FEDERAL ELECTRONIC HEALTH RECORD MODERNIZATION

FEHRM
Interoperability Progress Quarterly Report

THIRD QUARTER, FISCAL YEAR 2022

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The estimated cost of this report or study for the Department of Defense is approximately $0 in Fiscal Years 2022 - 2023. This includes $0 in expenses and $0 in DOD labor.

Electronic Health Record Modernization

- **FEHRM Office:** During the third quarter of FY2022 (Q3 FY2022), the FEHRM prioritized a strategy of operationalization and convergence in its mission to implement a single, common federal electronic health record (EHR) to enhance patient care and provider effectiveness, wherever care is provided. This operationalization and convergence strategy unified efforts across the federal EHR ecosystem and delivered common capabilities. The common capabilities the FEHRM delivers include:
    - Managing the Federal Enclave, a shared environment to contain the federal EHR and supporting systems.
    - Managing the joint health information exchange (HIE), a data-sharing capability.
    - Overseeing configuration and content changes to the EHR agreed on by the Departments 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 to inform continuous improvement.
    - Maintaining an integrated master schedule to help coordinate EHR activities.
    - Developing and updating deployment maps to show real-time status of deployments.
    - Advancing interoperability, the meaningful use and exchange of data, to improve the continuity of care among and between public- and private-sector providers.
    - Leading analysis and integration of deployment activities at joint sharing sites, sites where resources are shared between DOD and VA.

- **Mitigating Issues Identified during the Federal EHR Annual Summit:** During Q4 FY2021, the FEHRM convened the first-ever Federal EHR Annual Summit of clinical staff from DOD, VA and the Department of Homeland Security's United States Coast Guard (USCG); private sector providers; and other leading clinical experts to assess the use of the federal EHR. The summit allowed end users to provide valuable feedback to FEHRM, DOD and VA leadership.

  During Q3 FY2022, the FEHRM closed out the feedback with the training and configuration teams of Defense Health Agency Health Informatics (DHA HI), DoD Healthcare Management System Modernization, Veterans Health Administration (VHA) and Electronic Health Record Modernization Integration Office (EHRM-IO). During the Federal EHR Annual Summit, 170 items/comments were identified, 130 were closed or resolved during the session, and 40 were routed to FEHRM team for coordination and resolution. All 40 items are closed, six were identified as long-term projects for continued tracking by the FEHRM Content and Configuration Team.

- **Joint Configuration Management:** The FEHRM manages and optimizes the Joint Sustainment and Adoption Board (JSaAB). This joint governance body is responsible for the approval of all federal 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, VA and USCG functional oversight of all configuration decisions impacting the production baseline.

  In Q3 FY2022, the JSaAB approved 452 items; including 14 daily go-live items that surfaced during Wave BAMC, HOOD/BRAGG and Walla Walla, and three items related directly to the COVID-19 response. The FEHRM coordinates an e-JSaAB process for urgent and emergent issue resolution during off-hours, and it was successfully used 11 times during Q3 FY2022.

  In Q3 FY2022, the JSaAB implemented and began a quarterly update to approval authority levels, to allow for issue resolution and decision making at the lowest level with both the DOD and VA. This process allows users, sites and government configuration experts and teams to approve JSaAB level activities at a lower level. The result is a more rapid turn-a-around and execution of end-user needs. Templates were created in a software and systems delivery system to make it more transparent, collaborative and productive to record and expedite this process. 14 awareness items and 17 catalog reduction requests were approved and reviewed by JSaAB.

  Additionally, the FEHRM manages the Functional Decision Group (FDG), a body of senior clinical, business and health informatics leaders from EHRM-IO, VHA and DHA. The FDG reviews, analyzes and decides on critical joint issues that apply to the federal EHR.

  During the reporting period, the FDG continued to monitor the program management office (PMO) technical communities who were tasked to address the need for allergy and medication checks, to cross between both Departments' legacy and modern EHR systems.

  The FDG continued to expand on an initiative to evaluate proposed DOD and VA configuration change requests for convergence. Most recently, the FDG staff evaluated the possibility of combining Functional Subject Matter Expert (SME) Councils into joint DOD/VA Councils. Currently under development and review by FDG is an effort to establish a much needed, high-impact joint DOD/VA Federal Oncology Working Group (FOWG) to address joint oncology workflows and therapeutic treatment regimens.

  The FOWG was initiated with early success in converging high-level oncology regimens while maintaining flexibility for unique protocols (e.g., research) across both Departments. The FEHRM anticipates the formalization of the FOWG and other working groups via FEHRM-sponsored charters in the future. Additionally, DOD and VA continue

to work toward a common pre-production training and access set of business rules to ensure the user experience is consistent across the common platform.

- **End-User Engagement:** During the reporting period, the FEHRM collaborated with DOD and VA patient and clinician satisfaction SMEs (joint workgroups [WG]) to establish common instruments and methodologies to survey and measure clinical use and satisfaction with the federal EHR. The FEHRM enacted this collaborative effort to equally assess satisfaction across DOD and VA, save government resources and reduce overall costs. Through these efforts, the survey instruments established and utilized for both clinician and patient satisfaction are nationally recognized: The KLAS Arch Collaborative for Clinician Satisfaction and The Consumer Assessment of Healthcare Providers and Systems Health Information Technology (CAHPS-HIT) item set for Patient Satisfaction.

  The Joint EHR Patient Satisfaction item sets (CAHPS-HIT) were collectively selected and successfully incorporated into the Q3 FY2021 surveys for both DOD and VA. Survey deployment to VA sites with the federal EHR was slightly delayed due to integration and deployment of the federal EHR, and receipt of data began during Q2 FY2022. The FEHRM will analyze the longitudinal data for both DOD and VA and bring back to the joint WG for review.

  The Joint EHR Clinician Satisfaction Survey (KLAS) question set was executed in Q3 FY2022 at DOD, and will be executed by the end of FY2022 at VA. Jointly established questions will be deployed across DOD and VA, and KLAS Arch Collaborative provides benchmark data from other Oracle Cerner clients across the U.S. and abroad. The data and results will be reviewed by the joint WG and analyzed for shared trends between DOD and VA.

- **Joint Functional Requirements:** During the Q3 FY2022 reporting period, the FEHRM moved to operationalize the Course of Action (COA) approved for establishing the Departments' Joint Functional Requirements (JFR) process. A detailed business process model (BPM) was created in collaboration with the new VHA and DHA functional requirements leads. Functional community feedback was also incorporated into the business rules and workflows generated for the JFR process.

  Additionally, the JFR team developed the business templates that will provide the FDG the opportunity to review clinical end users' requests for new functionality, agnostically and in a streamlined and formatted matter, no matter which Department submitted the initial request. Outreach was also conducted with the FDG support staff to establish a meeting cadence and set up an FDG-JFR SharePoint folder, as well as to collaborate on what the JFR request hand-off procedure should look like.

The JFR process is slated to kick-off during mid-July. After the process is initially rolled out, the FEHRM will continue to work on developing a method to determine the return on investment regarding the JFR process and establishing a JFR Knowledge Repository.

- **FEHRM Revenue Cycle/Business Processes:** The FEHRM obtained executive leadership approval of DOD/VA joint inter-departmental billing requirements. The team closely collaborated with the DHA and VHA Business Functional Champions, DHA Unified Business Office (UBO), DOD/VA Sharing Office, VA/DOD Health Affairs Medical Sharing Office, VHA Office of Integrated Veteran Care (OIVC) and VHA Office of Finance and Revenue.

- **Joint Enclave Data Management:** During the Q3 FY2022 reporting period, several ongoing projects addressed different focus areas including Oracle Cerner code sets, terminology and data and analytics governances.

  In Q3 FY2022, the Executive Data Management Board (EDMB), which functions as the formal Data Management and Governance of FEHRM Data Assets, became fully operational. The EDMB serves as the authorizing and prioritizing function for joint data management activities impacting the Federal Enclave. Under the executive body, data and analytics will be governed by the Data Governance Board (DGB) and Analytics Governance Board (AGB), respectively. The DGB and AGB charters were executed. EDMB Co-Chairs designated their representative DGB and AGB board members. In Q3 FY2022, committees were established and chartered under the purview of the DGB and AGB. A few of the committees from the AGB transitioned to the DGB to better align with scope.

  Further, integrated processes and workflows were established between governance boards with a focus on efficiency, effectiveness and traceability. In support of governance integration, workflows and processes were developed into the FEHRM management solution.

  In Q3 FY2022, the Federated Interagency Terminology Service (FITS) continued to engage with the vendor and Departments to jointly review and manage critical terminology projects. New projects, FITS015 COVID-19 Lab Test (LOINC) and Specimen Source (SNOMED-CT) mapping are in progress. The FEHRM terminologists also continue to monitor and normalize Joint Longitudinal Viewer (JLV) and Clinical Data Repository/Health Data Repository (CHDR) legacy and federal Electronic Health Record (EHR) clinical domains such as medication status (FITS011), allergens, medications, laboratory results and document types.

- **Federal Enclave Management:** The FEHRM continued driving regular joint technical activities including Environment Management Operations Center (EMOC) sessions focused on the Federal Enclave, in partnership with DOD, VA and USCG program offices, their prime vendors and key stakeholders responsible for segments of the federal EHR ecosystem. In Q3 FY2022, those activities included Identity and Access

issues and implementation of the Executive Order on Improving the Nation's Cybersecurity.

Consistent with the FEHRM's charter mandate to identify opportunities for efficiency and system optimization, the FEHRM continued to work with stakeholders to identify and track Federal Enclave measures included in the Interoperability Modernization Strategy. In Q2 FY2022, the FEHRM designed an internal measurement reporting technique to gather and share metrics that identify availability trends, and the federal government's progress toward targeted deployment growth. In Q3 FY2022, the FEHRM maintained and updated the health report monthly to conduct trend analysis.

The FEHRM works with DOD and VA PMOs to actively manage the domains comprising the Federal Enclave to meet the needs of the agencies using the federal EHR. During Q3 FY2022, the FEHRM continued process review sessions with DOD and VA SMEs to document the comprehensive repeatable federal process to improve domain management. The FEHRM updated the "FEHRM Domain Management Execution Guide" (previously the Governance Guide) to document the roles, responsibilities and processes for managing the domains supporting the federal EHR.

- **Federal Software Release Management:** In Q3 FY2022, the FEHRM continued to engage with the Departments' PMOs to plan for Capability Block 7 (CB7), slated for release in Q4 FY2022. The FEHRM continued working with the Departments' PMOs in Q3 FY2022 to ensure a canonical nomenclature is documented and adhered to throughout the enterprise. As a part of this effort, the FEHRM refined and documented the repeatable process, which was shared with key departmental and commercial stakeholders, and plans to deliver the consensus-driven software release nomenclature briefing to the partners.

  During Q3 FY2022, the federal government began standardizing the federal software release naming and numbering nomenclatures at the behest of the FEHRM, which will be used by all partners for capability releases and go-live events.

- **Identity, Credential and Access Management (ICAM):** During Q3 FY2022, the FEHRM continued to coordinate with technical stakeholders from DOD, VA, USCG and private sector partners to evaluate four potential solutions driving a shared unique identifier for DOD, VA, USCG and other future federal partners. The DOD/VA Information Technology Executive Committee (ITEC) will determine which COA to pursue and provide that recommendation to the Joint Executive Committee (JEC). The FEHRM hosted a joint technical session to discuss the impacts of ICAM initiatives on the federal EHR in Q3 FY2022 with senior leaders from DOD, VA, USCG and private sector partners.

- **Federal Configuration Control Board (FCCB):** The FEHRM works with DOD and VA PMOs to transform the current Joint Configuration Control Board (JCCB) process to a federal process, which will ensure every change to the federal EHR's baseline has consistent

design, engineering and test rigor applied to it by every organization leveraging the federal EHR and supporting infrastructure. In Q3 FY2022, the FEHRM continued working on updates to the FCCB charter to capture and accurately describe processes, and to codify the Departments' updated representation on that board.

- **Continuous Business Operations:** Currently, providers rely on the federal EHR to document and support the care of more than 5.1 million DOD, VA, and USCG patients—a number that continues to grow as the federal EHR deploys to more sites. Given the criticality of this mission, the FEHRM works with Department PMOs and their commercial partners to ensure patients and providers can rely on the federal EHR in the unlikely event the primary data center suffers a catastrophic disaster. In Q3 FY2022, the FEHRM tracked the progress of expanding Continuity of Operations (COOP) capabilities to High Availability, Commercial Application Systems (HA-CAS) environments and updating the Disaster Recovery Plan (DRP).

- **Enterprise Operations Center (EOC):** The EOC is a critical component of operationalizing the FEHRM. The EOC prepares the federal EHR system partners and ecosystem colleagues for the intense schedule of go-live activities. The EOC supports cross-organizational collaboration and executive-level reporting on the Federal Enclave and ecosystem during federal go-live events. During Q3 FY2022, the EOC provided daily joint executive-level briefings and updates for three DOD and four VA go-live events. These briefings included root cause analyses and corrective actions taken for unplanned incidents impacting the federal EHR and an overview of planned activities which could impact FEHRM partners. The EOC added value to the federal EHR through the following activities: automating analysis tools, enabling shared agency reporting, refining response processes, participating in joint problem management improvement efforts, sharing observations regarding traceability of incidents and changes in the ecosystem and continuing to expand and enrich stakeholder engagements.

- **FEHRM Joint Testing Initiatives:** The FEHRM test activity focused on two key areas to mitigate risks to the federal EHR. The first, a partnership with MITRE to verify the federal EHR adheres to the interoperability performance standards outlined in NDAA FY2020. The second, an ongoing collaboration with DOD, VA and USCG to establish a multiphase approach for the control of test/pseudo records in the Federal Enclave (Production Environment).

  In Q3 FY2022, the FEHRM continued the foundational work required by NDAA FY2020 to assess whether DOD and VA clinicians are able to access and meaningfully interact with a complete patient health record—regardless of the source of the information (i.e., the federal EHR, DOD and VA legacy EHRs and available private sector health data sources). Most significantly, the FEHRM worked with MITRE to complete the Phase 0 assessment, which included the context of how the Federal Enclave interacts with the full ecosystem. This work leveraged prior assessments conducted by DOD and VA. The FEHRM also

collaborated with DOD and VA to identify a schedule-dependent level 4 joint sharing site, Anchorage, Alaska, to host the Phase I evaluation of requirements as outlined in the NDAA FY2020. The recently revised VA deployment schedule of the proposed level 4 joint sharing site, Anchorage, Alaska, necessitates reassessing the initial evaluation plan.

During Q3 FY2022, the FEHRM's Joint Testing Initiatives worked with DOD, VA and USCG to control the creation and use of test/pseudo records being collocated in the Federal Enclave. The Departments established that these records must be collocated in the Federal Enclave to perform system tests and set up workflows for first-time users. The FEHRM continued working with DOD and VA to ensure their respective draft policies—controlling the proliferation of these test/pseudo records—are aligned with respect to key processes and standards. Each Department is responsible for formally approving their respective policies. The FEHRM also chartered a governance body to manage the creation and use of test/pseudo records in the Federal Enclave, enabling collaboration among all three Departments to create a user defined field that improves the ability of the federal EHR to identify and segregate test/pseudo records. This governance body is also analyzing and baselining the test/pseudo records in the Federal Enclave and capturing metrics.

- **Cybersecurity -- Cyber Tabletop:** Consistent with the direction contained in Executive Order 14028, the FEHRM is undertaking a series of focused exercises to continue to evolve the cybersecurity posture of the federal EHR to include prevention, detection, escalation and response coordination. During FY2022, the FEHRM conducted two tabletop exercises.

- **Cybersecurity – Joint Incident Management Framework:** Foundational to the cybersecurity posture of the federal EHR is documenting and optimizing a framework for jointly responding to cybersecurity incidents. In FY2022, the FEHRM worked with stakeholders to finalize a draft incident management framework and associated processes including a ransomware communications guide for joint responses to cybersecurity incidents impacting the Federal Enclave. This framework is based on the existing incident management frameworks for each Department. In Q3 FY2022, the FEHRM began working on a standard operating procedure for cyber incident responses.

  Cybersecurity Risk Mitigation: Consistent with its charter to orchestrate the joint cybersecurity program, the FEHRM continues to actively address cybersecurity risks to the Federal Enclave. In Q3 FY2022, the FEHRM continued analyzing a roadmap for evolving from the current defense in depth to a zero trust architecture.

- **Joint Sharing Sites (JSS) Implementation Support:** In Q3 FY2022, the FEHRM engaged in numerous planning, execution and analysis activities to support the unique health informatics needs at joint DOD and VA sharing sites. The FEHRM actively worked with its interagency partners (DOD Healthcare Management System Modernization [DHMSM]

and VA EHRM-IO PMOs) to resolve issues associated with DOD EHR deployment at William Beaumont Army Medical Center (WBAMC)-El Paso VA Medical Center (VAMC).

The FEHRM, alongside its DHA HI and VHA Office of Health Informatics partners, evaluated the nature of shared clinical services at joint sharing sites in DOD Wave BEAUMONT and Wave GORDON to identify potential risks due to asynchronous deployment. In particular, the Joint Workflow Assessment Working Group (JWA WG) conducted a thorough analysis of El Paso VA Laboratory sharing with WBAMC Laboratory. The capability to send/access lab orders and results that El Paso VA had with WBAMC via LEDI interface would no longer be operational between the two facilities after the new EHR go-live on June 11, 2022.

Risk identification and mitigation strategy development were done by the FEHRM and JWA WG through actively engaging joint sharing facilities and VA/DOD PMOs. The resulting Interim State Laboratory Sharing Process Map was provided to El Paso-WBAMC to support their safe and successful service sharing after the DOD go-live. Interim-State Joint Enterprise Process Map for Laboratory Service Sharing expects approval in Q4 FY2022.

The FEHRM also provided post-deployment support to DOD Wave BEAUMONT and DOD Wave GORDON joint sharing sites in Q3 FY2022.

The FEHRM convened DOD and VA stakeholders, as well as the vendors (Oracle Cerner and Leidos Partnership for Defense Health) to evaluate enterprise PCL decision-making processes and their impact to EHR deployment at joint sharing sites as part of the FEHRM Risks, Issues, Opportunities (RIO) process. In Q2 FY2022, the vendors delivered three briefings on the problem statement, background and proposed courses of action. In Q3 FY2022, the vendors are developing a solution to address patient movements across joint sharing spaces while continuing the effort to deliver a briefing of record and agreed-upon courses of action to FEHRM, DOD and VA leadership.

Previously, Anchorage VAMC leadership flagged several unique clinical and business practices related to their sharing agreements with DOD facilities (including clinical workflows and data migration), along with the need for a coordinated plan to transition VA users from MHS GENESIS to the end-state federal EHR. In Q3 FY2022, Oracle Cerner and the FEHRM remained engaged in the summit meetings and the COAs decision briefings on the topics of Orders/Results, Workload Capture and Clinical Imaging Viewing/Storage.

During this reporting period, the FEHRM examined the VA EHRM-IO deployment schedule and identified joint sharing sites that require FEHRM support to mitigate risks ahead of the "end state" (in which both Departments will be on the federal EHR).

Finally, the FEHRM initiated the direct messaging clinical proof of concept (POC) effort with the embedded VA staff at the David Grant Medical Center to assess the feasibility and impact of leveraging Direct Messaging to manage interagency referrals from the VA legacy system to DOD MHS GENESIS during asynchronous deployment at the Joint Sharing sites. Upon successful conclusion of the POC Initiative in Q3 FY2022, providers stated they were very satisfied with the quantity and quality of data provided in the digital referral packets and the ability to read all related documents from the patient's record. The Direct Messaging POC showed the ability to include discrete information from the health record in an electronic format rather than a hard copy of just the referral in question and increased the available data from the patient problem list by more than 80% and an increased the medication list by >50%, giving clinicians a more comprehensive view of the patient. Using Direct Messaging streamlined the referral process and reduced the overall time by 4 minutes per referral.

- **Captain James A. Lovell Federal Health Care Center (FHCC) Federal EHR Implementation:** In coordination with EHRM-IO and DHMSM PMO, the FEHRM continued execution of the Enterprise Requirements Adjudication (ERA) process during Q3 FY2022. Topics that inform the FHCC Federal EHR Implementation Plan were prioritized and included those that require a decision to deconflict build between DOD and VA and those that require a decision on the execution, or approach, for the implementation. The intended outcome is convergence between the Departments for the federal EHR design, where possible.

  At the end of Q3 FY2022, a total of 62 topics were identified that require adjudication through the process, prioritized as Primary-Design, Primary-Execution, Secondary and Tertiary. The six topics prioritized as Primary-Design, which were on the critical path for the FHCC Federal EHR Implementation Plan, received a recommended course of action (COA) from the EHRM PMOs key stakeholders. To date, 45 of the total number of topics were submitted by the vendor to route through the process and the FEHRM led discussion sessions resulting in 23 topics reaching a final decision.

  FEHRM leadership visited FHCC from June 7 to 8, 2022 to collaborate and plan for the deployment of the federal EHR at the site. During the visit, FEHRM leadership provided a status update on the FHCC EHR implementation, toured clinics for a firsthand view of clinical operations to include recruit in-processing and conducted breakout sessions with DOD and VA end users and technical SMEs. FHCC leadership provided information on infrastructure updates, functional enhancements updates, current interoperability issues and concerns, and expectations for the new EHR.

  The FEHRM continues to lead project planning and execution activities for the interagency FHCC EHR Implementation Project Team, guiding weekly leadership and working-level meetings, establishing cross-Department working groups, outlining roles and responsibilities and coordinating notional timelines and activities.

Joint Health Information Exchange (HIE)

DOD and VA deployed the joint HIE in April 2020 enhancing the ability of VA, DOD and USCG staff to bi-directionally exchange Service member, Veteran and other beneficiary health care data securely with community providers for purposes of treatment. The joint HIE connects to more than 65% of U.S. health care providers and facilities, delivers nearly 5 million documents to community partners and retrieves 40 million documents from community partners every month. Future efforts include continuing expansion with community partners and external networks (Carequality) and leveraging Cerner Ignite Fast Healthcare Interoperability Resources (FHIR) to pull discreet data directly from the federal EHR.

Interoperability Modernization

- **DOD-VA Interoperability Modernization (IM) Strategy:** The NDAA FY2020 directed the FEHRM to convene DOD and VA SMEs and develop a "comprehensive interoperability strategy." The effort consisted of three phases: development of strategic goals and objectives (Phase 1), inventory of current Initiatives that support the goals and objectives (Phase 2), and identification of performance measures (Phase 3). During the reporting period, the primary document artifact from phase 3—DOD-VA IM Strategy Performance Measurement Plan (PMP)—was drafted and finalized. The PMP contains details on 38 performance measures proposed to track progress towards the IM Strategy's four goals and 17 objectives. The PMP proposes a follow-on activity focused on development of detailed performance measure specifications for a group of high-priority initiatives, such as the Individual Longitudinal Exposure Record (ILER).

- **Health Data Interoperability (HDI) Metrics Dashboard:** DOD and VA developed numerous systems designed to improve interoperability between the Departments and their beneficiaries. The FEHRM's Metrics and Analysis workgroup developed key metrics that describe and trend the usage of these systems. The FEHRM tracked and reported the metrics quarterly since first requested by NDAA FY2014. The current HDI metrics are presented in Appendix A. Metrics are divided in to three categories: a) DOD/VA Integration, b) Community Partnerships and c) Patient Engagement.

Individual Longitudinal Exposure Record

ILER is a novel, web-based IT system that automatically associates Service members with occupational and environmental exposures based on their work history and geographic proximity to known exposure events. ILER's principal product is the Individual Exposure Summary (IES): a list of occupations, deployments and potential exposures that each Service member may have sustained. ILER also has functionality for researchers that allows the assembly of groups of Service members who sustained similar exposures, so their

health records can be analyzed for trends—and clinical practice guidelines can be developed. Benefits claims examiners can use ILER as a source of evidence supporting a Veteran's claim for benefits.

The FEHRM supports the implementation of ILER through five lines of effort:

1. **Functional Requirements** – Combining patients' exposure history with their clinical record is likely to reveal associations between the exposures and clinical conditions, which can lead to improved care to future Veterans. The FEHRM convened a Clinical Functional Work Group of DOD and VA SMEs that focuses on the development of clinical functional requirements for the use of ILER-derived exposure information within the federal EHR.

2. **National Standards for Exchange of Exposure Information** – The FEHRM continues to lead an environmental scan of existing national standards relevant to exposure data structure and terminologies.

3. **Performance Measures** – The FEHRM leads a Performance Measure Specification Work Group of DOD and VA SMEs that focuses on identifying important performance measures to report progress with development and implementation of the ILER. The Work Group reviewed 12 of 18 candidate performance measures and specified details for their collection, calculation and reporting.

4. **Delivery of the IES to the Joint Longitudinal Viewer (JLV) and DOD and VA patient portals** – NDAA FY2021 directed VA to provide Veterans with access to their ILER information through a website. Leveraging their success with delivering the IES to clinicians via JLV, the FEHRM applies relevant lessons to assist in delivering the IES to the DOD and VA patient portals: MyHealtheVet, MHS GENESIS Patient Portal and TRICARE Online.

5. **Data Interface Between ILER and the Common Federal EHR** – Incorporating ILER-derived exposure information into clinical workflows requires the interoperation of ILER with the federal EHR. The FEHRM leads an ILER-EHR Data Interface Work Group that focuses on exploring options for effective and efficient data interfaces required to exchange exposure information between ILER and the federal EHR.

Interoperability Standards

A successful interoperability ecosystem enables information sharing across the organization's boundaries to advance the effective delivery of health care for individuals and communities. Sophisticated and advanced policies, standards and technologies must come together for interoperability to realize effective health care delivery.

The NDAA FY2020 contained several directives for the FEHRM to encourage the development and adoption of national standards for data encoding and formatting. Specifically, the legislation directed the prioritization of open systems architectures and maximization of the use of open application programming interfaces, including the Health Level Seven (HL7) Fast Healthcare Interoperability Resources (FHIR).[1] Additionally, the legislation directed the FEHRM to actively engage with national and international health standards development organizations (SDOs) to ensure that standards established by the organizations meet the needs of the Departments, and to oversee the adoption of and mapping to such standards by the Departments.

The FEHRM analyzes standards, fosters the development of and establishes guidelines for the use of data standards that support seamless integration of health data between the federal EHR and legacy and community partner systems, including collaborating with HL7 federal and industry partners and SDOs to advance national health data interoperability. Below are the FEHRM interoperability standards initiatives and activities anchored to the FEHRM's mission.

- **Promoting Standards Implementation:** The Office of National Coordinator for Health Information Technology (ONC) launched a new initiative called United States Core Data for Interoperability (USCDI+) to provide a cutting-edge opportunity for federal agencies such as DOD, VA and Centers for Disease Control and Prevention (CDC) to add specific data classes and elements that will operate as extensions to the existing USCDI. In Q3 FY2022, the FEHRM successfully held working sessions with VA to focus on the initial phase and potential partnerships.

- **Consolidated CDA (C-CDA) Product Management:** C-CDA is the U.S. standard for exchanging summary care records among providers, including allowing EHRs and HIEs to store and process documents while also letting beneficiaries access and read them on Web browsers and mobile devices. After leading the design of improvements to C-CDA to be compatible with USCDI v2 last quarter, in Q3 FY2022, the FEHRM drove HL7 as it published this new version of the standard on May 13, 2022. On June 28, ONC published its 2022 Standards Version Advancement Process update, and included this newly published standard.

- **HL7 Gravity (SDOH):** Gravity promotes the use of Social Determinants of Health (SDOH) information, a key driver of health inequities faced by Veterans and DOD beneficiaries, across four clinical activities: screening, diagnosis, goal setting and intervention in EHRs so patients in need can be referred to helpful resources. The FEHRM contributed to the Gravity Project by monitoring and commenting on

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[1] HL7 FHIR is a modern HL7 standard that leverages freely available internet technologies to securely exchange health information while HL7 Clinical Document Architecture (CDA) is an electronic document (XML-based) standard that defines the structure of certain medical records such as discharge summaries and progress notes.

proposed new data elements and analyzing and reporting on the impact of SDOH data elements on the Federal EHR.

- **CodeX:** CodeX promotes the use of FHIR in exchange of genomic and oncology data in EHRs. In the oncology space, CodeX integrates and tests the mCode (minimal Common Oncology Data Elements) FHIR Implementation Guide. The FEHRM monitored and reported to stakeholders on the potential impact of decisions related to the exchange of oncology information and consideration of its use by the Federal EHR. The FEHRM also monitored developments in mapping mCode FHIR elements to the Observational Medical Outcomes Partnership (OMOP) Common Data Model (CDM) and how mCode application in public health registries can provide benefits to service members and veterans through eventual access from within the Federal EHR.

- **HL7 Da Vinci Project:** The HL7 Da Vinci Project (also known as *Payer-Provider Health Information Exchange*) brings together payers, providers and health care technology vendors, along with HL7, with a common goal of accelerating the adoption of HL7 FHIR. Historically, interoperability challenges limited stakeholders in the health care community from achieving better care at lower cost due to a lack of data standardization. The adoption of HL7 FHIR should result in more positive clinical, quality, cost and care management outcomes.

  The FEHRM actively analyzes three HL7 Da Vinci use cases: 1) Da Vinci Burden Reduction, 2) Notifications and 3) Member Attribution (formerly known as Risk Based Contract Member Identification). Below are the key activities and contributions by the FEHRM in Q3 FY2022:
  - Da Vinci Burden Reduction initiative includes 1) Da Vinci Coverage Requirements Discovery (CRD), 2) Documentation Templates and Rules (DTR) and 3) Prior Authorization Support (PAS) implementation guides to support an integrated workflow and enable automated submission of required documentation and prior authorization from EHR and payer systems respectively.
  - The Notifications Work Group focuses on subscriptions and the framework page for a detailed description of the technical workflow and Application Programming Interface (API) guidance.
  - The FEHRM voted on the following HL7 Ballots:
    - HL7 FHIR IG: Coverage Requirements Discovery, Release 1 - US Realm
    - HL7 FHIR IG: Documentation Templates and Payer Rules (DTR), Release 1- US Realm
    - HL7 FHIR IG: Prior Authorization Support (PAS), Release 1- US Realm
    - HL7 FHIR® Implementation Guide: Payer Data Exchange (PDex), Release 2 - US Realm

- **PACIO (Post-Acute Care Interoperability):** PACIO is a framework for the development of FHIR technical implementation guides and reference implementations that facilitate health data exchange through standards-based use case-driven application programming interfaces (APIs). The FEHRM contributed to PACIO by monitoring and reporting on the standards that will be used to share data on advance directives and the potential impact of decisions such as those related to the advanced directives template and data elements on the federal EHR.

- **Application Programming Interface (API) Analysis:** The ONC 21st Century Cures Act Final Rule defined requirements for APIs and information blocking. In Q3 FY2022, The FEHRM conducted an assessment of the potential risks associated with 21st Century Cures Act non-compliance and distributed a white paper to members of VA and Oracle Cerner. The FEHRM conducted a follow-on analysis regarding the use of FHIR-compliant, open APIs across the Departments.

- **Key Contributions/External Engagements (Government and Commercial):** The FEHRM successfully hosted three monthly FEHRM Standards Stakeholder Group meetings to share standards-related project updates to the Departments and key stakeholders. This provided an opportunity for collaboration on a variety of projects regarding standards alignment and adoption.

Federal and Industry Engagements

FEHRM engagements with federal and key industry stakeholders are aligned with known priorities within DOD, VA and/or FEHRM, as defined by guidance documents including the NDAA, FEHRM Charter, Interoperability Modernization Strategy, VA/DOD Joint Executive Committee Strategic Plan, Federal Health IT Strategic Plan and ONC Interoperability Roadmap. Throughout the reporting period, the FEHRM conducted engagements that promoted the FEHRM's mission and priorities by enhancing interoperability and standards.

- **ONC Engagements:** During the reporting period, the FEHRM collaborated with ONC stakeholders to further the progress of national and international interoperability standards and the quality of health information exchange required by the Departments. In this effort, the FEHRM participated in numerous ONC engagements, including meetings, webinars and public comment periods to inform their work supporting the 21st Century Cures Act. The FEHRM continued representation with the Federal Health IT Advisory Committee (HITAC), the monthly Federal Health IT Coordinating Council (FHIT CC) and USCDI and USCDI+ Workgroups.

- **HL7 Engagements and Balloting:** HL7 Working Group Meetings allow federal agencies, stakeholders and the HL7 community to work on standards and to network with industry leaders from around the world. FEHRM attendance allows SME perspective on current trends and initiatives and is also necessary to remain current

on standards activities and ballots and to participate in working sessions to influence ballot and policy outcomes.

The FEHRM presented to the Unique Mobile Health Application Identifier (UMHAI) WG two use cases developed in collaboration with the Telemedicine & Advanced Technology Research Center (TATRC) that will be used as inputs during the development of the UMHAI standard. The standard will facilitate the incorporation of data into the federal EHR from mobile health applications by uniquely identifying the device, person and application.

The FEHRM planned, hosted and facilitated the Government Birds of a Feather (BoF) meeting during the HL7 Work Group meeting (May 9-13). The meeting featured two speakers from the ONC who presented on USCDI+.

For the May 2022 HL7 ballot cycle, FEHRM prioritized seven ballots with direct impact on interoperability between DOD and VA as high priority. The FEHRM and VA submitted votes and comments to HL7 prior to closing the ballot cycle. The ballot cycle evaluation report was completed and distributed to FEHRM leadership.

- **Institute of Electrical and Electronics Engineers (IEEE) Engagements:** IEEE is a leading developer of industry standards in a broad range of technologies that drive the functionality, capabilities and interoperability. The FEHRM assists the Departments in standardizing data exchanges between medical/mobile-health devices and health information systems (e.g., EHR) by contributing to the development of conceptual frameworks and standards and sharing standards information. Notable activities for Q3 FY2022 include:
    - Collaborated with IEEE Life Sciences and Technical Community members in the promotion of telehealth equity.
    - Engaged in IEEE P1752 Main Work Group meetings in the discussion of specific use cases from the Metabolic Subgroup with a focus on blood glucose monitoring and security requirements for Bluetooth.
    - Provided comments to the Mobile Health Work Group Protection, Safety and Security chapter of the proposed standard with respect to the definitions of Safety, Protection and Security and the overall reference architecture that organizes the Clinical Internet of Things (CIoT) standard.
    - Reviewed and edited v3 draft of the Privacy Chapter of CIoT Standards and analyzed the comprehensiveness of stated privacy requirements and principles. Patient concerns about how personally identifiable information will be used and safeguarded can impede the ability of the federal EHR to maintain and share data and thus have a negative impact on data quality.

- Additional Q3 FY2022 FEHRM engagements with key federal stakeholders included the following:

- Hosted a quarterly FEHRM Town Hall for more than 131 participants from 11 federal agencies on April 11, 2022, where the FEHRM presented an update on the FHCC federal EHR implementation and Joint Sharing Site efforts, the deployment phased approach and the ERA process and framework. ONC and the Center for Medicare and Medicaid Services (CMS) provided program updates. During this activity, the Chief Medical Informatics Office for Cherokee Nation Health Services presented an interesting perspective on health IT, modernization, the role of the CMIO and various nuances to the delivery of health care.

- Hosted the 12th semi-annual Industry Roundtable on May 18, 2022, with more than 220 federal and industry guests representing 122 industries and 15 federal organizations. Senior leaders from the DOD, VA and USCG, federal partners, including the ONC and the CMS, and SMEs from the private sector participated in panel discussions and provided updates. Each panelist shared how they are handling cybersecurity as a crucial component of patient safety efforts within their organizations. The government senior leader panel, which included the FEHRM, DOD and VA, discussed their experiences implementing the federal EHR, including lessons learned, and next steps. ONC and CMS provided program updates.

- Participated in the monthly CMS Health Informatics and Interoperability Group - Interoperability and Standards Collaborative Forum, which convenes CMS, U.S. Department of Health and Human Services and other federal employees to collaborate, learn and elevate new ideas in healthcare interoperability and IT modernization.

- Participated in the monthly VA Interoperability Leadership Internal and External Coordination Work Group, which supports improved interoperability across the VA through effective use of business and technology standards.

- Participated in the CMS-sponsored Post-Acute Care Interoperability (PACIO) Workgroup and PACIO Project Advance Directive Use Case Subgroup established to create FHIR implementation guidance for advance directives information interoperability.

- Finalized the formal comment coordination with DOD and VA on the draft USCDI v3 and the Standards Version Advancement Process (SVAP), and submitted to ONC on April 30, 2022.

- Additional Q3 FY2022 FEHRM engagements with key industry stakeholders included the following:
  - Participated in HL7 Gravity Community Collaboration Project and Gravity FHIR Implementation Guide Technical (Patient Care) Workgroup Meetings to review and analyze inclusion of SDOH in standards and revision to the ICD-10 and USCDI. During this quarter, the Community Project of Health Literacy and the Medical Cost Burden and Health Insurance Status.

Conclusion

Throughout Q3 FY2022, the Departments remained committed to measuring, assessing and enhancing health data interoperability with the single, common federal EHR as well as with their private sector partners who care for DOD, VA and USCG beneficiaries. Enabling health information exchange between DOD, VA, USCG and the private sector serves as the foundation for a patient-centric health care experience, seamless care transitions and improved care for Service members, Veterans and their families. To demonstrate the effect on patients and providers as DOD, VA and USCG move forward with their implementation of a seamless EHR system, the FEHRM will monitor and report data sharing between the Departments as part of its broader support of the Departments' commitment to advance HDI through interoperability modernization strategic planning.

Appendix A: HDI Metrics Details

HDI Metrics Details: Throughout Q3 FY2022, the FEHRM, DOD and VA continued to collaborate to monitor baseline Health Data Interoperability (HDI) metrics and the progress toward modernization and enhancement of HDI by both Departments. Each section shows a different interoperability dimension, as derived from the FEHRM's HDI Measurement Framework: (A) Department Integration, (B) Community Partnerships and (C) Patient Engagement. Figure 1 represents a snapshot of the Q3 FY2022 HDI Metrics Dashboard.

Figure 1 – Q3 FY2022 HDI Metrics Dashboard
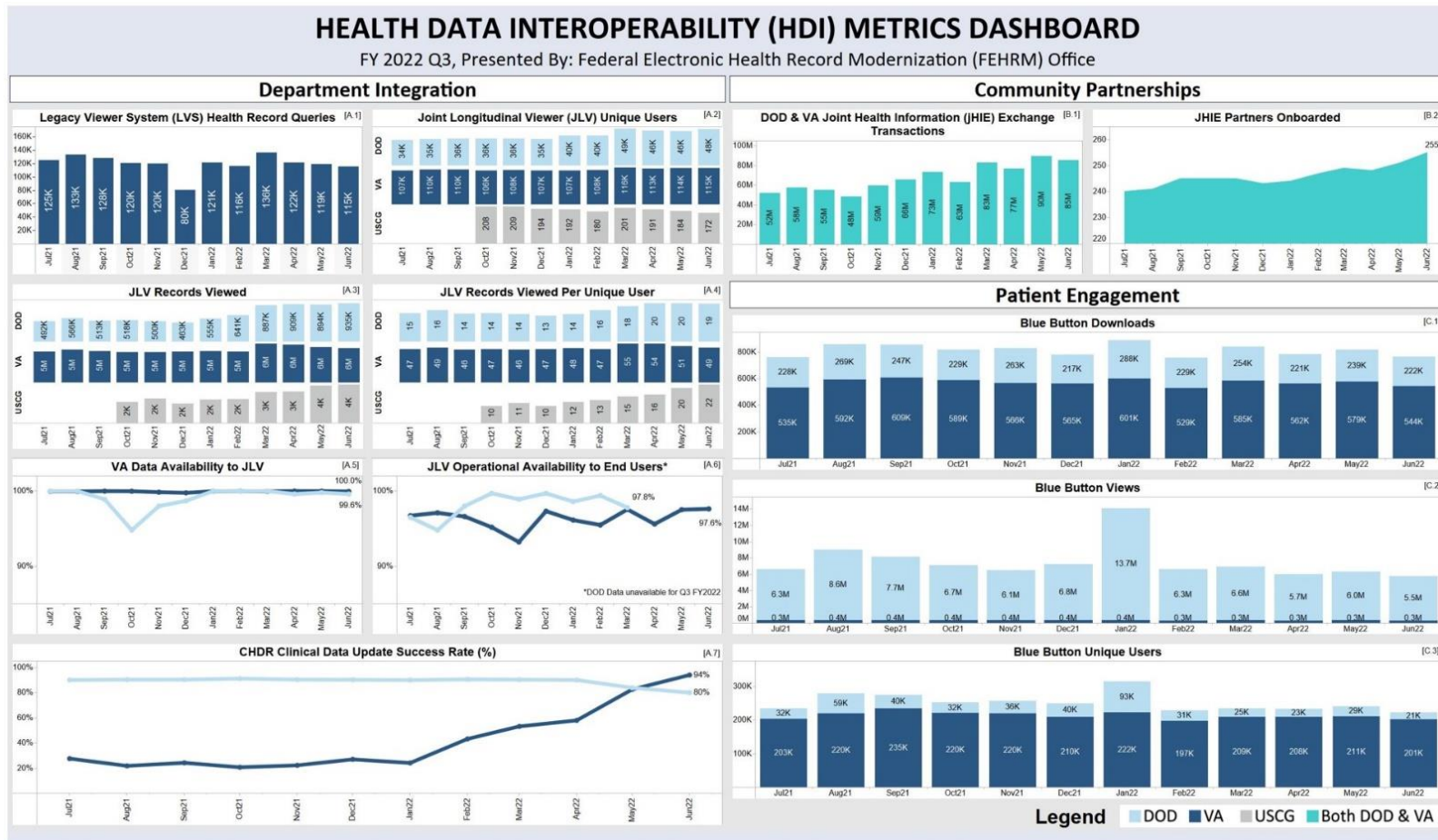
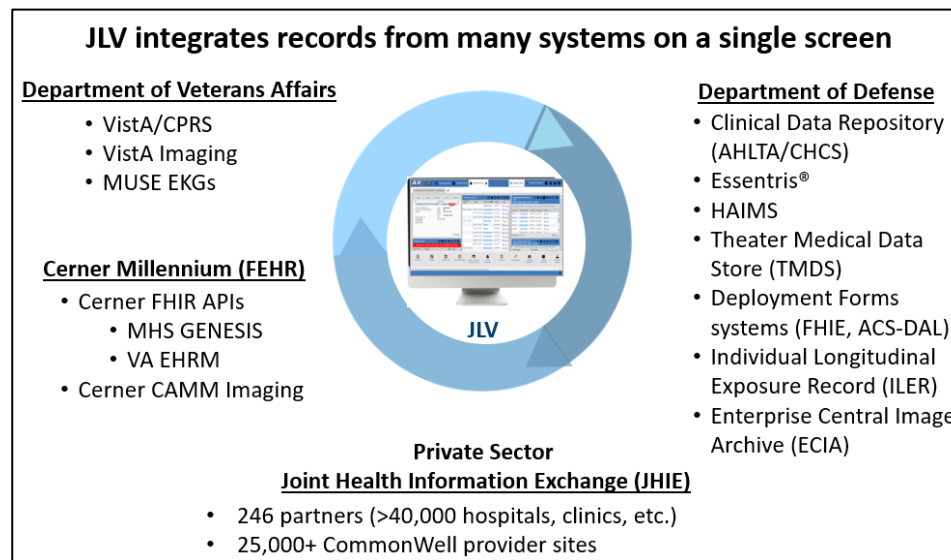**Q3 Highlights:** Metrics with a notable change in Q3 FY2022 from Q2 FY2022 are captured in Table 1 below.

Table 1 – Quarter Highlights

Metrics with a Notable Change in Q3 FY2022	Change
Metric A.3: JLV Records Viewed	The number of DOD Joint Longitudinal Viewer (JLV) records viewed trended upwards roughly 30% over the past six months. This is likely due to additional clinical sites going live with MHS GENESIS. JLV is the principal method for clinicians to view data from legacy systems. JLV's use is anticipated to increase for a period of time as clinical sites transition to MHS GENESIS.
Metric A.7: CHDR Clinical Data Update Success Rate from DOD to VA and VA to DOD	The VA Clinical Data Repository/VA Health Data Repository (CHDR) clinical data update success rate increased over the past six months. The improvement is attributed to the VA CHDR team implementing updates that corrected excessive logging issues and improper testing of a non-required phone number field.
Metric C.2: Blue Button Views	The number of DOD Blue Button views trended slightly downwards over the past six months, likely due to patients accessing their recent health records via the MHS GENESIS patient portal instead of the Blue Button site.
Metric C.3: Monthly Unique Blue Button Users	The number of DOD Blue Button unique users trended slightly downwards over the past six months, likely due to patients accessing their recent health records via the MHS GENESIS patient portal instead of the Blue Button site.

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

1. **Joint Longitudinal Viewer (JLV):** The JLV, released in 2013, is a web-based graphical user interface 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 joint health information exchange civilian partners within a single application. JLV retrieves clinical data from numerous native data sources and systems, displayed in Figure 2.

Figure 2 - JLV Data Sources and Systems

JLV integrates records from many systems on a single screen

Department of Veterans Affairs
- VistA/CPRS
- VistA Imaging
- MUSE EKGs

Cerner Millennium (FEHR)
- Cerner FHIR APIs
  - MHS GENESIS
  - VA EHRM
- Cerner CAMM Imaging

JLV

Department of Defense
- Clinical Data Repository (AHLTA/CHCS)
- Essentris®
- HAIMS
- Theater Medical Data Store (TMDS)
- Deployment Forms systems (FHIE, ACS-DAL)
- Individual Longitudinal Exposure Record (ILER)
- Enterprise Central Image Archive (ECIA)

Private Sector
Joint Health Information Exchange (JHIE)
- 246 partners (>40,000 hospitals, clinics, etc.)
- 25,000+ CommonWell provider sites

2. **Joint Health Information Exchange (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 and CommonWell. 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
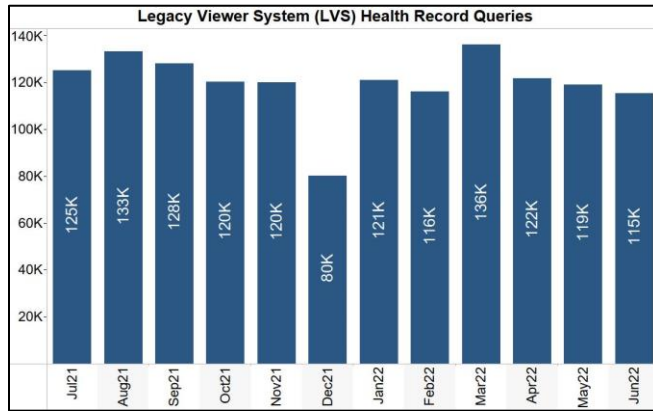
component data is first standardized to a mutually agreed upon mediating vocabulary that both systems comprehend, and provide decision support, such as drug-allergy or drug-drug interaction checks.

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; outpatient medications, problem lists and encounters. The new MHS GENESIS Patient Portal also allows TRICARE beneficiaries to exchange secure messages with their care team; schedule medical and (active-duty) dental appointments online; access notes, labs; medications, and request prescription renewals online.

The FEHRM, DOD and VA continue to expand HDI by improving upon the more than 7 million patient records currently shared monthly between the two Departments, as defined by the total number of JLV records viewed by the Departments reported as of June 30, 2022.

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 legacy systems to the single, common federal EHR.

Legacy Viewer System (LVS) Health Record Queries

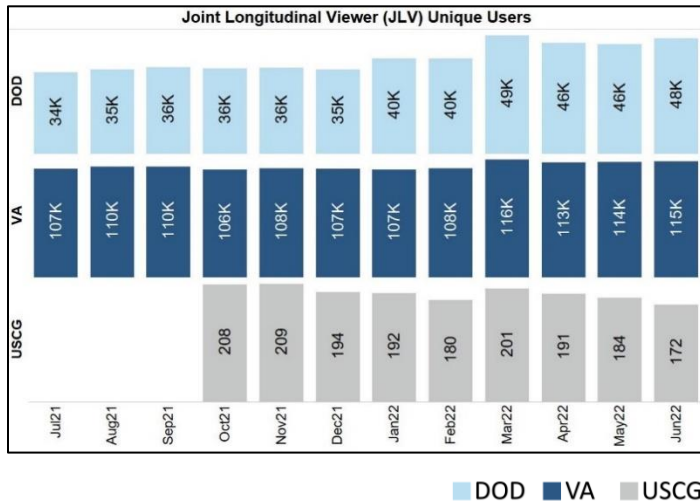| Month	Value
Jul21	125K
Aug21	133K
Sep21	128K
Oct21	120K
Nov21	120K
Dec21	80K
Jan22	121K
Feb22	116K
Mar22	136K
Apr22	122K
May22	119K
Jun22	115K

■ VA

Metric A.1: Legacy Viewer System (LVS) Health Record Queries
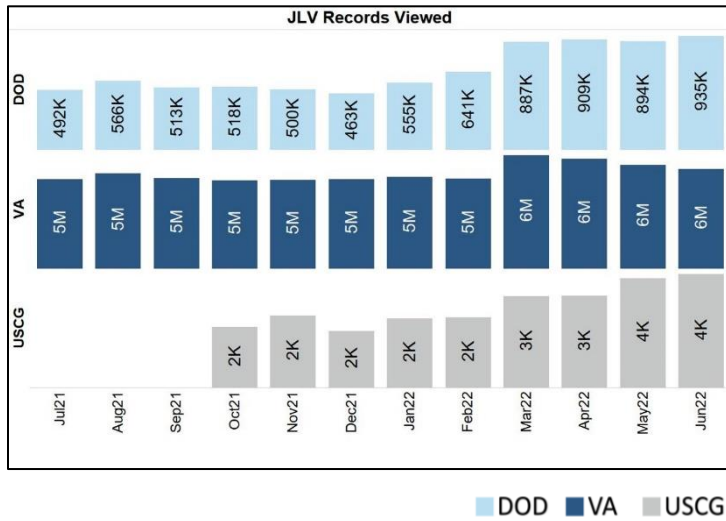
Definition

Total number of health record queries made by VA to the Federal Health Information Exchange/Bidirectional Health Information Exchange (BHIE) Framework database using Computerized Patient Record System (CPRS) Remote Data View in each month.

Joint Longitudinal Viewer (JLV) Unique Users

	Jul21	Aug21	Sep21	Oct21	Nov21	Dec21	Jan22	Feb22	Mar22	Apr22	May22	Jun22
DOD	34K	35K	36K	36K	36K	35K	40K	40K	49K	46K	46K	48K
VA	107K	110K	110K	106K	108K	107K	107K	108K	116K	113K	114K	115K
USCG				208	209	194	192	180	201	191	184	172

DOD VA USCG

Metric A.2: JLV Unique Users

Definition

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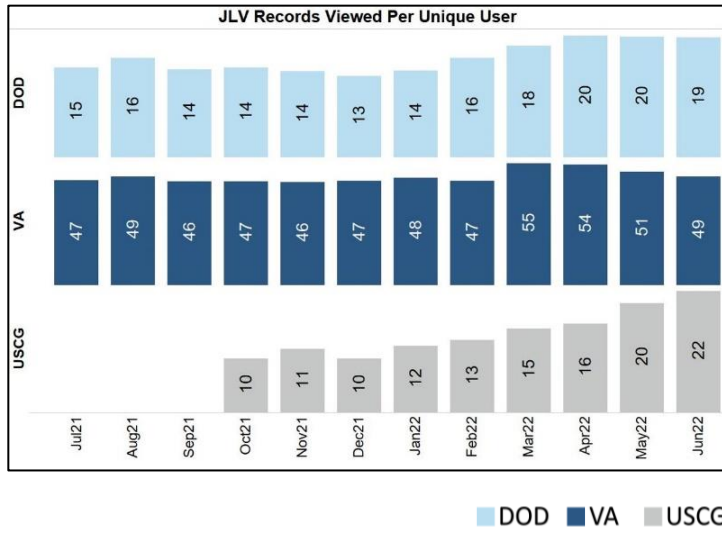
JLV Records Viewed

Metric A.3: JLV Records Viewed

Definition

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

Change

The number of DOD JLV records viewed trended upwards roughly 30% over the past six months. This is likely due to additional clinical sites going live with MHS GENESIS. JLV is the principal method for clinicians to view data from legacy systems. JLV's use is anticipated to increase for a period of time as clinical sites transition to MHS GENESIS.

JLV Records Viewed Per Unique User

	Jul21	Aug21	Sep21	Oct21	Nov21	Dec21	Jan22	Feb22	Mar22	Apr22	May22	Jun22
DOD	15	16	14	14	14	13	14	16	18	20	20	19
VA	47	49	46	47	46	47	48	47	55	54	51	49
USCG				10	11	10	12	13	15	16	20	22

DOD   VA   USCG

Metric A.4: JLV Records Viewed Per Unique User

Definition

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

Calculation: JLV Records Viewed divided by JLV Unique Users.

VA Data Availability to JLV
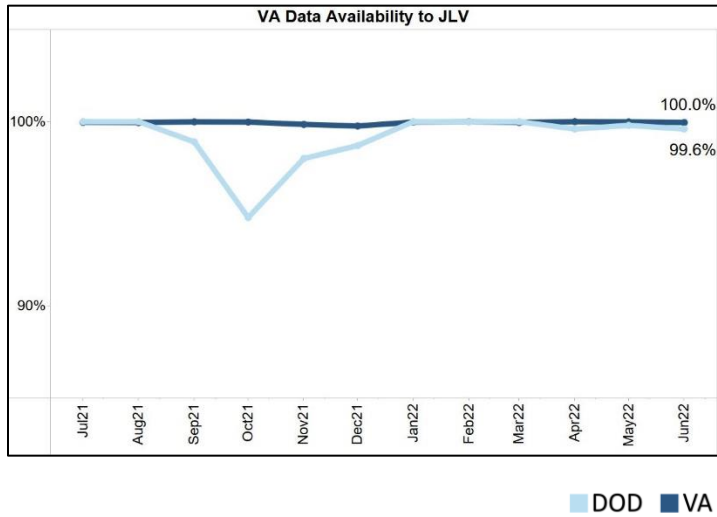
Metric A.5: VA Data Availability to JLV

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 – The percentage of time during the month that VistA Data Services was operational (no errors and VistA data available to both DOD and VA users) in all production environments.

JLV Operational Availability to End Users

*DOD Data unavailable for Q3 FY2022

DOD ■ VA
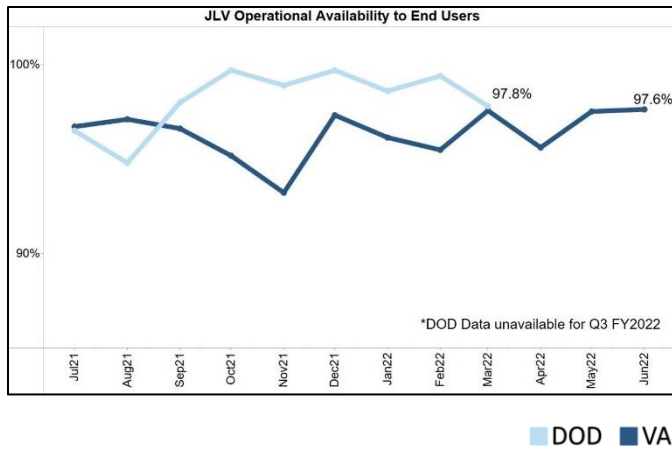
Metric A.6: JLV Operational Availability to End Users

Definition

DOD – 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).

VA – The percentage of time during the month representing the end-user experience where JLV was available for login and functionally operational (users able to conduct patient searched/lookup and retrieve DOD, VA and federal EHR data in production environments).

CHDR Clinical Data Update Success Rate (%)

DOD ■ VA
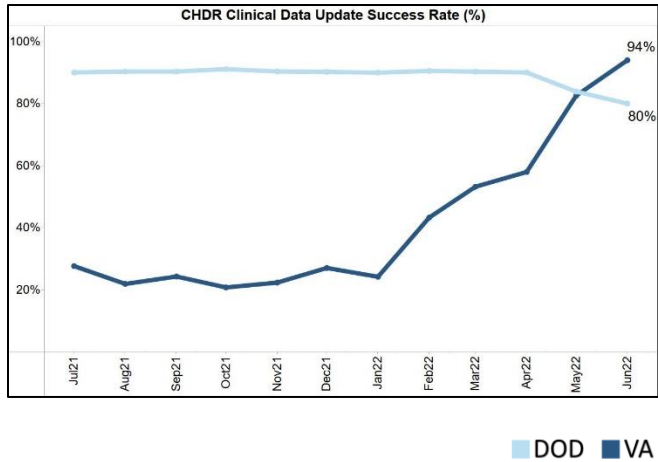
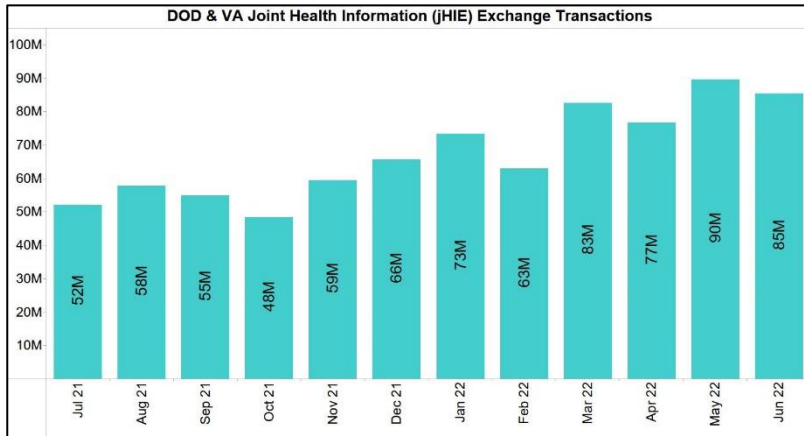| Metric A.7: CHDR Clinical Data Update Success Rate from DOD to VA and VA to DOD |
|---|
| **Definition** |
| Percentage of CHDR clinical update messages with data (allergy or pharmacy) successfully processed. A successful process occurs when the sending agency receives a response from the receiving agency indicating successful receipt, translation and storage of clinical data. |
| **Change** |
| The VA CHDR clinical data update success rate increased over the past six months. The improvement is attributed to the VA CHDR team implementing updates that corrected excessive logging issues and improper testing of a non-required phone number field. |

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.


DOD & VA Joint Health Information (jHIE) Exchange Transactions

Month	Value
Jul 21	52M
Aug 21	58M
Sep 21	55M
Oct 21	48M
Nov 21	59M
Dec 21	66M
Jan 22	73M
Feb 22	63M
Mar 22	83M
Apr 22	77M
May 22	90M
Jun 22	85M

■ Both DOD & VA

Metric B.1: Joint Health Information Exchange (joint HIE) Transactions

Definition

Monthly count of C-CDA, C32 or C62 (document architecture that facilitates interoperability of health data between EHR systems) documents exchanged between the Departments and private partners.

JHIE Partners Onboarded
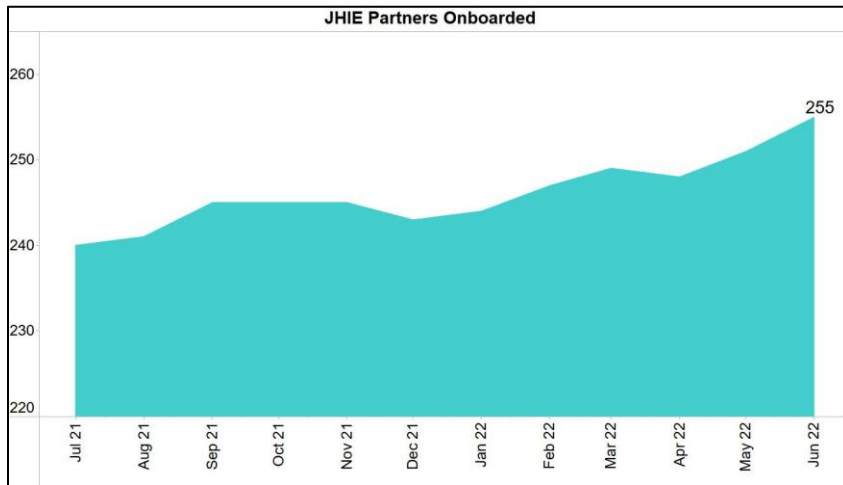
Both DOD & VA

Metric B.2: Joint HIE Partners Onboarded

Definition

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).
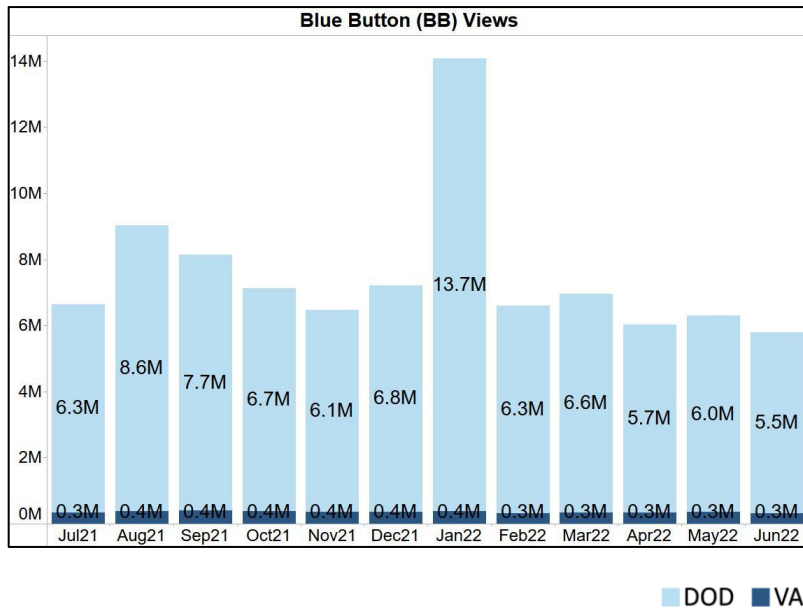
Category C: Patient Engagement

Value Statement: Blue Button serves 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.

Blue Button (BB) Downloads
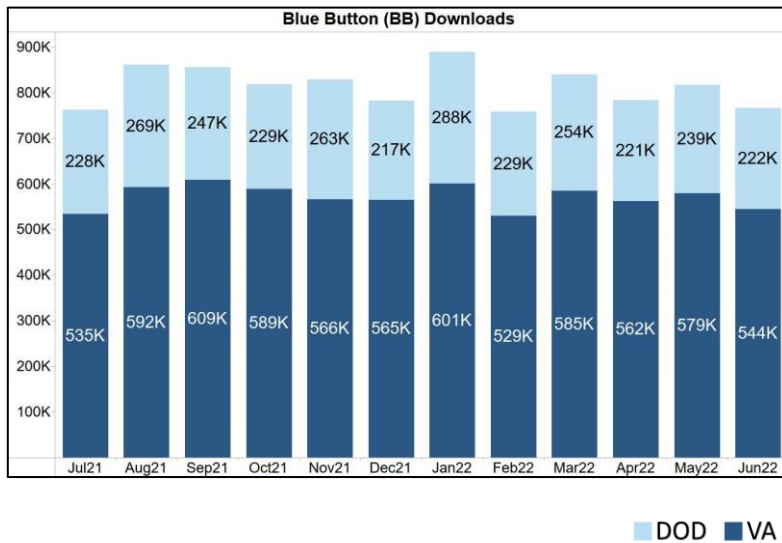
Metric C.1: Blue Button Downloads
Definition
Total number of data downloads (e.g., PDF, text) generated by end users per month.

Blue Button (BB) Views

Chart showing Blue Button (BB) Views by month from Jul21 to Jun22, split between DOD (light blue) and VA (dark blue):

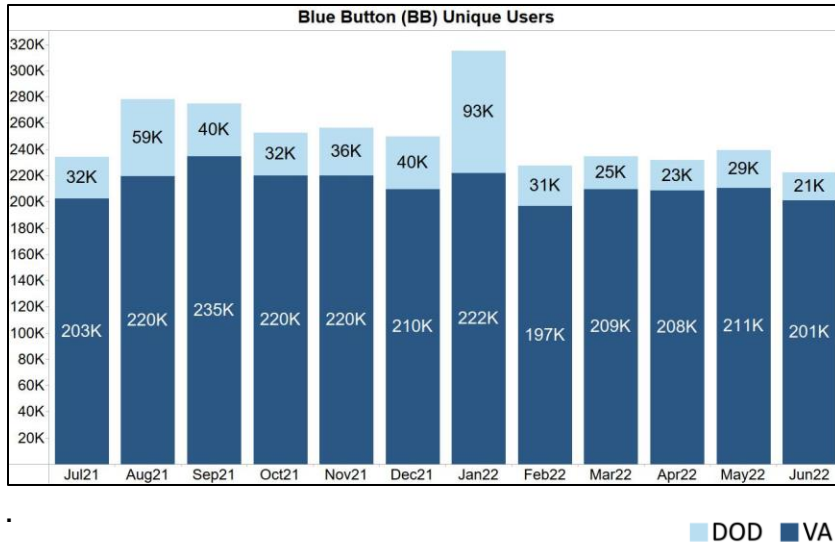| Month	DOD	VA
Jul21	6.3M	0.3M
Aug21	8.6M	0.4M
Sep21	7.7M	0.4M
Oct21	6.7M	0.4M
Nov21	6.1M	0.4M
Dec21	6.8M	0.4M
Jan22	13.7M	0.4M
Feb22	6.3M	0.3M
Mar22	6.6M	0.3M
Apr22	5.7M	0.3M
May22	6.0M	0.3M
Jun22	5.5M	0.3M

Legend: DOD, VA

Metric C.2: Blue Button Views

Definition

Average number of views generated by end users per month.

Change

The number of DOD Blue Button views trended slightly downwards over the past six months, likely due to patients accessing their recent health records via the MHS GENESIS patient portal instead of the Blue Button site.

Blue Button (BB) Unique Users

Month	VA	DOD
Jul21	203K	32K
Aug21	220K	59K
Sep21	235K	40K
Oct21	220K	32K
Nov21	220K	36K
Dec21	210K	40K
Jan22	222K	93K
Feb22	197K	31K
Mar22	209K	25K
Apr22	208K	23K
May22	211K	29K
Jun22	201K	21K

☐ DOD ■ VA

.

Metric C.3: Monthly Unique Blue Button Users
Definition
Number of unique Blue Button users within a month.
Change
The number of DOD Blue Button unique users trended slightly downwards over the past six months, likely due to patients accessing their recent health records via the MHS GENESIS patient portal instead of the Blue Button site.