federal EHR.
- Expand communications to ensure continued stakeholder engagement.



Implementation Milestones

Implementation Milestone Reporting

The NDAA FY2020 requires the FEHRM to report on the following implementation milestones:

- The status of its requirement to seek to enter into an agreement with an independent entity to conduct an evaluation of the federal EHR by not later than October 1, 2021.
- The status of its requirement to not less than once per year, convene an annual meeting of DOD, VA and USCG clinical staff, community providers and other leading clinical experts to assess the state of clinical use of the federal EHR and whether the federal EHR is meeting clinical and patient needs.
- The status of its requirement to conduct a clinical and patient satisfaction survey on at least a biannual basis regarding clinical use and patient experience with the federal EHR, beginning October 1, 2021.
- The state of the configuration baseline.

Entering into an Agreement to Conduct a Federal EHR Evaluation

The FEHRM is developing the plan to satisfy the NDAA FY2020 evaluation requirement by entering into an agreement with an independent entity to conduct an evaluation of how a clinician using the single, common federal EHR can access and meaningfully interact with a complete patient health record. The health record can be created from a federal facility and through data obtained from the exchange of data with the private sector. Additionally, the evaluation will offer context with respect to the federal EHR ecosystem, legacy EHR systems and their relationship to the federal EHR during transition, and the interaction between a patient and the patient portal.

Convening an Annual Meeting

The NDAA FY 2020 requires the FEHRM to convene a meeting of clinical staff from the DOD, VA, USCG, community providers and other leading clinical experts to assess the state of clinical use of the federal EHR and whether it is meeting clinical and patient needs.

The outcomes expected from this annual meeting are:

- 1. To solicit feedback from end-users and representatives on the federal EHR to include sustainment issues, concerns, and clinical use of the single, common federal EHR;
- 2. To establish a collaborative shared mental model across the FEHRM, DOD, VA, and USCG on the common federal EHR for clinical end-users.

The first annual meeting will take place in Q3 CY 2021. A vendor will be selected to host the virtual event. An after-action report will be presented to the FEHRM in Q4 CY 2021 to



document the impact of the meeting, provide lessons learned, and capture related feedback.

Conducting a Clinical and Patient Satisfaction Survey

Clinician Satisfaction Survey

The NDAA FY2020 requires the FEHRM to undertake a clinician satisfaction survey regarding clinical use of the federal EHR. During CY2020, stakeholders from DOD and VA collaborated to develop the framework for conducting clinician satisfaction surveys regarding the federal EHR that focuses on clinical use while providing care for Service members and Veterans across DOD and VA. The FEHRM is on track to meet this requirement.

Patient Satisfaction Survey

The NDAA FY2020 requires the FEHRM to undertake a patient satisfaction survey regarding a patient's encounter with the new federal standard electronic health record system. During CY2020, stakeholders from DOD and VA developed a framework to conduct patient satisfaction surveys during patient visits on an outpatient basis. As was done with the clinician satisfaction survey, industry-standard selected questions that assess patient experience with the federal EHR will be added to existing patient satisfaction surveys in use across DOD and VA. Stakeholders chose questions from a bank of survey questions compiled by Health Information Technology - Consumer Assessment of Healthcare Providers and Systems (HIT-CAHPS). After careful review, DOD and VA identified and selected six questions to meet the NDAA FY2020 requirements. Through collaboration with DOD and VA stakeholders, these survey questions will be implemented in current DOD and VA survey modules during CY 2021,

Maintaining a Common Configuration Baseline

During CY2020, the FEHRM initiated management activities for maintaining the configuration baseline for the single, common federal EHR. Accomplishments include:

• Joint Configuration Management: The FEHRM Chief Medical Informatics Officer (CMIO) manages and optimizes the Joint Sustainment and Adoption Board (JSaAB). This joint governance body is responsible for approval of all joint EHR content and configuration changes. The JSaAB directly informs the Joint Change Control Board (JCCB) and is essential to operating the single, common federal EHR, providing DOD and VA insight into all configuration decisions impacting the production baseline. The first meeting of the JSaAB was held April 1, 2020, and the charter was signed July 17, 2020. In CY2020, the JSaAB has approved 823 configuration changes to the federal EHR since charter execution.



Additionally, the CMIO manages the Functional Decision Group (FDG). The FDG charter was signed on April 10, 2020, and is a body of senior clinical and business leaders of the VA's Office of Electronic Health Record Modernization (OEHRM), Veterans Health Administration (VHA) and the Defense Health Agency (DHA) Health Informatics communities. The FDG reviews, analyzes and decides on critical joint issues that apply to the federal EHR. In CY2020, the FDG formally addressed and aligned the departments in several EHR critical domains. Chief among these was agreement on roles and security access for the HealtheIntent components of the joint platform. In addition, the Departments joint collaboration on critical code sets (Code Set 34) within the tool inspired a follow-on joint working group to evaluate and configure common detailed code sets and values as they relate to common user experiences and workflows.

The FDG, in partnership with DOD and VA ClOs, addressed a long-standing concern about encounter confidentiality and health professions trainees (HPTs) in the common tool. Finally, the FDG requested that the program management office technical communities address the need for allergy and medication checks to cross between both departments' legacy systems. This detailed work revealed several additional component modifications to support joint DOD and VA user access to legacy allergy data, ensuring patient safety.

DOD and VA execute the JCCB under the guidance of the FEHRM to ensure that all physical, logical and business process changes to the baseline of the federal EHR, Federal Enclave and supporting ecosystem infrastructures are evaluated before being implemented in production.

Further, the FEHRM established and maintains a Risks, Issues and Opportunities (RIO) Process to actively manage risks, issues and opportunities that may negatively or positively impact deployment of the federal EHR. Each RIO item is categorized according to the joint functions listed in the FEHRM Charter. High priority RIO items are closely tracked and reported to leadership.

- Joint Record Release of Information (ROI): In CY2020 Q3, the FEHRM launched the Patient-Initiated ROI effort—initiated in direct response to congressional interest in developing a single pathway for requesting and delivering health records from DOD and VA sources. The FEHRM tasked the Health Information Policy Workgroup with clarifying Departmental policies and defining the requirements of which documents be released to patients.
- Joint Enclave Data Management: During the CY2020 reporting period, there were several ongoing projects to address joint data management. The FEHRM CMIO Team stood up several joint DOD and VA groups with different focus areas including code sets, and terminology standards.



The Terminology group successfully drafted a charter for the Federated Interagency Terminology Service (FITS) with anticipated adoption in CY2021.

The Terminology group coordinated Legacy Data (Clinical Health Data Repository [CHDR]), Joint Longitudinal Viewer [JLV]) reviews to inform further work in the Joint Enclave Data Management area.

• Joint Enclave Management: The FEHRM's Technical Director hosted several Environment Management Operations Center (EMOC) activities in partnership with DOD and VA program offices; their prime vendors; and key stakeholders responsible for segments of the Federal EHR ecosystem. In addition, EMOC partners facilitated a series of discussions to enable the Enterprise Operations Center (EOC) to prepare all parties for the intense schedule of go-live activities throughout CY 2021. The EOC continued to support cross-organizational collaboration and executive level reporting on the Federal Enclave and ecosystem during federal go-live events.

The above efforts serve as a driving force for the FEHRM and Departments to get to an integrated plan for the single, common federal EHR and work through technical issues as they deliver capabilities.

• **Joint/Sharing Sites Implementation:** Throughout CY2020, the FEHRM engaged in numerous planning, analysis and execution activities to support the unique health informatics needs at DOD/VA sharing sites and the Captain James A. Lovell Federal Health Care Center (FHCC).

During CY2020 Q1, the FEHRM organized a Joint Deployment Strategy Working Group, supported by both Departments with the mission of developing a strategy and supporting criteria for successful joint deployment. Between April and June 2020, the FEHRM established a multidisciplinary, cross-Department "Tiger Team" focused first on synchronous deployment in Alaska, with a combined effort from the Department EHRM PMOs to determine the best approach to federal EHR deployment at joint sharing sites. The Alaska/Joint Deployment "Tiger Team" produced insights that the FEHRM compiled into an Executive Summary with recommendations for joint deployment, a joint deployment D-minus schedule, and confidence factors for opportunities for alignment across both Departments.

Later in CY2020 Q2, the FEHRM worked with Department EHRM PMOs to approve Vendor engagement to explore tangible joint deployment activities that could be accomplished in Alaska and inform future deployments at DOD/VA sharing sites, including at the FHCC.



In CY2020 Q2, the FEHRM developed a Data Collection Workbook (DCW) pilot with three DOD/VA sharing site locations to develop a standard, repeatable process by which sharing sites are assigned classification levels. The pilot was designed to assess and refine a standardized methodological approach to assigning shared site level classifications that is repeatable at scale with minimal variance, and to inform follow-on activities, including comprehensive end-to-end assessments and current state workflow analysis, transition and configuration informatics analysis. The FEHRM then collaborated with its DHA Health Informatics (DHA HI) and VHA Office of Health Informatics (VHA OHI) colleagues to assess the degree of clinical shared services at 56 VA and 83 DOD facilities. The information gained during this expanded DCW analysis enabled the FEHRM to categorize sharing sites according to level of clinical integration (from non-sharing Level 0 sites to the fully-integrated, joint Level 5 site). to gain a more accurate understanding of the nature of current medical sharing arrangements and patient encounter touchpoints, and to use this information to assess the risks and benefits of synchronous and asynchronous deployments at these sharing sites.

The FEHRM, DHA HI and VHA OHI reviewed the completed DCWs and prioritized the most integrated sharing sites (12 VA facilities and 14 DOD facilities, not including the FHCC) requiring further analysis. During late CY2020 Q4, the FEHRM along with our DHA HI and VHA OHI colleagues working under the Joint Workflow Assessment Working Group framework began a series of Discovery Assessments for Joint Sharing Sites locations with a high degree of interoperability complexity (Levels 3.5 and 4). These Discovery Assessments will provide a more accurate understanding of the nature of current sharing arrangements and patient encounter touchpoints in order to assess the risks and benefits of synchronous verses asynchronous deployments at these sharing sites.

During CY2020 Q3, the FEHRM also organized and led a multi-stakeholder site engagement at FHCC. The Site Engagement Report, finalized in October 2020, summarized clinical and technical insights gained during the site engagement and recommended the EHRM PMOs conduct a synchronous, joint deployment of the federal EHR at FHCC. In addition, a subsequent joint end-to-end assessment at the FHCC was recommended, to gather critical information in preparation for a single federal EHR implementation.

Finally, in collaboration with DHMSM, the FEHRM supported the execution of a Technical Direction Letter to accelerate deployment, technical and functional planning for the implementation of the federal EHR at joint sharing sites.



FEHRM Financial Summary

Amounts Expended for FEHRM Activities and Purpose

In support of these activities, during CY2020 the FEHRM obligated a combined total of \$24.40 million from DOD and VA funds (Figure 4). These funds were allocated toward civilian employees and Public Health Service officers' salaries; rent; general management and administration; program management; engineering and testing support; functional community requirements; and software licenses and maintenance.

Figure 4: Financial Summary

FEHRM Funding CY 2020	Department Fu	nding (\$M)	Combined Department Funding (\$M)
DOD			
Labor - Government Employee Costs	\$	1.499	
Labor - Government Matrix employee costs	\$	0.505	
Labor - Military Matrix employee costs	\$	0.451	
Labor - Support Contractor costs	\$	8.353	
Other non-descriptive costs	\$	1.508	
Travel and lodging related costs	\$	0.003	
DOD Total			\$ 12.32
VA			
OEHRM			
Labor - Government Employee Costs	\$	0.095	
Labor - Support Contractor costs	\$	7.334	
OIT			
Labor - Support Contractor costs	\$	4.067	
VHA			
Labor - Government Employee Costs	\$	0.586	
Other non-descriptive costs	\$	0.001	
Travel and lodging related costs	\$	0.002	
VA Total			\$ 12.08
TOTAL Calender YR 2020 FEHRM FUI	NDING	1	\$ 24.40



Appendix A: Health Data Interoperability (HDI) Metrics Details

CY) 2020 Highlights: During CY2020 (January 1—December 31, 2020), Joint Longitudinal Viewer (JLV) (Department of Veterans Affairs [VA]), Joint Health Information Exchange (joint HIE) (VA and Department of Defense [DOD]) and Blue Button (BB) (DOD) usage increased significantly.

Notable Changes in CY2020 - Metric	Year over Year Change	Supporting Information
Total VA Legacy Viewer System (LVS) Health Record Queries [Metric A.1]	47.01% increase from CY2020Q1 to CY2020Q4	 The total number of health record queries for CY2020 was 2,231,339. The increase in the number of VA LVS Health Record Queries is in part attributed to an increase in the number of Outpatient Prescription and Vitals Queries. The VistA Integration Adapter (VIA) application added functionality that increased VIA queries through Station 200 on August 31, 2020. This increase of VIA activity in Production increased LVS queries from approximately 6k—7k a day to 13k—15k a day.
Total Number of VA JLV Records Viewed [Metric A.3]	33.25% increase from CY2020Q1 to CY2020Q4	 VistA Web was decommissioned February 24, 2020. Staff who used VistA Web exclusively or with JLV began transitioning to JLV exclusively upon the sunset of VistA Web. VA's Office of Electronic Health Record Modernization (OEHRM) implemented communications products in CY2020 Q1, increasing awareness of the JLV as a bridging technology between legacy and EHRM sites. The Veterans Health Information Exchange (VHIE) strategic communications program implemented a VHIE Rural Provider-focused Communications Campaign in CY2020 Q1, which increased JLV awareness and utility. The Veterans Health Administration (VHA) JLV Team conducted onsite JLV training at Spokane VA Medical Center in February 2020 in preparation for EHRM Initial Operating Capability (IOC). JLV utilization increased as more users understand the relationship between EHRM and JLV more clearly. There was a recovery from the decrease in the amount of VA Admissions and Outpatient Visits during FY2020 Q3 due to
Total Number joint HIE Transactions [Metric B.1]	166.50% increase from CY2020Q1 to CY2020Q4	COVID-19. The decrease had correlated to a reduced need for viewing patient records. DOD, VA and the FEHRM opened access to the joint HIE in mid-April 2020. Providers from the Departments and private sector treating their patients are now be able to use the joint HIE to request access to health records of shared patients.



Notable Changes in CY2020 - Metric	Year over Year Change	Supporting Information
Total Number of DOD Blue Button Downloads [Metric C.1]	33.46% increase from CY2020Q1 to CY2020Q4	
Total Number of DOD Blue Button Views [Metric C.2]	116.98% increase from CY2020Q1 to CY2020Q4	The increase in Patient Portal Blue Button usage is attributed to COVID-19 Lab Test availability and an increased inability for patients to access their test results in person.
Average Number of Monthly Unique DOD Blue Button Users [Metric C.3]	150.35% increase from CY2020Q1 to CY2020Q4	



DOD and VA use the below software applications and tools to support EHR data interoperability:

1. JLV. JLV, released in 2013, is a web-based graphical user interface that was jointly developed by DOD and VA to provide a near real-time, integrated and chronological view of EHR information. It allows clinicians to view an integrated, read-only display of patient data from DOD, VA and Virtual Lifetime Electronic Record (VLER) eHealth Exchange civilian partners within a single application. JLV retrieves clinical data from several native data sources and systems, displayed in Figure 5Figure 5.

Figure 5: JLV Data Sources and Systems

Department of Veterans Affairs (VA)

- Veterans Health Information System Technology Architecture (VistA) / Computerized Patient Record System (CPRS)
- VistA Imaging
- · Enhanced Cerner Millennium data
- OEHRM



<u>Private Sector</u> Health Information Exchange (HIE)

Department of Defense (DoD)

- Armed Forces Health Longitudinal Technology Application (AHLTA)
- Composite Health Care System (CHCS)
- Essentris ®
- Health Artifact and Image Management Solution (HAIMS)
- Theater Systems
- . MHS GENESIS (Cerner)
- 2. Joint HIE. The joint HIE is a secure network that shares Veteran and Military Health System beneficiary health care information electronically with civilian network providers who join the eHealth Exchange. Community partners who join undergo stringent security requirements to access patient records and health information securely, regardless if the facility is a civilian provider, military hospital or clinic, or VA Medical Center.
- 3. DOD Clinical Data Repository/VA Health Data Repository (CHDR). CHDR enables DOD and VA to exchange computable outpatient pharmacy and drug allergy information for shared patients. To achieve computable interoperability, each clinical component data is first standardized to a mutually agreed upon mediating vocabulary that both systems comprehend, and provide decision support, such as drug-allergy or drug-drug interaction checks.
- 4. **Blue Button.** Blue Button enables patients from DOD and VA to access their personal health data from their EHR, including allergies; laboratory and radiology results; vital signs; and outpatient medications, problem lists and encounters.
- 5. Federal EHR. Beginning in 2017, DOD IOC sites in the Pacific Northwest went live with MHS GENESIS (the DOD's name for the federal EHR). Subsequent deployments of MHS GENESIS in Waves TRAVIS (FY2019 Q4), NELLIS (FY2020 Q4), and PENDLETON (FY2021 Q1) took place at Military Medical Treatment Facilities in California, Idaho and Nevada respectively. Beginning in October 2017, the federal EHR went live at the first VA IOC sites in the Pacific Northwest and Nevada. VA will resume deployment activities later this fiscal year after its strategic review. End-user metrics regarding the federal EHR will be reported



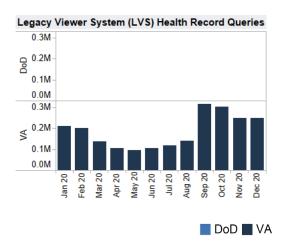
jointly for DOD, VA and the Department of Homeland Security's U.S. Coast Guard (USCG) in subsequent Interoperability Progress Reports.

Data Sharing Statistics and Updates: The FEHRM, DOD and VA continue to expand HDI by improving upon the more than 4.4 million patient records currently shared monthly between the two Departments, as defined by the monthly total number of JLV Records viewed by the Departments reported as of December 31, 2020.



Category A: Department Integration

Value Statement: The FEHRM tracks utilization of legacy and modern EHRs, which enables departmental leadership and Congress to assess the reliability of legacy systems and evaluate the Departments' progress in transitioning from the less interoperable legacy systems (e.g., Armed Forces Health Longitudinal Technology Application (AHLTA) and Veterans Health Information Systems and Technology Architecture (VistA) to the federal EHR.

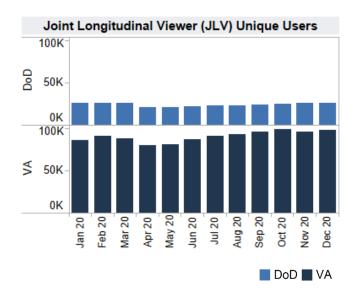


Definition

Total number of health record queries made by DOD and VA to the Federal Health Information Exchange/Bidirectional Health Information Exchange Framework database using VistA Web and the Computerized Patient Record System Remote Data View in each month

DOD	Change	Impact Factors
	DOD discontinued use of the LVS in April 2019, so there are no changes.	The DOD implemented the Agile Core Services/Data Access Layer integration with Data Exchange Service in April 2019 and discontinued use of the LVS.
VA	Change	Impact Factors
	Between the first and fourth quarters of CY2020 the total quarterly number of health record queries increased by 47.01 percent to 802,556.	 The total number of health record queries for CY2020 was 2,231,339. The increase in the number of VA LVS Health Record Queries is in part attributed to an increase in the number of Outpatient Prescription and Vitals Queries. The VIA application added functionality that increased VIA queries through Station 200 on August 31, 2020. This increase of VIA activity in Production increased LVS queries from approximately 6k-7k a day to 13k-15k a day.





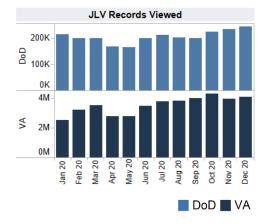
Metric A.2: JLV Unique Users

Definition

Monthly total number of active users (i.e., a user who has logged on during a specific month) recorded by the JLV for DOD and VA

DOD	Change	Impact Factors
Between the first and fourth quarters of CY2020 the average monthly number of active JLV users decreased		The average number of active users for CY2020 was 23,935.
	by 1.31 percent to 25,483.	There are no factors of note.
VA	Change	Impact Factors
VA	Between the first and fourth quarters of CY2020 the average monthly number of active JLV users increased	Impact Factors The average number of active users for CY2020 was 90,278.





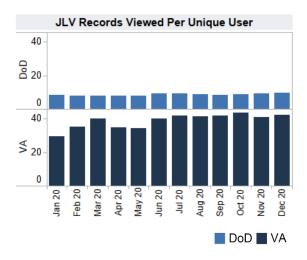
Metric A.3: JLV Records Viewed

Definition

Monthly total number of patient records viewed using the JLV for DOD and VA

DOD	Change	Impact Factors
^	Between the first and fourth quarters of CY2020the total quarterly number of JLV records viewed increased by 14.69 percent to 706,532.	The total number of JLV Records Viewed by DOD for CY2020 was 2,472,393. There are no factors of note.
VA	Change	Impact Factors
•	Between the first and fourth quarters of CY2020 the total quarterly number of JLV records viewed increased by 33.25 percent to 12,357,895.	 The total number of JLV Records Viewed by VA for CY2020 was 42,280,704. VistA Web was decommissioned February 24, 2020. Staff who used VistA Web exclusively or with JLV began transitioning to JLV exclusively upon the sunset of VistA Web. OEHRM implemented communications products in CY2020 Q1, increasing awareness of the JLV as a bridging technology between legacy and EHRM sites. The VHIE strategic communications program implemented a VHIE Rural Provider-focused Communications Campaign in CY2020 Q1, which increased JLV awareness and utility. The VHA JLV Team conducted onsite JLV training at Spokane VAMC in February 2020 in preparation for EHRM IOC. JLV utilization increased as more users understand the relationship between EHRM and JLV more clearly. There was a recovery from the decrease in the amount of VA Admissions and Outpatient Visits during FY2020 Q3 due to COVID-19, which had correlated to a reduced need for viewing patient records.



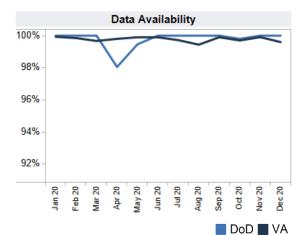


Metric A.4: JLV Records Viewed Per Unique User

Definition

Monthly number of patient records viewed using the JLV for DOD and VA per active unique user

DOD	Change	Impact Factors
^	Between the first and fourth quarters of CY2020 the average monthly number of JLV records viewed per active JLV users increased by 16.22 percent to 9.24.	The average monthly number of JLV Records Viewed by DOD users for CY2020 was 8.60. There are no factors of note.
VA	Ohanga	1
VA	Change	Impact Factors



Metric A.5: Data Availability

Definition

DOD – The percentage of time the Data Exchange Service is available on the data server for all the sites located in the data centers in support of DOD-to-VA HIE

VA – Percentage of time during the month that VistA Data Services was operational (i.e., with no errors and available to both DOD and VA users) in all JLV environments (i.e., Earth Observation Cloud, Non-Secure Internet Protocol Router and Medical Community of Interest)

DOD	Change	Impact Factors
Between the first and fourth quarters of CY2020 the average monthly data availability decreased from 100 to 99.93 percent.		There are no factors of note.
VA Change		
VA	Change	Impact Factors





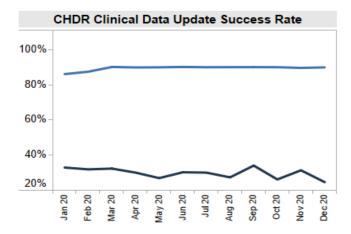
Metric A.6: JLV Operational Availability

Definition

The percentage of time during the month that the JLV was available for log in and functionally operational by DOD and VA users (i.e., available for users to conduct a patient search and to access both DOD and VA EHR data in the cloud environment)

DOD	Change	Impact Factors
	Between the first and fourth quarters of CY2020 the average monthly operational availability increased from 98.70 to 99.50 percent.	There are no factors of note.
VA	Change	Impact Factors
•	Between the first and fourth quarters of CY2020 the average monthly operational availability decreased from 97.16 to 94.86 percent.	The decrease in the average operational avaiability of JLV was driven by outages in services that JLV uses to connect to VA and DOD data sources, which include: • VistA Data Service (VDS) (VA Log in and retrieval of VA records) • Snareworks (DOD Log in) • Patient Discovery Web Service (PDWS) (Patient look up) • Master Veterans Index (MVI) (Retrieves VA patient ID) • jMeadows (Connects to MVI/PDWS/VDS) • Bidirectional Health Information Exchange Relay (BHIERelay) (retrieval of DOD records)







Metric A.7: CHDR Clinical Data Update Success Rate from DOD to VA and VA to DOD

Definition

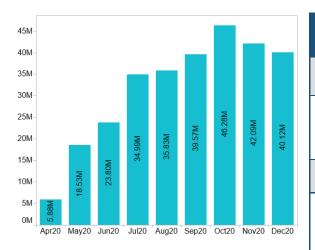
Percentage of CHDR clinical update messages with data (allergy or pharmacy) successfully processed (a successful process occurs when the sending agency receives a response from the receiving agency indicating successful receipt, translation and storage of clinical data).

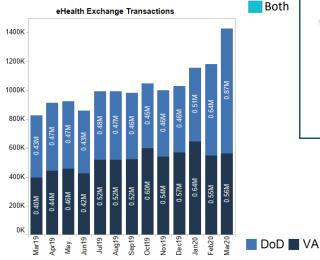
DOD	Change	Impact Factors
•	Between the first and fourth quarters of CY2020 the average monthly CHDR clinical data update success rate increased from 87.95 to 91.25 percent.	There are no factors of note.
VA	Change	Impact Factors
•	Between the first and fourth quarters of CY2020 the average monthly CHDR clinical data update success rate decreased from 32.40 to 27.40 percent.	 VA identified three distinct issues that affected message processing by DOD systems of VA messages: 1) terminology mediation issues for allergy and pharmacy data, which constituted a significant proportion of the issues, 2) patient identification recognition, and 3) internal system communication issues. The DOD CHDR team has also verified the messages being received from VA are being processed and stored in the VA Clinical Data Repository and therefore, no patient safety concerns exist.



Category B: Community Partnerships

Value Statement: The FEHRM monitors the Departments' progress toward consistent, secure and reliable health data exchange by tracking joint HIE partner onboarding, as well as joint HIE transactions between the Departments and private care partners as best practices and improvements are implemented.





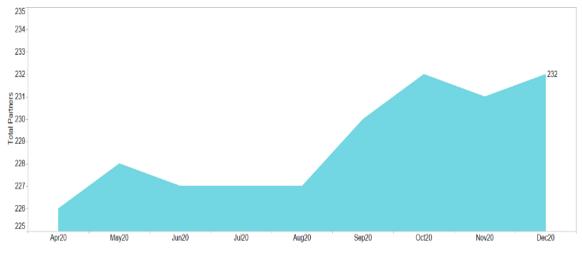
Metric B.1: Joint HIE Transactions

Definition

Monthly count of Consolidated Clinical Document Architecture, C32 or C62 (document architecture that facilitates interoperability of health data between EHR systems) documents exchanged between the Departments and private partners

DOD/VA	Change	Impact Factors
	Between the launch of the joint HIE in April 2020 and fourth quarter of CY2020 the total number of HIE transactions increased by 166.50 percent to 128,487,546.	DOD, VA and the FEHRM opened access to the joint HIE in mid-April 2020. Providers from the Departments and private sector treating their patients are now be able to use the joint HIE to request access to health records of shared patients. For the first 3 months of CY2020 (FY2020 Q2), there were 2,012,759 and 1,751,966 DOD and VA HIE transactions, respectively. Following the launch of the joint HIE, there were 287,099,289 transactions in the remainder of CY2020.





Metric B.2: Joint HIE Partners Onboarded

Definition

Both

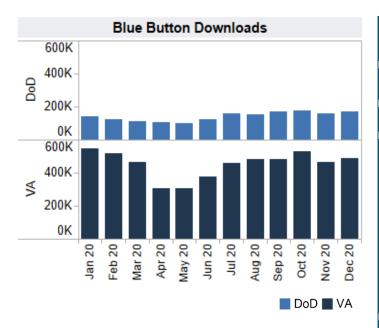
Monthly and cumulative count of private sector providers who are partners in the joint HIE (a private sector provider is counted as one partner if the provider has one or more data sharing agreement(s) with DOD or VA)

DOD /VA	Change	Impact Factors
	Between April 2020 (when the joint HIE launched) and the fourth quarter of CY2020, six additional joint HIE partners were onboarded, bringing the total to 232.	DOD, VA and the FEHRM opened access to the joint HIE in mid-April 2020. Providers from the Departments and private sector treating their patients are now be able to use the joint HIE to request access to health records of shared patients.



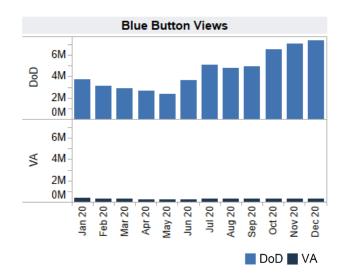
Category C: Patient Engagement

Value Statement: Blue Button has served as the foundation for broader patient engagement activities within the Departments, enabling patients to have easy access to their own health information in a usable format. The FEHRM monitors several metrics associated with Blue Button that show patient engagement with their integrated and consolidated health records from DOD and VA legacy systems' patient portals over time.



Metric C.1: Blue Button Downloads				
Definition				
Total number of data downloads (e.g., PDF, text) generated by end users per month				
DOD	Change	Impact Factors		
A	Between the first and fourth quarters of CY2020 the total quarterly number of Blue Button downloads increased by 33.46 percent to 506,049.	 The total number of Blue Button Downloads by DOD patients for CY2020 was 1,697,690. The increase in Patient Portal Blue Button usage is attributed to COVID- 19 Lab Test availability and an increased inability for patients to access their test results in person. 		
VA	Change	Impact Factors		
•	Between the first and fourth quarters of CY2020 the total quarterly number of Blue Button downloads decreased by 2.69 percent to 1,483,339.	The total number of Blue Button Downloads by VA patients for CY2020 was 5,418,791. There are no factors of note.		





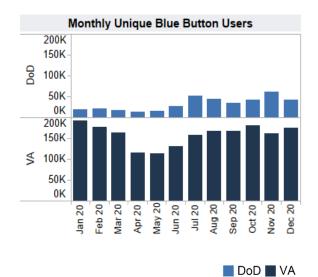
Metric C.2: Blue Button Views

Definition

Total number of views generated by end users per month

DOD	Change	Impact Factors
_	Between the first and fourth quarters of CY2020the total quarterly number of Blue Button views increased by 116.98 percent to 21,003,973.	 The total number of Blue Button views by DOD patients for CY2020 was 54,189,943. The increase in Patient Portal Blue Button usage is attributed to COVID-19 Lab Test availability and an increased inability for patients to access their test results in person.
VA	Change	Impact Factors
•	Between the first and fourth quarters of CY2020 the total quarterly number of Blue Button views decreased by 6.45 percent to 930,914.	The total number of Blue Button views by VA patients for CY2020 was 5,418,791. There are no factors of note.





Metric C.3: Monthly Unique Blue Button Users

Definition

Number of unique Blue Button users within a month

DOD	Change	Impact Factors
^	Between the first and fourth quarters of CY2020 the average monthly number of Blue Button unique users increased by 150.35 percent to 48,308.	 The average number of unique DOD Blue Button users for CY2020 was 32,429. The increase in Patient Portal Blue Button usage is attributed to COVID-19 Lab Test availability and an increased inability for patients to access their test results in person.
VA	Change	Impact Factors
•	Between the first and fourth quarters of CY2020 the average monthly number of Blue Button unique users decreased by 3.10 percent to 172,241.	The average number of unique VA Blue Button users for CY2020 was 158,462. There are no factors of note.