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FEDERAL ELECTRONIC HEALTH RECORD MODERNIZATION

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Introduction

Section 715(f) of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116-92) requires the Federal Electronic Health Record Modernization (FEHRM) office to submit a report on its activities during the preceding calendar year. The enclosed report details the work of the FEHRM and the ongoing progress toward a single, common federal electronic health record (EHR) during calendar year (CY) 2022.

The Department of Defense (DOD), Department of Veterans Affairs (VA) and Department of Homeland Security's U.S. Coast Guard (USCG) continue to partner to deploy the federal EHR that enhances patient care and provider effectiveness, wherever care is provided. This partnership's interoperability effort to ensure the exchange and usability of data advanced significantly following the establishment of the FEHRM and with the Departments' insightful decision to embrace a single, common federal EHR. Today, the partnership continues to expand with the addition of the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). Together, these Departments are implementing a federal EHR that puts patients at the center, regardless of the location they initially received care.

This effort is vital. The federal EHR, along with the joint health information exchange (HIE), significantly increases interoperability across DOD, VA, USCG and other federal partners as well as participating provider organizations to enhance patient care and provider effectiveness— as mandated by Congress starting in fiscal year 2008. The separate, legacy EHR systems (including more than 130 different Veterans Health Information Systems and Technology Architecture [VistA] iterations within VA) are outdated and unable to create a seamless care experience as provided by the federal EHR as they are not able to exchange and use data between each other; they are not interoperable. Because the new federal EHR is interoperable across Departments, it is truly longitudinal; from the time individuals join the military through their care as a Veteran, their care will be documented in one, complete patient health record that they and their providers can access. With the Departments using the same federal EHR, they have access to the same patient data. As such, the FEHRM, DOD and VA are working toward interoperability between the Departments beyond simply the interoperability of data and toward the interoperability of processes.

The FEHRM determines ways to converge federal EHR processes, workflows and configurations to streamline the patient and provider experience. While DOD, VA and USCG are all implementing the same single, common federal EHR, each Department is given a certain amount of flexibility to configure the federal EHR differently to meet specific facilities' needs while still maintaining interoperability between the Departments. Through established governance and change control processes, DOD and VA sites can each request configuration changes (e.g., add, edit or remove user roles, workflows and other configuration items such as interfaces, forms, assessments and scales) as long as these changes do not undermine interoperability between the Departments. Approved changes

are implemented within the federal EHR, and any Departments using the EHR have access to these changes. However, the FEHRM focuses primarily on determining ways to converge EHR configurations to streamline the patient and provider experience between the Departments. The goal is to ensure providers have a common user experience defined by evidence-based best practices and patients have a consistent care experience regardless of where they receive care.

The FEHRM is a key driver of this federal health care interoperability effort. In addition to its DOD, VA, USCG and expanding federal agency partners, the FEHRM collaborates with the Department of Health and Human Services, Office of the National Coordinator for Health Information Technology (ONC) and other government and industry leaders. This collaboration improves the continuity of care among and between public and private-sector providers, better shapes the future of health information technology and information exchange and enhances the beneficiary experience.

The FEHRM unifies efforts across the federal EHR ecosystem and delivers common capabilities such as managing the Federal Enclave; overseeing federal EHR configuration and content changes; providing software updates and solutions; tracking joint risks, issues, opportunities and lessons learned; maintaining an integrated master schedule; leading analysis and integration of deployment activities at joint sharing sites (JSSs); advancing interoperability by expanding federal partner participants and managing the joint HIE; and driving registry modernization to enhance data usability.

Additionally, the FEHRM, DOD, VA and USCG continuously collect feedback and lessons learned from those deploying and using the federal EHR. This feedback informs best practices for future deployments of the federal EHR as well as enhancements to the federal EHR and interoperability.

Enhancements to the federal EHR are ongoing. Some enhancements broadened interoperability to include additional provider organizations and data sources, and some helped to make the data within the EHR easier to access and use. Some enhancements integrated into the federal EHR since initial deployment include Immunization Forecaster and Immunization Gateway; Telehealth Capabilities; Mass Vaccination Module; Bar Code Medication Administration; Opioid Registry; Burn Unit PowerForm; Joint HIE, a secure gateway used to connect to participating provider organizations across the United States who agree to securely share clinical information with our federal partners; and HealtheIntent, a joint solution providing analytics capabilities and recommendations to providers based on VA and DOD data.

The FEHRM also drives registry modernization across the Federal Enclave including HealtheRegistries, a technology to track, manage and provide measures for improved health outcomes across beneficiary populations through integrated workflow recommendations called Health Maintenance Reminders. The FEHRM also drives the Individual Longitudinal Exposure Record (ILER), which aggregates information from numerous occupational health,

exposure and deployment systems to produce a consolidated list of environmental and occupational exposures sustained by individual Service members to enhance exposure-related care.

The FEHRM also oversees innovative initiatives to enhance data usability including Immunization Query that reports and queries immunization data in real time to and from local and state information systems; Seamless Exchange that allows clinicians to view, reconcile and import data from external records, creating a comprehensive, long-germ record from trusted data sources; Prescription Drug Monitoring Program that integrates data from prescription drug monitoring programs, improving provider workflows and access; and Natural Language Processing that improves the ability of clinical staff to find targeted private sector data.

The federal EHR continues to evolve as experiences with the federal EHR drive lessons learned, best practices and enhancements. The FEHRM, DOD and VA are committed to synchronously deploying the federal EHR at Captain James A. Lovell Federal Health Care Center (Lovell FHCC), a site where staff and facilities are shared between DOD and VA, delivering care to Service members, Veterans and their families. This deployment will lead the way for how two health care systems can work together to make the best care decisions without technology being a barrier. The FEHRM will converge configurations, integrate processes and harmonize workflows between DOD and VA as part of deploying the federal EHR at Lovell FHCC. This work will evolve the federal EHR to better serve providers and patients at both Departments and enhance interoperability. These enhancements will provide the foundation for future JSSs and benefit the overall Federal Enclave.

Additionally, the amount of participating provider organizations DOD, VA and USCG share data with via the joint HIE is rapidly expanding. The FEHRM anticipates sharing data soon with more than 90 percent of private sector hospitals. With a vision for federal organizations to share a single, common federal EHR and meaningfully exchange and use data with participating provider organizations, patients will benefit from a continuity of care that spans across health care systems.

The collective EHR effort continues to improve and expand. As of March 2023, there are more than 160,000 DOD, VA and USCG federal EHR users (physicians, nurses, and other health care providers) at 112 parent military treatment facilities, five VA Medical Centers and 109 USCG sites. More than 6.6 million unique patients are currently in the federal EHR system. There is recognition that the federal EHR saves providers time and enables more standard workflows to support enhanced clinical decision-making and patient safety.

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

The common capabilities the FEHRM delivers include:

- Governing and overseeing the Federal Enclave, a shared environment to contain the federal EHR and supporting systems.
- Governing and overseeing the joint HIE, a data-sharing capability.
- Advancing interoperability, the meaningful use and exchange of data, 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 Departments through a joint decision-making process facilitated by the FEHRM.
- Tracking and facilitating 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.
- Leading analysis and integration of deployment activities at JSSs, sites where resources are shared between DOD and VA.

Value-added Activities Supporting EHR Modernization

Throughout CY2022 the FEHRM conducted a host of value-added activities in support of federal EHR deployment. These activities include:

- Supported the following federal EHR go-lives:
  - Wave JACKSONVILLE went live on September 24, 2022. The wave included eight medical commands with approximately 7,900 new users.
  - Wave EGLIN went live on September 24, 2022. The wave included 10 medical commands with approximately 8,400 new users.
  - Wave BEAUMONT went live on June 11, 2022. The wave included two medical commands with approximately 4,500 new users.
  - Wave GORDON went live on June 11, 2022. The wave included four medical commands with approximately 4,500 new users.

  - White City VA Medical Center (VAMC) went live on June 11, 2022, at the VAMC and two Community-Based Outpatient Clinics (CBOCs).
  - Roseburg VAMC went live on June 11, 2022, at the VAMC and four CBOCs.
  - Wave BRAGG went live on March 19, 2022. The wave five medical commands with approximately 8,700 new users.
  - Wave HOOD went live on March 19, 2022. The wave included nine medical commands with approximately 8,800 new users.
  - IOC-Columbus VAMC went live on March 26, 2022, and included users from the VAMC, CBOCs, and remote sites.
  - IOC-Walla Walla VAMC went live on March 26, 2022, and included users from the VAMC, CBOCs, and remote sites.
  - Waves USMEPCOM went live on February 24, 2022 (soft go-live) and March 10, 2022 (full go-live).
  - Wave BAMC went live on January 22, 2022. The wave included one medical command with approximately 9,500 new users.
  - Wave LACKLAND went live on January 22, 2022. The wave included six medical commands with approximately 7,400 new users.
- Released software upgrades and solutions via capability blocks, including:
  - Capability Block 6 provided updates to several core components of the federal EHR including MPages and Dentrix, as well as upgrades to the following capabilities: Medicare Remittance Advice (MRA) and Cerner Electronic Lab Reporting (CELR). Capability Block 6 also included two technical releases for Dentrix Mass Examination and iAccess Kiosk software.
  - Capability Block 7 Platform Upgrades provided updates to several core components of the federal EHR including Millennium, MPages and Pharmacy Enhancements. Capability Block 7 also included the Oracle Stability and Scalability Package, providing a patch package for the Exadata Database Appliances specifically developed to further address stability and scalability within the P0630 database environment.
  - Capability Block 7 Non-Platform Upgrades provided updates to several existing capabilities as well as a release of the following new capabilities: HealtheRegistries Phase 1C, TissueTracker, Medicare Secondary Payer Questionnaire (MSPQ) and Encounter Based Imaging Interface.
- Monitored planned activities via the Enterprise Operations Center (EOC) that could potentially disrupt go-live activities and integrated independent incident processes and improved performance of the EOC to drive operational efficiencies. Reported on 185 unplanned major incidents.
- Enhanced the joint HIE by implementing data-sharing standards to improve the quality, visibility and relevance of the data.
- Performed risk assessment, analysis and mitigation of asynchronous deployments across JSSs to support continued interagency clinical service sharing, including supporting seven sites impacted by Wave JACKSONVILLE/EGLIN. This included

establishing a DOD/VA Enterprise Patient Care Location (PCL) Working Group because of interoperability challenges experienced with previous deployments impacting JSSs.

- Completed an Enterprise Requirements Adjudication process at Lovell FHCC to inform the federal EHR baseline design and execution strategy for Lovell FHCC. Received departmental commitment for a synchronous deployment.
- Advanced information sharing by developing and adopting national standards for data encoding and formatting, including mobile health data.
- Established a team dedicated to the implementation and continued development of ILER and exposure-related interoperability. Completed the development of functional requirements and a thorough review of the Honoring our Promise to Address Comprehensive Toxics Act of 2022 (PACT Act) for its impact on ILER and the federal EHR.
- Approved 1,699 federal EHR content and configuration changes impacting the baseline.
- Brought together more than 700 federal EHR users at the Federal EHR Annual Summit to get feedback on enhancing the federal EHR.
- Monitored performance and progress of deployments, conducted trend analysis and enhanced domain management of the Federal Enclave.
- Oversaw data management activities impacting the Federal Enclave, including establishing and chartering ten committees under the purview of the Data Governance Board and Analytics Governance Board to ensure full support of data standards, quality and sharing; analytics/reporting standards; and data warehouse access controls.
- Conducted 13 Enterprise Technical Activities sessions, including Environment Management Operations Center focused on the Federal Enclave, to address technical challenges that are affecting or could impact the federal EHR.
- Established a single authority for interfaces, formalizing architecture, modeling tools and application program interfaces.
- Deployed and analyzed patient and clinical satisfaction surveys across DOD, VA and USCG. Created longitudinal views of patient and clinician satisfaction survey responses to highlight end-user insights from the surveys.
- Completed documentation and planning to execute the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2020 assessment plan for evaluating the federal EHR.
- Supported NOAA joining the federal EHR. NOAA is finalizing plans to deploy the federal EHR with an anticipated go-live date of summer 2023.
- Aligned and transitioned to a single governance platform tool for issue resolution, deployment and sustainment activities (LMT JAZZ). The tool is now leveraged for Data Management, the Joint Sustainment and Adoption Board, the Federal Configuration Control Board and all FEHRM-chartered boards for comprehensive decision tracking

and oversight. Joint issues and work items are fully tracked from intake through resolution.

Implementing the Interoperability Modernization Strategy

The DOD-VA Interoperability Modernization Strategy (IM Strategy) provides a framework to guide the Departments as they deliver interoperable solutions for beneficiaries and end-users. The IM Strategy was constructed in three separate 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). The primary document artifact from Phase 3—DOD-VA IM Strategy Performance Measurement Plan (PMP)—was drafted and finalized in April 2022, fulfilling the requirements in NDAA FY2020. The PMP contains details on performance measures for tracking progress towards the IM Strategy's four goals and 17 objectives. The PMP proposes a follow-on activity focused on the development of detailed performance measure specifications for a group of high-priority initiatives, such as the ILER.

Interoperability Progress and Accomplishments

The FEHRM continues to pursue the highest level of interoperability—the meaningful use and exchange of data—for the delivery of health care. 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 interoperability. The following are examples of interoperability advancements during CY2022.

Joint Health Information Exchange

During the CY2022 reporting period, the FEHRM began its work in connecting joint HIE to the Carequality framework to significantly expand the joint HIE exchange with provider organizations. Once completed, this continued expansion of connections to provider organizations will increase outreach to over 90% of US hospitals and enhance the ability to exchange patient data and result in more informed care for patients who are navigating between different health care providers.

The FEHRM initiated plans to implement an immunization exchange capability that will allow MHS GENESIS users to query and report immunizations to state Immunization Information Systems (IIS) via the Centers for Disease Control and Prevention (CDC) IZ Gateway. Utilizing the CDC IZ Gateway allows the DOD and VA to eliminate the need for individual agreements with each state IIS by leveraging the Provider Jurisdiction Agreement and legal/policy coordination across state IISs, including consolidated implementation guide and endpoint vs point-to-point connections to enable easier integration. Clinicians will be able to request an

immunization record and improved access to immunization history for DOD beneficiaries when care is obtained outside of the Military Treatment Facility. This capability will also enable the DOD to exchange information consistent with state laws that require immunization providers to report to the state IIS.

The FEHRM also started work on Seamless Exchange. Seamless Exchange will allow clinicians to view, reconcile and import data from external records within their normal workflow. It plans to incorporate deduplication, data provenance and auto-reconciliation from trusted sources thereby providing clinicians a comprehensive patient record compiled from various sources. DOD and VA plan to leverage the Seamless Exchange capabilities for legacy VA data, legacy DOD data and private sector data.

HealtheIntent

HealtheRegistries

VA released the toxic exposure screening measure in Q1 FY2023, meeting PACT Act guidelines.

During CY2022, the organizational build by the HealtheIntent Team was initiated to extend the HealtheRegistries solution to DOD nurses across the Military Health System in addition to the established DOD physician users. Projected completion is targeted for Q2 FY2023 effectively expanding the user base.

The FEHRM addressed issues with solution features and completed reconfiguration of targeted measures. Follow-up on architecture elements is being managed by the program management offices (PMOs) with the vendor to ensure performance is adequate when the solution scales.

HealtheAnalytics

In CY2022, the FEHRM completed the Data Model Builder enhancement. Further, the FEHRM established the Tableau Server application SAML gateway for DOD and VA data authors and administrators. This update removed username and password authentication and established an additional working multifactor authentication in the HealtheIntent Federal Tenant.

JSSs Implementation Support

Throughout CY2022, the FEHRM engaged in numerous planning, analysis and execution activities to support the unique clinical, operational, business and technical aspects to address and maintain interoperability objectives for JSSs related to federal EHR efforts. To maximize use of available resources supporting care offered to both DOD and VA beneficiaries, there is a common practice of sharing personnel, space and services at JSSs, which leads to unique and diverse challenges with respect to both Departments' asynchronous federal EHR deployment approaches. Based on the identified level of

integration between any two JSSs, the FEHRM actively worked with its interagency partners, DOD Healthcare Management System Modernization (DHMSM), VA Electronic Health Record Modernization Integration Office (EHRM-IO), Defense Health Agency Health Informatics (DHA HI) and Veterans Health Administration Office of Health Informatics (VHA OHI) and others, as appropriate, to identify the clinical, business and operational risks of the DOD federal EHR deployments on JSSs and develop mitigation steps and provide post deployment support. Eight JSSs with a high level of integration required such assistance, based on a defined list of clinical ranking criteria.

More specifically, the FEHRM brought together DOD/VA deployment subject matter experts (SMEs) managing end-user account creation and system access to resolve issues (e.g., end-user provisioning) associated with DOD federal EHR deployment at Tripler Amy Medical Center (TAMC)-Pacific Islands VA Health Care System. The FEHRM convened DHMSM and EHRM-IO stakeholders and supporting vendors (Oracle Cerner and Leidos Partnership for Defense Health) to evaluate patient care location (PCL) decision-making processes and their impact to federal EHR deployment at JSSs as part of the FEHRM Risks, Issues, Opportunities (RIO) process. The FEHRM performed a thorough analysis of Womack Army Medical Center (WAMC)-Fayetteville VAMC joint inpatient dialysis implementation status and potential PCL considerations and determined courses of action (COAs). In Q2 CY2022, the vendors delivered three briefings on the problem statement, background and proposed COAs regarding the optimum manner to address PCL challenges between DOD and VA. A “no PCL build” to support the joint inpatient dialysis between WAMC-Fayetteville VAMC was accepted, given that the startup date to deliver this shared service was unknown.

In June 2022, the FEHRM conducted an evaluation of the nature of shared clinical services between William Beaumont Army Medical Center (WBAMC)-El Paso VA Medical Center (VAMC). This evaluation revealed that the capability to send/access laboratory orders and results that El Paso VAMC had with WBAMC via Laboratory Electronic Data Interchange (LEDI) interface would no longer be operational between the two facilities after the DOD federal EHR go-live in June 2022. The FEHRM, in coordination with its interagency partners, developed a mitigation plan, and then engaged stakeholders from the impacted JSS and the PMOs to secure their support in its implementation. 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. Additionally, based on continued challenges resulting from disparate PCL decisions impacting established shared services at multiple JSSs, the FEHRM secured the support of PMO leadership to establish an Enterprise PCL Working Group empowered to find optimal PCL solutions for DOD/VA JSSs, and address PCL questions or concerns in an efficient manner to ensure the affected JSSs successfully transition to the Departments’ federal EHR implementation efforts.

Also, in Q3 CY2022, the FEHRM convened EHRM-IO stakeholders to discuss a list of unique clinical, business and operational practices (including clinical workflows and data migration), along with the need for a coordinated plan to transition VA users to the federal EHR,

previously flagged by the Anchorage VAMC leadership. A key takeaway of this discussion was that some, or all, of these items will apply to every JSS transitioning to the federal EHR. During this reporting period, the FEHRM examined the EHRM-IO deployment schedule and identified JSSs that require FEHRM support to mitigate risks ahead of the "end state" (in which both Departments will be on the federal EHR).

In Q4 CY2022, the FEHRM, alongside DHA (clinical and business) and VHA OHI partners, evaluated the nature of the shared clinical services at seven JSSs (National HealthCare Corporation Charleston, Naval Health Branch Clinic Panama City, Naval Hospital Beaufort, Naval Branch Health Clinic Key West, MacDill Air Force Base (AFB), Keesler AFB and Eglin AFB in DOD Waves JACKSONVILLE/EGLIN) to identify potential risks due to the asynchronous deployment. The FEHRM conducted an assessment on the number of VA clinical staff who currently access the DOD legacy EHR systems to document care and order ancillary services for both DOD beneficiaries and Veterans at these sites. The capability to order/receive laboratory and radiology orders and results, along with the current management process for scheduling and documenting care provided by several VA specialty clinicians (optometry, dermatology and cardiology) needed modification to support the continued offering of these services after the federal EHR go-live in September 2022. Additionally, the FEHRM continued to support the JSSs functioning in the DOD post go-live environment and socialize with both PMOs the need to begin examining the mitigation activities that are relevant for the projected JSSs scheduled to be on the federal EHR, in CY2023.

JSS Lovell FHCC Sustainment Support

As defined in the DHMS Program Executive Office Transition Agreement (TA) dated December 5, 2022, the FEHRM assumes responsibility for joint HIE, Joint Longitudinal Viewer (JLV) and Lovell FHCC legacy system sustainment. The joint HIE, JLV and Lovell FHCC capabilities funding requirements remain tied to Enterprise Intelligence & Data Solutions (EIDS) Program Element (PE) within the Program Executive Office, Defense Healthcare Management Systems (PEO DHMS).
JSS FHCC Sustainment is a component of the overall JSSI Workstream support tenant and is responsible for the coordination and management of the Lovell FHCC Federal Health Legacy Application Interoperability Solutions, which includes the Enterprise Service Bus-Orders Portability (ESB-ORP), Medical Single Sign On-Context Management (MSSO-CM) and associated test and evaluation and cybersecurity activities in coordination with Lovell FHCC, DOD, VA and others key stakeholders. Below includes a description of each key accomplishment and Solution.

MSSO-CM

MSSO-CM handles information that is critical to the support of deployed and contingency forces. The MSSO-CM system allows users (authorized government, military and contractor personnel) to interoperate seamlessly and securely among clinical applications (AHLTA,

Composite Health Care System [CHCS], VistA and Computerized Patient Record System [CPRS]). The MSSO-CM program inherits the users from each system it interfaces with as well as the number and type of users are defined by these interfaced systems. The Single Sign-On (SSO) component eliminates the need for health care providers to sign on each time they switch applications, thereby automating the user login process by using credentials stored in a secure database. It enables users to enter their credentials only once and access multiple applications.

The Context Management (CM) component synchronizes patient context data across multiple applications, eliminating the need for health care providers to duplicate patient searches from one application to other participating clinical applications.

Throughout CY2022, JSS Lovell FHCC Sustainment engaged in the testing and product verification of both MSSO and CM capabilities in both test and production environments. Key MSSO-CM accomplishments include the completion of the planning and implementation of the Imprivata OneSign 7.10 G4 Appliance Upgrade and Monthly Information Assurance Vulnerability Alert (IAVA) patches for the Management and Security Server (MSS) in the Integration and Development environments. The Imprivata OneSign 7.10 G4 Appliance upgrade to the production environment is planned for Q4 FY2023 following risk assessment.

Enterprise Service Bus/Orders Portability (ESB/ORP)

ESB/ORP capabilities enable DOD and VHA clinicians to place orders and have those orders actionable and displayed within CHCS, AHLTA, VistA or the CPRS.

The FHCC Orders Portability interface provides Orders Portability enabling the DoD legacy systems to send and receive orders, status updates and results from the VA systems via an ESB for Laboratory, Radiology and Consults.

The JSS Lovell FHCC Sustainment Enterprise Service Bus (ESB) and Orders Portability (ORP) Team coordinated the testing of legacy enhancements in coordination with DOD and VA and successfully promoted a number of enhancements with direct impact to patient care capabilities to the production environment. Key ESB-ORP accomplishments include the completion of joint testing and deployment into the production environment for a myriad of functional enhancements. These include an Auto Upload Clinical History enhancement to allow the system to auto-populate clinical history in the Anatomic Pathology (AP); a Reconfigure Last Menstrual Period (LMP) field enhancement to provide the ability to free text; a LMP date for GYN order and not just a date selection in the calendar; and an Anatomic Pathology (AP) orders to LabLion enhancement to allow AP tests ordered on the DOD side to cross into LabLion. Additional enhancements planned for Q3 FY2023 include adding Progress Notes to Retry and End of Day (EOD) reports, modifying the Current Procedure Terminology (CPT) code field format and modifying the Printing process.

FHCC Federal EHR Implementation Support

The FEHRM leads the Lovell FHCC federal EHR implementation, in collaboration with DHMSM PMO and EHRM-IO. In support of the configuration and deployment of the federal EHR at Lovell FHCC, the project team focused on pre-deployment activities in CY2022, including the Enterprise Requirements Adjudication (ERA) process and establishment of the execution strategy. The FEHRM also facilitated the site's development of the Lovell FHCC Operations Document, which provided a summary of Lovell FHCC structure, patient care and business operations, and served as an input to the ERA process (in addition to other sources of input including previously conducted assessments and questionnaires).

The FEHRM designed the ERA process to confirm a more integrated federal enterprise baseline for deployment of the federal EHR at Lovell FHCC. Topics identified for the ERA process focused on items that were necessary to complete an Implementation Plan and bridge the gap between DOD and VA standards and best practices. ERA topics were then categorized by those related to the design of the federal EHR and those related to the execution of the deployment at Lovell FHCC. The FEHRM convened key stakeholders and SMEs from DHMSM PMO, EHRM-IO, DHA and VHA for a series of discussion sessions to agree upon a COA for each topic. The intended outcome was convergence between the Departments for the federal EHR design, where possible.

ERA activities began in Q1 CY2022, taking on a weekly cadence for discussion sessions with key stakeholders and SMEs. In Q3 CY2022, an In-Progress Review (IPR) was held to provide leadership a detailed review of the progress on design topics and begin discussions on the strategy for execution-related topics. Also, in Q3 CY2022, a series of meetings were held to establish the program office roles and responsibilities for execution-related topics. In total, 69 ERA topics were identified for adjudication, and a total of 341 unique SMEs were identified by the Lovell FHCC Federal EHR Implementation Team and PMOs to participate in 67 total ERA discussion sessions.

By the end of Q4 CY2022, all except two of the 69 ERA topics identified had received a recommended COA from the Departments' key stakeholders. The FEHRM finalized the topics that inform the Lovell FHCC Federal EHR Implementation Plan and included those that required a decision on the execution, or approach, for the deployment. The FEHRM also finalized the topics that inform the federal EHR baseline design to be implemented at Lovell FHCC, which will be available to other JSSs.

Other notable activities include FEHRM leadership joining the JEC Co-Chairs as well as DOD and VA representatives from PEO DHMS and EHRM-IO during a Lovell FHCC site visit in Q1 CY2022. Together, they reviewed Lovell FHCC's EHR implementation status and outlined next steps in the effort. FEHRM leadership, including the Director and Deputy Director, followed-up with a visit to Lovell FHCC in Q2 CY2022 to continue collaborating on and planning for the deployment of the federal EHR at the site. During the visit, FEHRM

leadership provided a status update on the Lovell 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. Lovell FHCC leadership provided information on infrastructure updates, functional enhancements updates, current interoperability issues and concerns, and expectations for the federal EHR. Additionally, the FEHRM noted Lovell FHCC staff members questions about the upcoming EHR deployment and took them back for follow up.

Finally, in Q4 CY2022, the FEHRM established two (2) targeted working groups, with representatives from DHMSM PMO and EHRM-IO, focused on contracting and scheduling in support of the implementation. The contracting working group is leading the efforts to identify required contracting actions in support of the Lovell FHCC deployment, develop necessary documentation and maintain close coordination between the Departments for contracting-related activities. With the support of the Scheduling Working Group, the FEHRM is leading the effort to establish and maintain an Integrated Master Schedule (IMS) to deliver the federal EHR to Lovell FHCC, including development of an initial draft schedule in Q4 CY2022. Additional working groups with other focus areas will be established in Q1 CY2023.

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

ILER

The ILER is DOD's principal IT system for associating occupational and environmental exposures with individual Service members based on their work history and geographic proximity to known exposure events. Specifically, the ILER merges geographic location data sets from the Defense Manpower Data Center (DMDC) with exposure hazard data sets from the Defense Occupational and Environmental Health Readiness System – Industrial Hygiene (DOEHRS-IH) and other systems. The result is an Individual Exposure Summary (IES), which lists the occupations, deployments and potential exposures each Service member may have sustained during their career. This exposure information is central to appropriate clinical care, medical surveillance, benefit and disability claim adjudication and research to identify next-generation clinical practice guidelines for more effective management of exposures and their health consequences.

The FEHRM maintains several lines of effort aimed at advancing the interoperability of exposure information and incorporation of that information into the federal EHR:

- **Clinical Functional Requirements for Use of Exposure Information in the Federal EHR:** Incorporation of exposure information into individual health records has the potential to improve care for individual Service members and Veterans by driving

adherence to clinical practice guidelines for the monitoring and care of specific exposures. Additionally, combining exposure history with clinical data and modern analytic tools will advance the understanding and management of exposure-related health consequences.

The FEHRM convened a work group of clinicians and exposure authorities to develop functional requirements for the presentation and clinical use of exposure-related information within the federal EHR. The requirements were presented to DHMSM PMO in October 2022 and subsequently moved to a "collaborative discovery" phase with the federal EHR vendor team. The vendor team is analyzing the requirements and anticipates presenting a proposal for their implementation in early CY2023.

- **Delivery of the Individual Exposure Summary to Clinicians and Veterans:** ILER's principal product is the IES, a listing of potential occupational and environmental exposures sustained by an individual Service member. The FEHRM coordinated the delivery of the IES to clinicians via a PDF file in JLV and is now involved in the planning phase for delivery of the IES directly to Veterans via a website.
- **Review of the PACT Act of 2022:** The PACT Act of 2022 expands VA health care and benefits to Veterans exposed to open burn pits, Agent Orange and other toxic substances. The FEHRM conducted a detailed analysis of the PACT Act of 2022 to identify direct and indirect impacts on the federal EHR and ILER. This analysis guided the development and prioritization of the FEHRM's activities related to standards for exchange of exposure information and the development of terminology codes for exposures-related data and events.
- **National Standards for Exposure Exchange:** Dissemination and use of military service-related exposure information will require exchange of the information between IT systems. For this exchange to be efficient and effective, the structure and content of the information must be standardized. At present, there is no formal definition of an "exposure" data structure, and many of the attributes that describe an exposure are not standardized. The lack of standardization impairs the ability to exchange exposure information between IT systems—which then makes it difficult to implement clinical decision support for specific exposures and frustrates research efforts that require grouping of individuals with similar exposures. The FEHRM is leading efforts to identify existing health data standards that could be enhanced to enable the standards-based exchange of exposure information. One effort is examining the Health Level Seven (HL7) Fast Healthcare Interoperability Resources (FHIR) resource known as "US Public Health Contact Information," which may serve as the data structure basis for exchange of exposure information. Another effort is analyzing the Systematized Nomenclature of Medicine (SNOMED) to understand how it may be expanded to encode concepts related to exposures. The FEHRM will continue to collaborate with the ONC, and the Departments to advance these efforts for all federal partners involved in exposure-related clinical care and research.
- **Performance Measures for ILER:** The FEHRM convened and led a work group of DOD and VA SMEs to identify important performance measures related to the

development, deployment, usage and impact of ILER. The work group constructed a total of 14 performance measures which, collectively, describe progress with aspects of ILER's implementation.

- **Delivery of ILER's Individual Exposure Summary to JLV and DOD and VA Patient Portals:** Leveraging success with delivering the IES to clinicians via JLV, the FEHRM is applying relevant lessons to assist in delivering the IES to DOD and VA patient portals: MyHealtheVet, TRICARE Online and MHS GENESIS Patient Portal.
- **Data Interface Between ILER and the Federal EHR:** Incorporating ILER-derived exposure information into clinical workflows will require the interoperation of ILER with the federal EHR. The FEHRM led an ILER-EHR Data Interface Work Group that explored options for effective and efficient data exchange between ILER and the federal EHR. The work is ongoing as part of the EHR vendor team's implementation of a solution to display exposure information within the federal EHR.

Interoperability Standards

A successful interoperability ecosystem enables information sharing across participating organizations' 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 FEHRM analyzes standards and 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 EHRs and community partner systems. In furtherance of its goals, the FEHRM collaborates with HL7 federal and industry partners, voluntary consensus standards bodies, and other standards development organizations (SDOs) to advance national health data interoperability. As part of its NDAA FY2020 mandate, the FEHRM focuses on FHIR, which is a modern HL7 standard that leverages internet technologies to securely exchange health information. FHIR improves granular data retrieval, so that a request returns just the relevant data rather than a full record or document that itself must then be searched. Simultaneously, the FEHRM seeks to improve the interoperability of HL7 Clinical Document Architecture (CDA) which is a widely used XML-based document standard that defines the structure of certain medical records such as discharge summaries and progress notes. Below are the FEHRM interoperability standards initiatives and activities that are anchored to the FEHRM's mission.

- **Strategy Development:** During CY2022, the FEHRM Standards Group modified and expanded its involvement in the Standards Working Group to monitor and report trends to the stakeholders. This expansion is aligned with NDAA FY2020, which directs the FEHRM to actively engage with national and international health standards to advance interoperability across the federal and private sectors.
- **Standards Development:** The FEHRM's Standards Group engaged in standards development with HL7, the International Organization of Standardization (ISO), and the Institute of Electrical and Electronics Engineers (IEEE) to influence interoperability and data exchange in various subject areas or domains. The subject areas were

selected by the FEHRM Standards Group based on their alignment with NDAA FY2020 and national/stakeholder priorities.

- **HL7 Work Group (WG) Meetings:** The FEHRM Standards Group attends the HL7 WG three times a year to develop, influence and monitor standards specifications for interoperability. HL7 is an opportunity to collaborate with and listen to industry leaders such as Oracle Cerner, EPIC, Microsoft and many others to learn about trends and gaps in interoperability. The FEHRM Standards Group discusses, collaborates and advocates for Service members and Veterans with all SDOs including HL7.
- **HL7 Da Vinci Project:** The HL7 Da Vinci Project brings together payers, providers and health care technology vendors, along with HL7, with a common goal of accelerating the adoption of HL7 FHIR as the standard to support and integrate value-based care data exchange across communities. The FEHRM monitored and/or co-chaired several HL7 WGs such as the Payer-Provider Information Exchange (PIE), Coverage Requirements Discovery (CRD), Documentation Templates and Rules (DTR) and Prior Authorization Support (PAS) and provided input on a variety of topics, including the Centers for Medicare and Medicaid Services (CMS) Prior Authorization and Health Care Attachments Rules. The rules could significantly impact the federal EHR capability requirements and provider burden.
- **Consolidated Clinical Document Architecture (C-CDA):** In CY2022, the FEHRM continued its efforts to advance data standards in the realm of cross-organizational patient data sharing. The FEHRM led design discussions on all data classes in ONC's US Core Data for Interoperability (USCDI) v3. The design sessions included more than 20 industry representatives, government liaisons and ONC. The team resolved 12 new implementer reported issues, and developed designs for Health Insurance Information, Health Status Assessments, Laboratory, Medications, Patient Demographics (including Gender Identity) and Procedures. In partnership with HL7 and ONC, the FEHRM hosted weekly calls to review and refine the proposed designs. These designs are included in the C-CDA Companion Guide R3 January 2023 ballot, which the FEHRM expects will be the future required document exchange standard for all joint HIE trading partners.
- **Gender Harmony:** HL7 is developing standards to improve data accuracy for sex and gender information in health IT systems as a change from the current common situation for a single data element to be used to capture both sex and gender information. The FEHRM leveraged its participation in the Vocabulary Work Group sessions to review and comment on the Sex and Gender Representation ballot to ensure alignment with Departments position on gender fields.
- **Gravity Project-Social Determinants of Health (SDOH):** The SDOH Information Exchange Learning Forum brings together health care providers, community-based organizations, government, payers, health information exchange networks, IT platform developers, innovators and other partners to share lessons learned, promising practices and challenges related to exchanging SDOH data. The FEHRM provided input to the SDOH Information Exchange Learning Forum on issues relevant

to the DOD and VA community. The FEHRM also provided input in the development of use cases for the close loop referral process related to SDOH services. This referral process allows health care professionals to send patient information to a community-based organization to help address a patient's needs that are typically better served outside of clinical workflows.

- **Post-Acute Care Interoperability (PACIO) Initiative:** The FEHRM supported the PACIO Initiative as it facilitated improved transitions of care between health care settings and advocated for wider use of advanced directives. The FEHRM-supported WG meetings focused on creating, exchanging, querying, retrieving and updating Portable Medical Orders for Life-Sustaining Treatment forms.
- **HL7 Balloting:** The FEHRM prioritized, reviewed and voted on HL7 ballots, which directly impact health data interoperability between VA and DOD. The resulting standards improve health data interoperability, positively impacting health care for Veterans and their families and improving patient outcomes. During CY2022, the FEHRM coordinated 30 ballots during three ballot cycles with topics ranging from COVID-19, privacy and security, public health research and SDOH (January ballots); data exchange, prior authorization rules and patient requests for corrections (May ballots); and National Directory, pharmacy, medications, HL7 FHIR Release 5 and Gender Harmony (September ballots).
- **IEEE Engagements**: With an active portfolio of nearly 1,300 standards and projects under development, IEEE is a leading developer of industry standards in a broad range of technologies that drive the functionality, capabilities and interoperability of a wide range of products and services, transforming how people live, work, and communicate. The FEHRM assisted the Departments in standardizing data exchanges between medical and mobile-health devices and health information systems (e.g., EHR) by contributing to the development of conceptual frameworks and standards. The FEHRM helped to author the P2933 Clinical Internet of Things (IoT) Data and Device Interoperability with Trust, Identity, Privacy, Protection, Safety, Security (TIPPSS) standard, which is now undergoing reviews as part of the publication process.
- **International Organization of Standards (ISO):** Working with ISO and CDC, the FEHRM co-authored and analyzed comments received regarding ISO/CD 5477, Health Informatics – Interoperability of Public Health (PH) Emergency Preparedness and Response (EPR) Information Systems – Business Rules, Terminology and Data Vocabulary. The standard was developed in response to worldwide demand for strengthening PH-EPR information systems to ensure better preparedness at national and international levels, emerging pathogens, including COVID-19, chemical and nuclear accidents, environmental disasters, and introduction of the threat of criminal acts and bioterrorism.
- **ONC Interoperability Standards Advisory (ISA):** The intent of the ISA process is to provide the health care industry with a comprehensive standards catalog by which ONC endeavors to coordinate the identification, assessment and determination of

interoperability standards and implementation specifications for industry use to fulfill specific clinical health IT interoperability needs. The FEHRM analyzed and provided ONC with input on standards presented in the ISA, including Social, Psychological and Behavioral Data; SDOH standards such as food, transportation and housing insecurity; provenance; security tags; unique device identifiers; prior authorization; and claim status. The FEHRM also coordinated with VA SMEs who reviewed several clinically related standards.

- **CMS:** In 2022, CMS released policies to advance nationwide health information exchange, reduce the administrative burden for providers and incentivize effective use of health IT in 2023 and beyond. CMS is incentivizing the health information exchange under the Trusted Exchange Framework and Common Agreement (TEFCA). TEFCA is anticipated to be a strong catalyst for the maturation of FHIR and many other standards. The FEHRM reviewed CMS regulations, such as the Advancing Interoperability and Improving Prior Authorization Processes Proposed Rule, which includes requiring implementation of a HL7 FHIR standard Application Programming Interface (API) to support electronic prior authorization.
- **Promoting Standards for Adoption:** The FEHRM engaged in numerous activities to further standards, including:
  - **FEHRM Standards Stakeholder Group Meeting:** The FEHRM planned, managed and hosted monthly Standards Stakeholder Group meetings to share the national and international standards landscape to the Departments and key stakeholders. The Standards Stakeholder Group meeting is a venue to promote standards that are released by HL7, ISO and IEEE. The FEHRM also presents the FHIR development and trends in variety of clinical and health domains, such as patient-contributed data, SDOH and telehealth. The FEHRM also publishes industry-trending material to inform stakeholders regarding the development and adoption of standards.
  - **HL7 Government Birds of a Feather (BOF):** The Government BOF meeting is the only forum during HL7 Working Group Meetings that brings together government agencies to discuss standards and exchange ideas. The FEHRM planned and hosted three BOF meetings during CY2022. These events allow participants to facilitate, promote and collaborate on interoperability. Key topics covered during the meetings involved standards associated with Public Health Emergency Preparedness, SDOH and Patient Centric Care. The meetings are well attended and include federal partners from CMS, ONC, and CDC; stakeholders from DOD and VA; industry representative payers; EHR vendors; and experts in the health standards.
  - **Veterans Administration Interoperability Leadership (VAIL) Internal and External Federal and Standards Coordination Working Group:** VAIL works to define interoperability principles intended to guide individuals and programs and assist in informing policies through the decision-making process to accelerate interoperability. The FEHRM Standards Group provided monthly

updates related to data standards that impact the deployment of EHRs, as well as participated in discussions to support VAIL's principles of interoperability.

- **Monthly VA FHIR Community of Practice (CoP):** The VA FHIR Community of Practice is a group of VHA stakeholders dedicated to taking advantage of the new FHIR API specification to enable seamless interoperability and support better care for Veterans. The CoP shares experience and expertise and provides a forum for addressing advanced topics about current standards and interoperability at VHA. The Standards Group Lead presented "Leveraging Patient-Centered Opportunities." The presentation goals were to create awareness about the capability of standards available, promote standards for adoption and emphasize the relationship between interoperability standards and patient health outcomes

Interoperability Engagements

The FEHRM engaged with multiple federal agencies and industries regarding health analytics and standards, data interoperability and SDOH in predicting the wellness and health of a community. These events promoted the FEHRM's mission and priorities by enhancing interoperability and standards. These engagements include:

- **ONC Engagements**: During CY2022, the FEHRM continued collaboration with ONC stakeholders to further the progress of 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, SDOH learning forums, webinars and public comment periods to inform their work supporting the 21st Century Cures Act.
  - The FEHRM continued representation on several ONC workgroups, including the Federal Health IT Advisory Committee (HITAC); the Federal Health IT Coordinating Council (FHIT CC); USCDI Data Strategy and Standards Harmonization WG; FHIT CC IT Systems Work Group; FHIT CC Digital Health Innovation (DHI) Work Group; and USCDI+ WG. The FEHRM also participated in the annual ONC Annual Meeting and Technical Forum. FEHRM engagements with ONC resulted in progress toward developing and issuing health-related standard and establishing and harmonizing and advancing the use of interoperable datasets.
  - The FEHRM coordinated review and comment collection on the USCDI draft v3 and submitted 64 comments from DOD, VA and the FEHRM to ONC. In addition, the FEHRM coordinated review of the final draft, pre-publication version of the 2023 Interoperability Standards Advisory (ISA) Reference Edition by the FEHRM, DOD and VA.
  - The FEHRM coordinated final review by DOD and VA of the final draft, pre-publication version of the 2022 ISA Reference Edition.
  - The FEHRM hosted four FEHRM-ONC-CMS meetings in 2022 (February, June, August and December), where leadership shared current and planned

activities and opportunities to enhance overall federal interoperability and engagements and explore collaboration opportunities.

- **CMS Engagements:** In CY2022 the FEHRM participated in numerous CMS-sponsored events. These included:
  - Monthly CMS Interoperability and Standards Collaborative Forums
  - CMS Data Summit 2022 - The Future of Data at CMS (September)
  - 2022 CMS Connectathon and 2022 CMS Quality Conference
- **Additional CY2022 FEHRM Engagements with Key Federal Stakeholders:**
  - Hosted the semi-annual FEHRM Industry Roundtable events:
    - In May 2022, the FEHRM hosted the 12th FEHRM Industry Roundtable, which focused on the role of cybersecurity in protecting the patient and lessons learned from EHR implementation. More than 220 federal and industry personnel attended the roundtable, representing 122 industries and 15 federal organizations.
    - In November 2022, the FEHRM hosted the 13th FEHRM Industry Roundtable, which focused on change management as it pertains to interoperability and the implementation of the federal EHR. More than 200 federal and industry personnel participated in the roundtable, representing 62 industry and 20 federal organizations.
  - Hosted quarterly FEHRM Town Halls to inform the federal community on the following initiatives:
    - Lovell FHCC Federal EHR Implementation Efforts (January)
    - Challenges of Implementing a Fully Integrated Telemedicine Platform on the Cherokee Reservation (April)
    - HL7 Gender Harmony Project – Representing sex and gender identity in clinical models (July)
  - Presented, along with DOD and USCG, at the September 2022 National Capital Area Chapter of the Healthcare Information and Management Systems Society (HIMSS NCA) on the topic "*Implementing an Electronic Health Record (EHR) Solution Within the Federal Government.*"

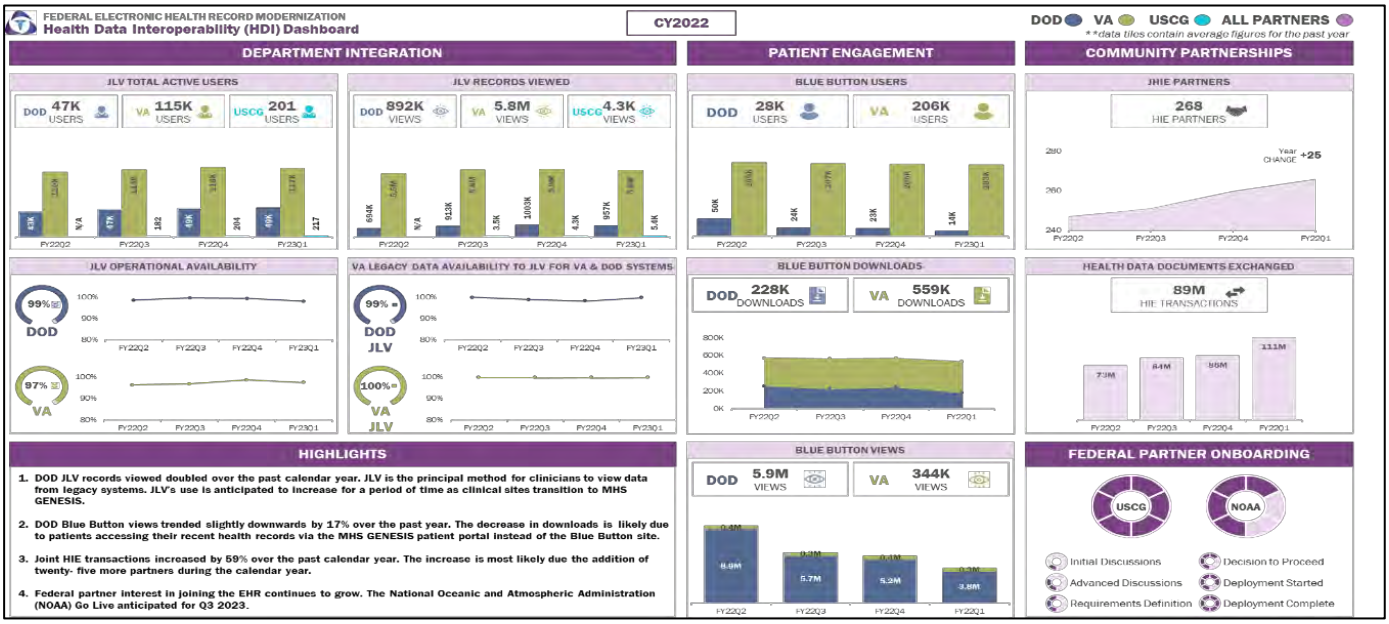
Enterprise Reporting and Performance Measurement

The FEHRM focuses on converging clinical information from multiple sources into one electronic system. The Health Data Interoperability (HDI) Dashboard displays key metrics that describe and trend progress toward increased levels of inter-organizational interoperability (Figure 1 - Baseline Health Data Interoperability MetricsFigure 1). Metrics are divided into four categories—Department Integration, Community Partnerships and Patient Engagement—and one new category added in CY2022—Federal Partner Onboarding. The new chart under Federal Partner Onboarding displays the progress of collaborations with new federal partners who are interested in joining the federal EHR enterprise. Another refinement of the HDI Dashboard in CY2022 includes the retirement of the Clinical Data Repository/Health Data Repository (CHDR) Clinical Data Update Success Rate metric since

the overall insight provided by the metric was limited. A more comprehensive description of each individual metric is presented in Appendix A.

The FEHRM continues to review new and existing measures for presentation on the HDI Dashboard. The measures are included in summative reports, including the Quarterly Interoperability Progress Report to Congress, the quarterly briefing to the FEHRM's Executive Committee (EXCOM) and the FEHRM Annual Report to Congress. As deployment of the federal EHR continues, the FEHRM will maintain its collaborations with stakeholders from the Departments and other federal partners with the aim of identifying new metrics for reporting as data availability evolves.

Figure 1 - Baseline Health Data Interoperability Metrics



FEHRM Interoperability Goals for CY2022 and Beyond

Looking ahead, the FEHRM will continue to operationalize and focus on convergence in its effort to advance interoperability and drive the 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 JSS 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

Federal EHR Evaluation

The FEHRM established an agreement with an independent entity, MITRE, to conduct an evaluation that confirms both the interoperability of the federal EHR and the ability for DOD and VA clinicians 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).

With the adoption of the federal EHR, health care records that exist in the same DOD and VA system result in inherent interoperability. Providers can view health data and treatment information created across all VA and DOD treatment facilities. However, DOD and VA are currently in a hybrid state as the federal EHR is being deployed. Interoperability requires aligning the complex ecosystem of DOD, VA and other federal partners with private sector care, operational medicine, medical devices, third-party applications and legacy DOD/VA health records (as well as paper records) outside of the federal EHR.

The FEHRM, in collaboration with MITRE, is engaged in a multi-phased evaluation to assess the current state of interoperability. The first phase of this evaluation assessed the context of how the Federal Enclave interacts with the rest of the ecosystem. Leveraging the

contributions of other evaluations, the assessment was broken in six use cases that will be assessed from DOD and VA locations.

Use Cases:

- DOD Clinician Interoperability with Veteran's Health Records
- VA Clinician Interoperability with Active-Duty Member's Health Records
- Federal Clinician Interoperability with Health Records from Private Sector
- Private Sector Interoperability with Federal Health Records
- Interoperability Between Legacy Systems and Federal EHRs
- Use of Interoperable Data Between Legacy System, Federal EHR and Third-Party Applications

Due to VA's strategic review, its corresponding deployment schedule impact, non-availability of a sharing site and the shift in the entire VA site deployment, validation of the interoperability as required by NDAA FY2020 was not possible in CY2021 and CY2022. The methodology, approach, site criteria and use cases were updated and the FEHRM received approval in late CY2022. Despite these deployment delays, the FEHRM proceeded with establishing the context of this evaluation and its relationships to previous and on-going evaluations in the federal EHR ecosystem, to further the multi-phase EHR evaluation. The FEHRM received approval to conduct a simultaneous validation between the DOD and VA using the following use cases:

Use Cases:

- DOD Clinician Interoperability with Veteran's Health Records
- VA Clinician Interoperability with Active-Duty Member's Health Records
- Federal Clinician Interoperability with Health Records from Private Sector

The FEHRM worked with DOD and VA to identify sites where validation could take place, independent of the sharing status and focusing on the information available within the federal EHR. In preparation for the execution of the assessment, the FEHRM with its DOD and VA partners finalized the following:

- NDAA FY2020 Assessment Planning documentations (Assessment Plans)
- NDAA FY2020 Assessment Execution Procedures
- NDAA FY2020 Evaluation Site Requirements

The sites chosen, one for DOD and one for VA, met specific criteria to ensure the validation represents the intent of NDAA FY2020. These sites are:

- DOD – Brooke Army Medical Center (BAMC)
- VA –Jonathan M Wainwright Memorial VAMC

The assessment is scheduled to be executed in Q2 FY2023. The FEHRM will continue to advise on the study's completion timelines in accordance with the adjusted EHR deployment schedule.

The FEHRM Test and Evaluation activities 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 is an ongoing collaboration with DOD, VA and DHS to establish a multiphase approach for the control of test/pseudo records in the Federal Enclave (Production Environment).

In CY2022, the FEHRM continued the foundational work required by NDAA FY2020 to assess DOD and VA clinicians' ability to access and meaningfully interact with a complete patient health record—regardless of the source of the information. The FEHRM worked with MITRE to develop the Federal EHR Interoperability NDAA FY2020 Independent Assessment Execution Procedure. The purpose of this Independent Assessment Execution Procedure is to detail the execution activities required to assess interoperability of the federal EHR as identified by the NDAA FY2020 Use Cases. This plan defines the scope of the execution and its phases, roles and responsibilities, and a detailed approach to carry out the assessment and analyze the findings. Execution of this plan will form the NDAA FY2020 Final Independent Assessment Report to Congress. The goal of this assessment is to provide details related to assessing interoperability and ensure that clinicians can meaningfully interact with a complete patient health record, regardless of where care is being provided.

The FEHRM's Test and Evaluation efforts surrounding test patients in production continued to implement technical controls for the test/pseudo patients. The Federal Identity Management Test Patient (FIdM TP) Committee transitioned the ongoing administrative and governance responsibilities to the DGB to control the creation and use of test/pseudo records being collocated in the Federal Enclave.

Convening an Annual Meeting

During CY2022, the FEHRM convened the second Federal EHR Annual Summit of clinical staff from DOD, VA and USCG; community providers; and other leading clinical experts to assess the use of the federal EHR. Participants engaged in valuable discussions on opportunities for enhancing the federal EHR to better serve Service members, Veterans and other beneficiaries. The summit allowed end users to provide feedback to FEHRM, DOD and VA leadership.

More than 700 end users registered for the three-day event. Other registrants included congressional staffers and the VA Office of Inspector General. During the event, end users identified the patient portal, workflows and report functionality as the top three areas needing improvement. This, along with other EHR input, led to more than 340 items in the form of general/topic questions to help summit facilitators generate initial conversations with attendees. Of the 340 items generated, a total of 139 items were in the form of questions and comments, which then resulted in 92 action items for the FEHRM to analyze and work with DHA Solution Owners and VHA Solution Experts to determine if change requests were required to enhance the experience of the federal EHR. Of the 92 action

items, so far, 72 items have been closed and implemented in the various applications of the federal EHR (Table 1). Currently, 20 pending action items are still in progress to be identified and closed with DHA Solution Owners and VHA Solution Experts; the final item ended up being a duplicate of another action item (from a different session); thus, it was folded up into the other action item. The tracker table and resolution outcomes are below (Table 2).

Table 1 - Action Items Closed and Pending

Closed	Pending Resolution Pathway (Scoping)	In Progress
72	3	17

Table 2 - Resolution Pathway for Closed Items

Resolution	Pathway	# Of Items
Training (Workflow or Recommended Education Sessions)	VA and DOD EUE/Training: CMIO Memo	15
Changes to Configuration of the Federal EHR (VA Sprint or Standard JSaAB)	JSaAB / FCCB	11
Informational (Questions Addressed After Summit)	FAQ Web Release (Development)	13
Technical (latency, etc.)	FEHRM Technical: Memo	5
Not advised (recommendation would have negative downstream impacts, etc.)	SO/SE & FAQ Web Release (Development)	5
Change Request / Change Management	FEHRM CMIO: Process Improvement CR	3

Resolution	Pathway	# Of Items
IP enhancement (related to sprint or block 8)	FCCB	2
Summit recommendations	Summit Team	2
Duplicates (recorded in multiple sessions)	N/A	12
N/A (General Broad Scope)	N/A	4

Comments and feedback collected during the CY2022 Federal EHR Annual Summit, which highlighted training or workflow recommendations, were provided to DHA-HI/DHMSM and VHA/EHRM-IO for review and consideration. During CY2022, the FEHRM worked with the DHA-HI/DHMSM and VHA/EHRM-IO Training and Configuration Teams to mitigate, solve or highlight training items identified during the summit and to resolve open action items.

Clinician and Patient Satisfaction Survey

During CY2022, the FEHRM continued to collaborate with DOD and VA patient and clinician satisfaction SMEs 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 assess satisfaction across DOD and VA equally, save government resources and reduce overall costs. The survey instruments used for the 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/experience. Clinician and patient satisfaction surveys were both deployed in CY2022.

Clinician Satisfaction Survey

In CY2020 and CY2021, the FEHRM partnered with DHA and VHA to develop overlapping clinician satisfaction survey questions based primarily on KLAS Arch Collaborative industry-standard questions to satisfy the NDAA FY2020 legislative mandate. In addition, the team narrowed the questions down to eight overlapping and one demographic question for parsing data. In CY2022, the Clinician Satisfaction surveys were deployed to DOD and VA facilities utilizing the federal EHR. USCG was also consulted and agreed to include their facilities and end users in the surveys, providing added value and baseline data for transitioning from paper records to the federal EHR. In addition, VA deployed surveys to all VA facilities in VISN 10 and VISN 20. The survey questions, satisfaction rate and response rates are below:

Response rate:

- DOD: 5526 respondents with an estimated 12.9% response rate
- VA: 2102 respondents with an estimated 20.2% response rate
- USCG:109 respondents with an estimated 7.2% response rate

Questions and results:

1. The electronic health record makes me as efficient as possible.
    a. DOD: 15% Strongly Agree/Agree, 19% Neither Agree nor Disagree, 66% Strongly Disagree/Disagree
    b. USCG: 26% Strongly Agree/Agree, 28% Neither Agree nor Disagree, 46% Strongly Disagree/Disagree
    c. VA: 5% Strongly Agree/Agree, 6% Neither Agree nor Disagree, 88% Strongly Disagree/Disagree
2. The electronic health record enables me to deliver high-quality care.
    a. DOD: 23% Strongly Agree/Agree, 32% Neither Agree nor Disagree, 45% Strongly Disagree/Disagree
    b. USCG: 49% Strongly Agree/Agree, 31% Neither Agree nor Disagree, 21% Strongly Disagree/Disagree
    c. VA: 7% Strongly Agree/Agree, 15% Neither Agree nor Disagree, 78% Strongly Disagree/Disagree
3. My initial training prepared me well to use the electronic health record.
    a. DOD: 17% Strongly Agree/Agree, 13% Neither Agree nor Disagree, 70% Strongly Disagree/Disagree
    b. USCG: 21% Strongly Agree/Agree, 21% Neither Agree nor Disagree, 58% Strongly Disagree/Disagree
    c. VA: 6% Strongly Agree/Agree, 8% Neither Agree nor Disagree, 86% Strongly Disagree/Disagree
4. My ongoing electronic health record training/education is helpful and effective.
    a. DOD: 21% Strongly Agree/Agree, 23% Neither Agree nor Disagree, 50% Strongly Disagree/Disagree
    b. USCG: 34% Strongly Agree/Agree, 29% Neither Agree nor Disagree, 30% Strongly Disagree/Disagree
    c. VA: 11% Strongly Agree/Agree,21 % Neither Agree nor Disagree, 68% Strongly Disagree/Disagree
5. Over the past two weeks, the electronic health record was available when I needed it and "down time" was not a problem.
    a. DOD: 24% Strongly Agree/Agree, 16% Neither Agree nor Disagree, 61% Strongly Disagree/Disagree
    b. USCG: 46% Strongly Agree/Agree, 18% Neither Agree nor Disagree, 36% Strongly Disagree/Disagree
    c. VA: 17% Strongly Agree/Agree, 12% Neither Agree nor Disagree, 71% Strongly Disagree/Disagree

6. This electronic health record has the fast response time I expect (e.g., login time, screen refresh, retrieving information)
    a. DOD: 15% Strongly Agree/Agree, 15% Neither Agree nor Disagree, 69% Strongly Disagree/Disagree
    b. USCG: 23% Strongly Agree/Agree, 18% Neither Agree nor Disagree, 58% Strongly Disagree/Disagree
    c. VA: 9% Strongly Agree/Agree, 12% Neither Agree nor Disagree, 78% Strongly Disagree/Disagree
7. The electronic health record allows me to deliver patient-centered care.
    a. DOD: 31% Strongly Agree/Agree, 26% Neither Agree nor Disagree, 34% Strongly Disagree/Disagree
    b. USCG: 55% Strongly Agree/Agree, 26% Neither Agree nor Disagree, 15% Strongly Disagree/Disagree
    c. VA: 11% Strongly Agree/Agree, 18% Neither Agree nor Disagree, 70% Strongly Disagree/Disagree
8. I am sufficiently informed about any electronic health record information or notices that will impact my day-to-day job
    a. DOD: 36% Strongly Agree/Agree, 26% Neither Agree nor Disagree, 16% Strongly Disagree/Disagree
    b. USCG: 51% Strongly Agree/Agree, 25% Neither Agree nor Disagree, 25% Strongly Disagree/Disagree
    c. VA: 22% Strongly Agree/Agree, 25% Neither Agree nor Disagree, 52% Strongly Disagree/Disagree

The Clinician Satisfaction Work Group continues to meet with KLAS representatives and interdepartmentally bimonthly to discuss cross-collaboration solutions, improvements to methodology, standardization of joint efforts, lessons learned from DOD and VA deployments, initiatives to improve experience and training, etc.

Patient Satisfaction Survey

In CY2020 and CY2021, the FEHRM partnered with DHA and VHA to determine the best path forward for meeting the NDAA FY2020 patient satisfaction survey requirement. The FEHRM decided the best inclusion and COA: the CAHPS-HIT item/question set. CAHPS-HIT questions are industry standard and are optional questions that can be included in the CMS-developed patient experience/satisfaction survey. The FEHRM included questions that focused on the experience of EHR modernization principles that enable providers to deliver patient-centered care. The FEHRM narrowed the CAHPS-HIT question bank to six key questions, listed in Appendix B. The key focus being on question number five, "During your visits in the last 6 months, was this provider's use of a computer or handheld device helpful to you?" The methodology allowed comparison between legacy EHRs/systems, the use of computers/handheld devices and the federal EHR, as well as the potential impact of go-live on those patient-centered care and experience.

Longitudinal analysis was conducted throughout FY2022 through the Departments' CAHPs methodologies, respectively titled Joint Outpatient Experience Survey (JOES-C) for DOD and Survey of Health Care Experience (SHEP) for VA. Survey respondents were categorized as responding to legacy or federal EHR in post analysis based on site(s) go-live schedule. Due to the expansive nature and multiple facets of the federal EHR, it is a complex task to predict the long-term impact of the modernization efforts. It is important to note that visual analysis of longitudinal and linear data trends is currently neutral and not trending toward either a positive or negative variance in responses to evaluative questions between legacy and federal EHR. Results based with categorized populations (legacy EHRs vs. federal EHR) are included in Appendix B. Results include positive response visualization to see comparison of legacy EHRs and the federal EHR.

The Clinician and Patient Federal workgroups will continue to process and analyze data from DOD and VA to provide survey results regarding the impact of the federal EHR. The results will be utilized to derive end-user insights and identify gaps, changes and opportunities that may arise with the implementation of the federal EHR to provide the highest quality health care services for Service members, Veterans and their families.

The FEHRM End User Engagement Team is also exploring additional alternatives to provide granularity on the patient's experience and satisfaction with the federal EHR for CY2023. Proposed options include patient portal experience (front door to customer), active listening sessions for Veterans and beneficiaries and quarterly informational sessions open to all end users.

Maintaining a Configuration Baseline

During CY2022, the FEHRM initiated management activities for maintaining the configuration baseline for the federal EHR. Accomplishments include:

Federal Configuration Control Board (FCCB)

In CY2022, the FEHRM worked with PEO DHMS to transform the Joint Configuration Control Board (JCCB) under DHMSM PMO to the FCCB with the FEHRM Technical Director serving as the FCCB Chair.

The change control board is an integral part of the success of the federal EHR because all changes to the application and its supporting systems are vetted through this process. The transition to FEHRM leadership was to provide additional oversight, accountability and situational awareness throughout the change control process and to ensure an equitable review and voting process on requested changes that may affect both DOD and VA.

The following value-added efforts were initiated:

- Established a partnership between the FEHRM and DHMSM Change Management Team including meetings to enhance the FEHRM's knowledge of existing JCCB processes.
- Scheduled meetings with other FCCB stakeholders to foster and encourage communication.
- Created process improvement goals and started efforts to implement the goals.
- Updated the FCCB Charter with input from PEO DHMS, DHMSM Change Management Team and the FEHRM including placement of the FEHRM as adjudicators when there is an impasse on decisions.
- Developed procedures for continual process improvement.

One Interface Team

The federal EHR is leveraged by the Departments and other federal partners but does not have a single authority for prioritization and efficiencies of interfaced systems and design options for the interface engine. The absence of a single interface team introduces scenarios for multiple changes performed by multiple teams to a shared component, despite downstream controls to document changes to the baseline.

During CY2022, the FEHRM conducted deep-dive analyses and formalized the architecture (i.e., documentation of system interfaces, modeling tools, application programming interfaces and enclave API analysis). The FEHRM assessed the current state architecture and APIs utilizing interface control documents (ICDs) and existing available PEO DHMS and EHRM-IO diagrams, which led the FEHRM to develop and identify the Totality of the Problem related to its architecture, non-standard integrations, actors and operations. Following the Totality of the Problem, the FEHRM engaged in multiple working sessions with Oracle Cerner to develop an interface catalog (master log of interfaces with specific parameters) to gain visibility of all approved, active interfacing systems in the Federal Enclave and continued to assess current existing interface lists provided by the Departments. In CY2023, the FEHRM plans to continue collaborating with the Departments by reviewing the DHMSM Interface Tracker and to finalize the roadmap for One Interface Team.

Enterprise Technical Sessions

The FEHRM hosted 13 Enterprise Technical Sessions (ETS), in partnership with DOD, VA and DHS chief engineering teams, on topics such as Capacity Planning, Medical Readiness Reporting System (MRRS) Data Interface Lessons Learned and Continuity of Operations/Disaster Recover (COOP/DR) Testing Process. Participants included the respective DOD and VA PMOs and their prime vendors and key stakeholders responsible for the federal EHR ecosystem. The ETS provided a forum for a series of technical discussions to solve enterprise challenges impacting the federal EHR in support of the intense schedule of go-live activities throughout CY2022.

Identity, Credential and Access Management (ICAM)

Ensuring the right information is provided to the right person at the right time is a foundational requirement for the federal EHR. In CY2022, the FEHRM facilitated working sessions with technical stakeholders from DOD, VA, DHS and enabling partners such as the DMDC in selecting the FedUID as the unique user identifier. The FedUID is derived from the Federal Agency Smart Card Number (FASC-N) standard defined in FIPS 201-3. The FASC-N is a required element on all federal government-provided smart ID cards including the Common Access Card (CAC) and Personal Identification Verification (PIV), thereby supporting future federal agency (e.g., NOAA) adoption of the federal EHR.

During the reporting period, CY2022, the Joint Executive Committee (JEC) tasked VA with providing a cost and technical implementation analysis of the FedUID solution. With assistance from the FEHRM, this was delivered in CY2022. VA requested an internal assessment of additional requirements be analyzed for cost and complexity by EHRM-IO. The FEHRM anticipates completion of all FedUID technical and cost analyses in Q3 FY2023.

Federal Enclave Management and the Health Report

The FEHRM continued to produce the monthly "Federal Enclave Health Report," consolidating objective data from multiple agency-specific data sources to show the status of system deployment and the availability of the Federal Enclave. By compiling and presenting month-over-month deployment progress and system availability trends, the Federal Enclave Health Report depicted the maturation of the Federal Enclave, including the 36 discrete solutions within it and the numerous external solutions accessing it. The FEHRM improved the Health Report with the addition of DMDC incident analysis data for the purpose of correctly calculating system uptime. The FEHRM continued to work with all partners to monitor Key Performance Indicators of the Federal Enclave, including Availability: Outage Free Time (OFT) and Incident Free Time (IFT).

Federal Release Management

In CY2022, the federal government finalized standardization of the federal software release naming and numbering nomenclatures, which will be used by all partners for capability releases and go-lives. In support of this effort, the FEHRM developed a briefing of record outlining the nomenclatures and obtained concurrence from all federal partners.

The FEHRM leveraged its charter to transition the Joint Release Working Group into the Federal Release Working Group. This group provides oversight on all release management activities in the federal EHR. Through the transition, the FEHRM has been executing to ensure the eventual single point of responsibility for software and hardware updates to the federal EHR and enclave.

Federal Domain Management

In CY2022, the FEHRM, working with departmental SMEs and vendors, finalized the FEHRM's Domain Management (DM) Execution Guide. This guide outlines the federal DM

stakeholders, processes, and functions. The FEHRM accomplished this with the full participation of the federal partners and vendors. The guide is now used as a reference for the DM process as well as a starting point as new partners join the Federal Enclave.

EOC

The EOC activity is a critical component of operationalizing the FEHRM. The EOC prepares the federal EHR system owners and partners in the ecosystem for the intense schedule of go-live activities, monitors for Federal Major Incidents and keeps partners informed of planned activities that could impact go-live events. The EOC continued to support cross-organizational collaboration and executive-level reporting on the Federal Enclave and ecosystem during federal go-live events.

In CY2022, the EOC provided daily joint executive level briefings and updates for four DOD, three VA and one MEPCOM go-live events. These briefings included root cause and corrective actions taken for unplanned incidents impacting the federal EHR and an overview of planned activities that could impact FEHRM partners. The EOC activity 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.

Cybersecurity – Cyber Tabletop

Consistent with the direction contained in Executive Order 14028, the FEHRM undertakes a series of focused exercises to evolve the cybersecurity posture of the federal EHR to include prevention, detection, escalation and response coordination. In CY2022, the FEHRM conducted a tabletop exercise with technical SMEs from DOD, VA and their vendors, delivered an after-action report to executive management, and incorporated lessons learned into the Joint Cybersecurity Incident Management Framework and other related artifacts as needed.

Cybersecurity – Joint Incident Management Framework

Foundational to the cybersecurity posture of the federal EHR is documenting and optimizing a framework for responding to cybersecurity incidents. The FEHRM is maturing an overarching incident management framework and associated processes that will continue to guide responses to cybersecurity incidents impacting the Federal Enclave. In CY2022, the FEHRM continued an analysis of Incident Management Plans used by DOD, VA, the Leidos Partnership for Defense Health and Oracle Cerner; incorporated best practices into the framework; and developed supporting materials, such as the FEHRM Joint Cybersecurity Incident Management Standard Operation Procedures and the FEHRM Joint Cybersecurity Ransomware Communications Guide.

Cybersecurity – Joint Memos of Understanding and Agreement (MOU/MOA)

The FEHRM is facilitating working sessions to review, update and consolidate existing joint MOUs/MOAs related to the Federal Enclave. In CY2022, the FEHRM engaged with SMEs from DOD and VA to ensure MOU/MOA content is complete, accurate and up to date as required for National Institute of Standards and Technology (NIST)/FISMA compliance.

Cybersecurity – Joint Security Operations Center (JSOC)

In CY2022, the FEHRM initiated the creation of a JSOC that shares the responsibility of cyber incident monitoring and reporting, as well as information-sharing across various organizational components impacted by the Federal Enclave. Working with stakeholders, the JSOC will design joint processes and procedures to manage, monitor, analyze, detect, prevent, respond to threats and ensure the confidentiality, availability and integrity of the Federal Enclave.

Cybersecurity Risk Mitigation

Consistent with its charter to orchestrate the joint cybersecurity program, the FEHRM continues actively addressing cybersecurity risks to the Federal Enclave. In CY2022, the FEHRM conducted ongoing reviews of Federal Enclave activities to comply with NIST and DOD cybersecurity requirements. Part of this evaluation focuses on onboarding activities to help federal agencies adopting the federal EHR meet applicable NIST and DOD guidelines.

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

Joint Functional Requirements

In CY2022 the FEHRM, along with the Health Information Policy Workgroup, the VA Health Information Management (HIM), and the DHA Patient Administration Division (PAD), developed a joint release of information requirements that satisfied DOD and VA and release of information end-user requirements and workflows. To develop a single pathway for requesting and delivering health records from DOD and VA sources, in CY2023 the FEHRM will facilitate the development of a Business Associate Agreement (BAA) between DOD and VA in accordance with the Office of General Counsel's recommendations. Once a BAA is finalized and meets both Departments legal requirements, the FEHRM expects to have a single method so documents may be released to patients.

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 FCCB and is essential to operating the federal EHR, providing DOD, VA and USCG functional oversight of all configuration decisions impacting the production baseline.

- In CY2022, the JSaAB approved approximately 1,500 items, including 10 changes directly related to COVID-19 response and 75 changes approved and implemented during the go-live events. The FEHRM coordinates an e-JSaAB process for urgent and emergent issue resolution during off-hours. It was successfully used 70 times in CY2022.
- The FEHRM, in collaboration with JSaAB Co-Chairs, initiated a joint configuration change catalog that includes all AMS/Oracle Health executable changes via the FCCB to include all local and Solution Owner/Expert level changes. This effort operationalized the former AMS catalog and now consists of the full scope of available approved changes, authority level (level in which authorization is approved).
- In CY2022, the FEHRM, through the Chief Medical Informatics Officer (CMIO) and Functional Chairs of JSaAB, established four federal-level work groups to improve and optimize joint efficiency in the issue resolution and solution optimization processes. The five federal groups chartered under the FEHRM CMIO and JSaAB are as follows:
  - **Federal Oncology Working Group (FOWG):** The FOWG was established to manage issues and tickets, as well as optimize efforts for the joint oncology solution for DHA, EHRM-IO and VHA. This optimization includes Powerplan "order sets" configuration and implementation, oncology medications, and the review of new and emerging capabilities in the oncology solution.
  - **Federal Rules and Alerts Working Group (FRAWG):** The FRAWG was established for joint governance, optimization and development of best practices with the clinical decision support (CDS) rules and alerts in the federal EHR. The goal and objective are to review requested rules from functional teams, standardize content and style of alerts in the domain, and establish an overall governance structure for maintaining rules and alerts jointly across the Departments.
  - **Federal Research Working Group (FRWG):** The FRWG was established for the governance of research-related Oracle Cerner health solutions in the federal EHR across the Departments and endorsement of research-related changes through the issue resolution process.
  - **Federal Positions Working Group (FPWG):** This FPWG was established for federal governance of positions (roles) in the federal EHR. Review opportunities to align positions across DOD and VA and to streamline those roles based on end-user feedback/requests through the issue resolution process.
- The CMIO established, through the Data Management Board and endorsed by the JSaAB, two federal-level committees/workgroups that manage the baseline standardization and optimization of data in the federal EHR. One of the committees, the Event Set Hierarchy Committee, reviews the organization and structure and makes recommendations for clinical data that is viewable to end users through many of the components of the EHR. The other committee, Code Set Management, manages the codes that are used inside of the federal EHR. Code sets are one of the

backbones of the EHR configuration, and the committee develops and oversees the standardization of naming conventions of many of the code values that are internal to the system.

- The FEHRM manages the Functional Decision Group (FDG), which is 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.

FEHRM Revenue Cycle/Business Processes

In CY2022, Business Interim-State Enterprise Joint Process Maps (ISEJPMs) were jointly developed and approved by DHA, VHA and FEHRM leadership. The Business ISEJPMs reflect referrals of DOD patients to VA services (in the direction of federal EHR to VA Legacy), to facilitate the transition from legacy to the federal EHR at JSSs. DHA and VHA incorporated the approved interim process maps into training artifact/change management products/activities for system users at deployment waves. The Clinical Driven Revenue Cycle training was leveraged to train end users at JSSs on the approved state-interim process maps. Facilitator guides and training videos were developed to support the training of the affected tracks: Ambulatory, Acute, Ancillary, Revenue Cycle and Emergency Department. Site trainers also provided over-the-shoulder training and support as needed.

The FEHRM also facilitated the development of the Integrated High-Level Joint Billing Requirements with DHA Business Functional Champion and VHA. The requirements are expected to be finalized in CY2023 as two pending items (agreement to a unique user identifier by both Departments and the need to ensure the NPI data is shared by both Departments).

Joint Enclave Data Management

The reporting period saw several ongoing efforts addressing different focus areas, including Oracle Cerner code sets, terminology and data and analytics governances.

In CY2022, the Executive Data Management Board (EDMB), which functions as the formal Data Management and Governance of FEHRM Data Assets, serves as the authorizing and prioritizing function for joint data management activities impacting the Federal Enclave. 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:

- **Data Governance:** Under the executive body, data is governed by the DGB with stakeholder representation from constituent bodies. In CY2022, five committees were established and chartered under the purview of the DGB to ensure full support of data standards, quality and sharing.
- **Analytics Governance:** Under the executive body, data and analytics is governed by the Analytics Governance Board (AGB). In CY2022, five committees were established

in support of analytic / reporting standards and data warehouse access controls.

- **Federated Interagency Terminology Service:** In CY2022, the Federated Interagency Terminology Service (FITS), now reporting up to the FEHRM DGB, engaged with vendors and Departments to jointly review and manage critical terminology projects. Mappings for COVID-19 Lab Tests (LOINC) and Specimen Source (SNOMED-CT) are in progress. The FEHRM terminologists also continue to monitor and normalize JLV, CHDR legacy and federal EHR clinical domains, including medication status, allergens, medications, laboratory results and document types.

FEHRM Financial Summary

Amounts Expended for FEHRM Activities and Purpose

In support of FEHRM activities during CY2022, the FEHRM obligated a combined total of $30.7 million from DOD and VA funds (Figure 2) in FY2022. 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.

The FEHRM expended $30.7 million from DOD and VA funds in FY2022. The difference between what was obligated and expended resulted from increased DOD funding added to the FEHRM's budget for unfunded requirements that included legacy contract extensions, programmatic support and engineering and testing support.

Figure 2 - FY2022 Financial Summary

FEHRM Fiscal Year 2022 Funding ($ 000s)			Combined	Combined
DOD	**Allocations ($ 000s)**	**Expenditures ($ 000s)**	**Obligations ($ 000s)**	**Expenditures ($ 000)**
Application / Software	$ 10	$ 10		
End User / Other	$ 64	$ 29		
IT Management / External Labor	$ 8,433	$ 10,138		
IT Management / Internal Labor (DHA Civilian)	$ 1,848	$ 1,855		
IT Management / Other	$ 37	$ 13		
IT Management / Outside Services	$ 258	$ 189		
DOD Total	**$ 10,650**	**$ 12,235**		
VA	**Allocations ($ 000s)**	**Expenditures ($ 000s)**		
EHRM IO				
Labor - Government Employee Costs	$ 492	$ 492		
Labor - Support Contract Costs	$ 16,681	$ 16,681		
Travel and Lodging Related Costs	$ 9	$ 9		
OIT				
Labor - Government Employee Costs	$ 549	$ 549		
VHA				
Labor - Government Employee Costs	$ 734	$ 734		
Other Non-Descriptive Costs	$ -	$ -		
Travel and Lodging Related Costs	$ 7	$ 7		
VA Total	**$ 18,472**	**$ 18,472**		
Total Fiscal Year 2022 Funding ($ 000s)			**$ 29,122**	**$ 30,707**

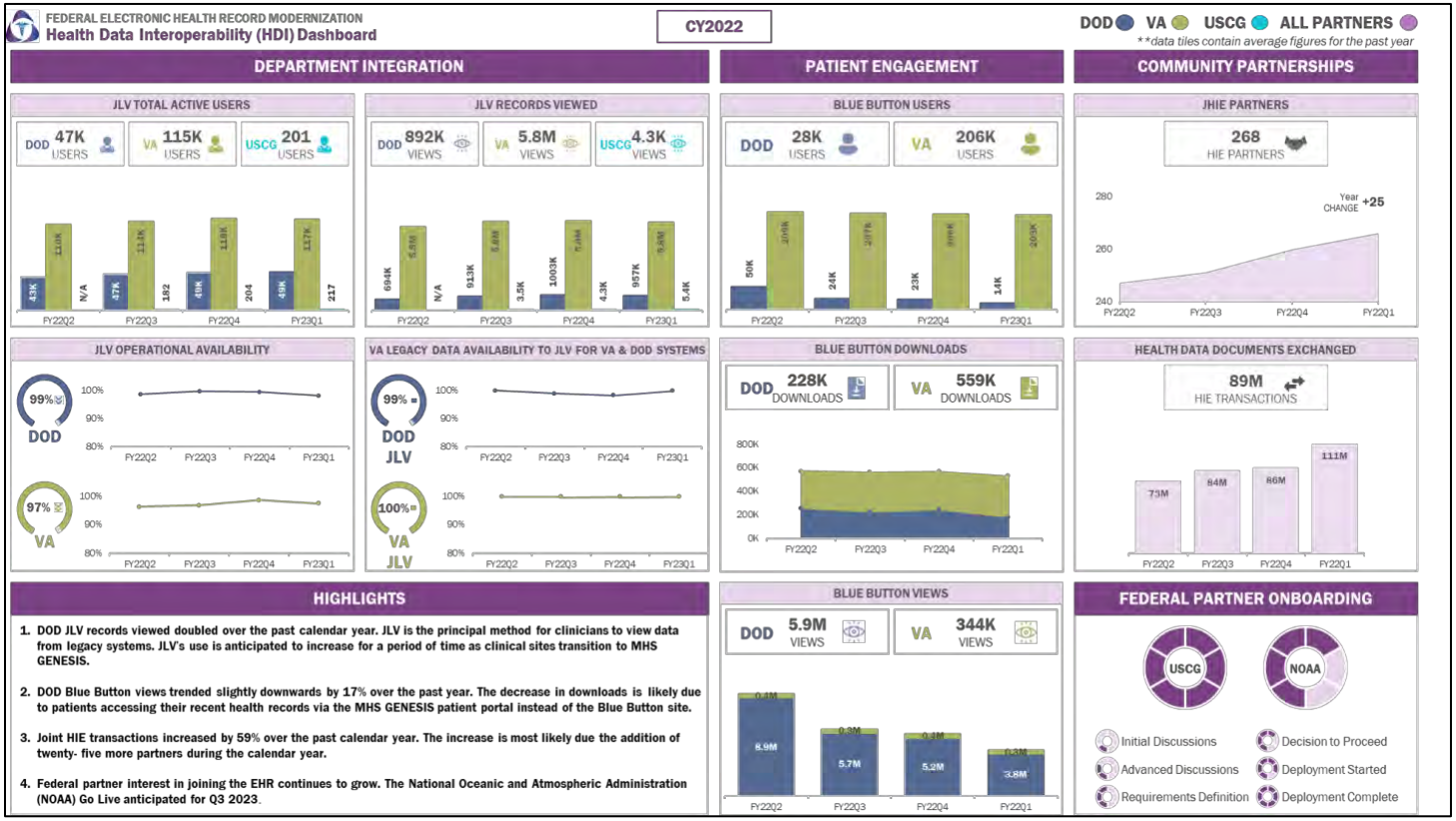
Note that the amount of FY2022 VA expenditures was estimated and assumed equal to the amount of FY2022 obligations. The FEHRM does not have access to the VA financial management system. Further questions regarding VA expenditures on behalf of the FEHRM should be directed to EHRM-IO, OIT and VHA.

Leadership from both Departments has yet to come to an agreement on how the FEHRM is to be resourced and staffed as per NDAA FY2020. Inadequate funding has limited the FEHRM's ability to perform NDAA FY2020 and FEHRM Charter-mandated activities as identified in the 2022 Joint Office of Inspector General Report and an independent study performed by MITRE.

Appendix A: HDI Metrics Details

HDI Metrics Details: Throughout CY2022, the FEHRM, DOD and VA continued to collaborate to monitor baseline HDI metrics and the progress toward modernization and enhancement of HDI by both Departments. Each section displays a different interoperability dimension, as derived from the FEHRM's HDI Measurement Framework: (a) Department Integration, (b) Community Partnerships, (c) Patient Engagement and (d) Federal Partner Onboarding. Figure 3 represents a snapshot of the CY2022 HDI Metrics Dashboard.

Figure 3 - CY2022 HDI Metrics Dashboard



CY2022 Highlights: Metric highlights are captured in Table 3 below.

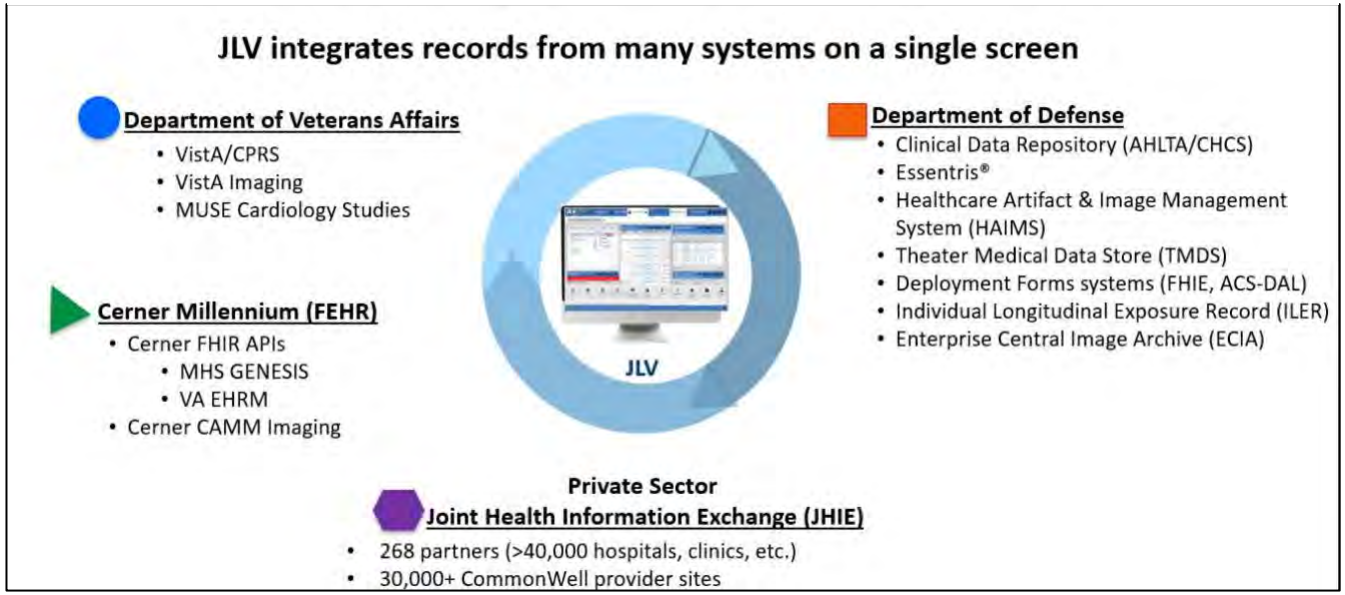
Table 3 - Calendar Year Highlights

Metrics	Highlights
JLV Records Viewed	DOD JLV records viewed doubled over the past calendar year. JLV is the principal method for clinicians to view data from legacy systems. JLV's use is anticipated to increase for a period as clinical sites transition to the federal EHR.
DOD Blue Button Views	DOD Blue Button views trended slightly downwards by 17% over the past year. The decrease in downloads is likely due to patients accessing their recent health records via the MHS GENESIS patient portal instead of the Blue Button site.
Joint HIE Transactions	Joint HIE transactions increased by 59% over the past calendar year. The increase is likely due the addition of 25 more partners during the calendar year.
Federal Partner Onboarding	Federal partner interest in joining the EHR continues to grow. NOAA Go Live anticipated for Q3 FY2023.

Health Data Interoperability Systems: DOD and VA use the software applications and tools described below 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 HIE participating provider partners within a single application. JLV retrieves clinical data from numerous native data sources and systems, displayed in Figure 4.

Figure 4 - JLV Data Sources and Systems



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 participating provider organizations who join the eHealth Exchange[1] and CommonWell.[2] Provider organizations who join undergo stringent security requirements to access patient

[1] eHealth Exchange - Network of Networks connecting federal agencies and non-federal health care organizations so medical data can be exchanged nationwide. eHealth Exchange online, October 14, 2022, https://ehealthexchange.org/

[2] CommonWell – A service that collectively allows individuals and caregivers to find and access records associated with a patient regardless of where the care was delivered. CommonWell Alliance Online, October 14, 2022, https://www.commonwellalliance.org/about/faq/

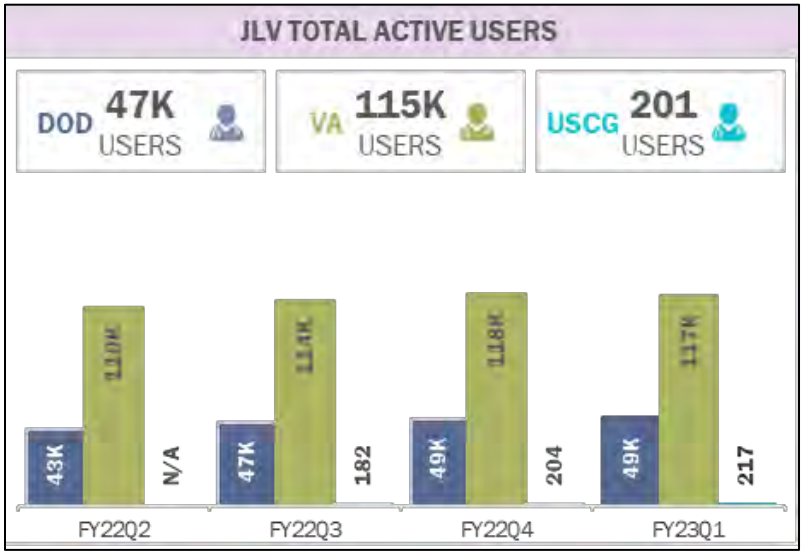
records and health information securely, regardless of whether the facility is a civilian provider, military hospital, outpatient clinic or VAMC.

3. **Blue Button.** Blue Button is a feature of DOD and VA patient portal websites that enables patients to access and download their health data from DOD and VA EHRs. The data includes allergies, medications, vital signs, problem lists, encounter notes, laboratory and radiology results. 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 encounter notes, labs and medications; and request prescription renewals online.

The FEHRM, DOD and VA continue to expand HDI by improving upon the more than seven 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 December 31, 2022.

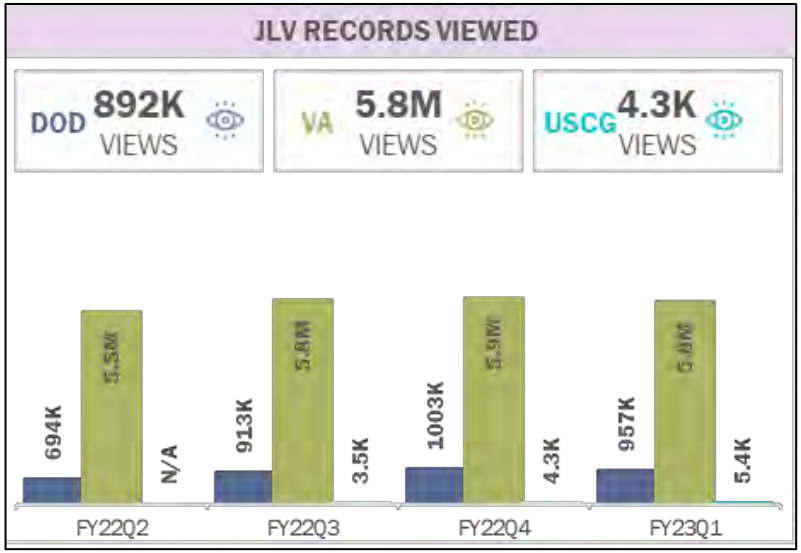
Department Integration

Value Statement: The FEHRM tracks utilization of systems designed to enable DOD and VA staff access to the other Departments clinical systems. Together, these measures enable Department leadership and Congress to assess the utilization and reliability of interoperability systems and evaluate the Departments' progress in transitioning from legacy systems to the federal EHR.

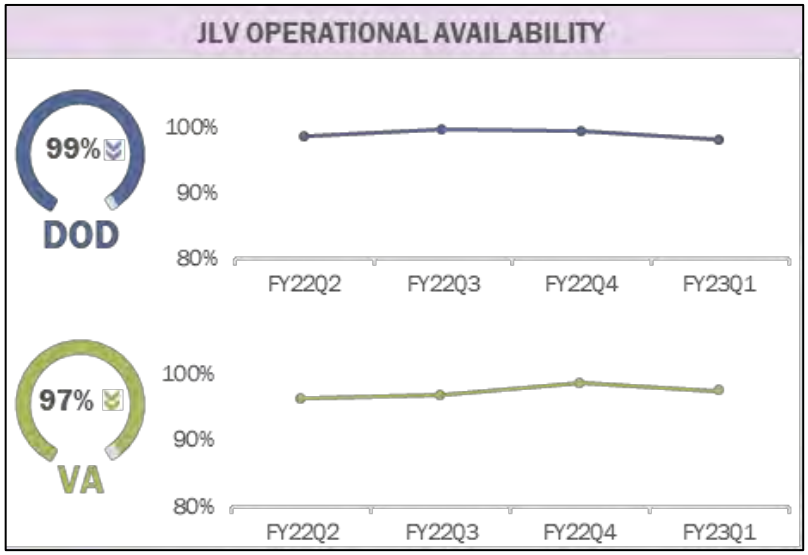


JLV Total Active Users

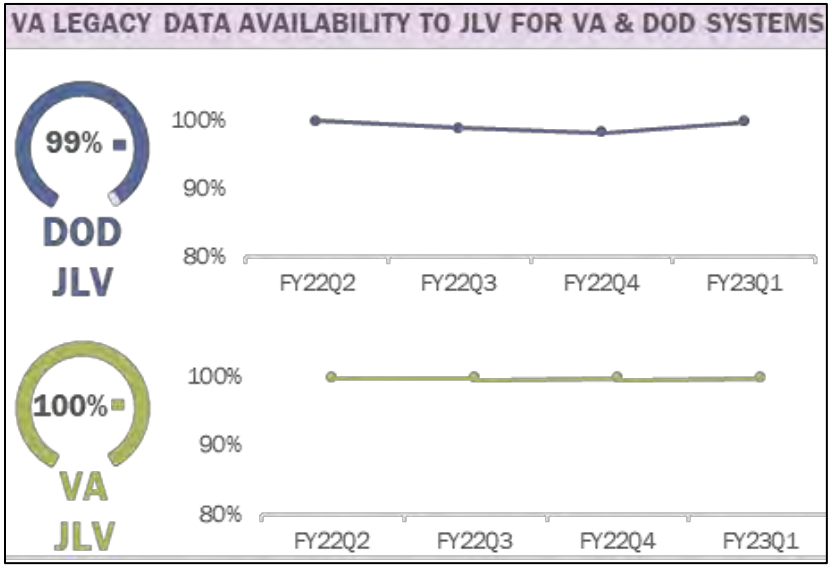
Definition
Active User: a unique user who has logged into JLV in a given month averaged per quarter.



JLV Records Viewed
Definition
Monthly total number of patient records viewed using the JLV for DOD, VA and USCG averaged per quarter.



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

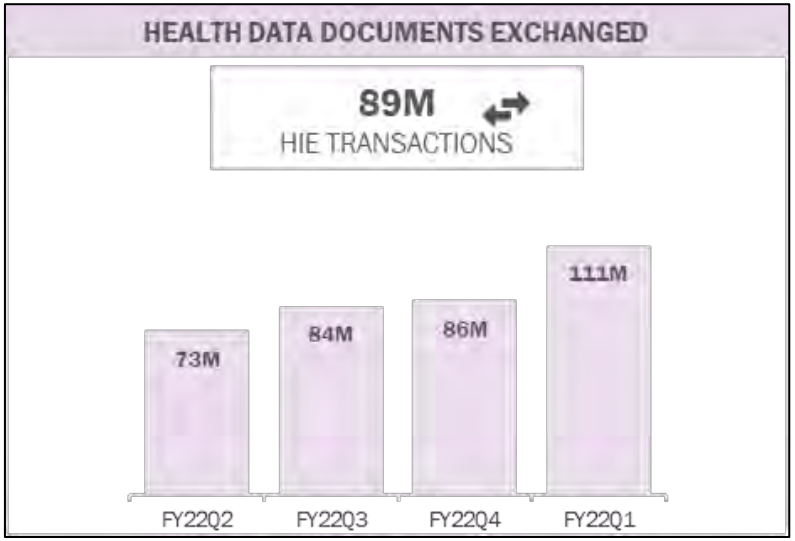


VA Legacy Data Availability to JLV for VA & DOD Systems

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 that VistA Data Services was operational (no errors and VistA data available to both DOD and VA users) in all production environments.

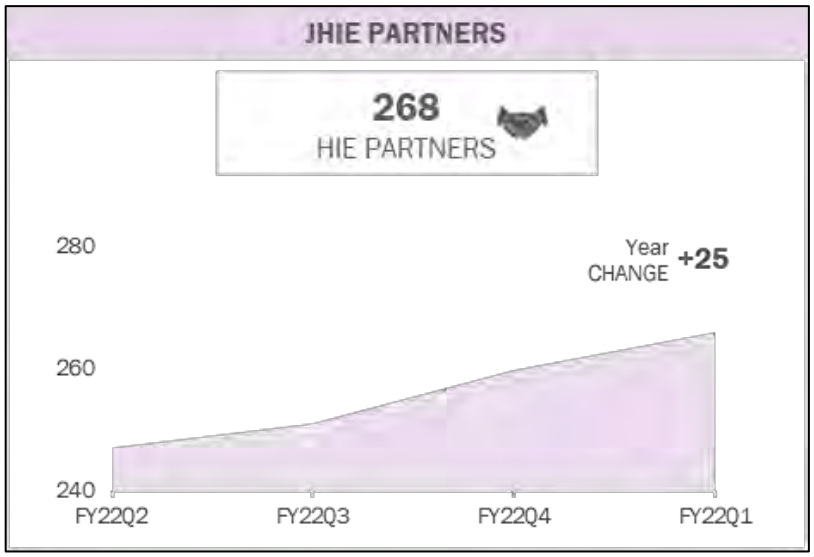
Community Partnerships

Value Statement: The FEHRM monitors the Departments' progress toward consistent, secure and reliable health data exchange with provider organizations by tracking joint HIE partner onboarding, as well as joint HIE transactions between the Departments and participating provider organizations. Together, these measures enable Department leadership and Congress to assess the degree of health data exchange between the Departments and provider organizations—and, thus, the completeness of medical information available to clinicians.



Health Data Documents Exchanged

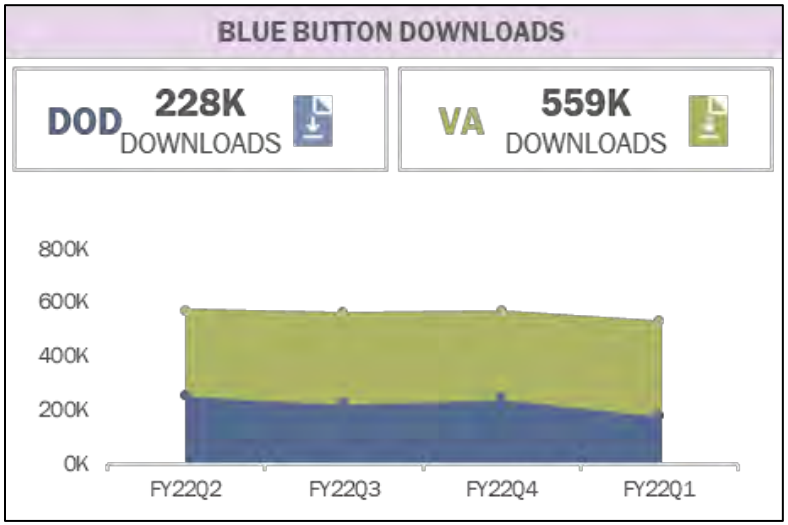
Definition
Monthly count (averaged per quarter) of C-CDA, C32 or C62 (document architecture that facilitates interoperability of health data between EHR systems) documents exchanged between the Departments and participating provider organizations.



Joint HIE Partners Onboarded
Definition
Monthly and cumulative count of provider organizations who are partners in the joint HIE (a provider organization is counted as one partner if the provider has one or more data sharing agreement(s) with DOD or VA).

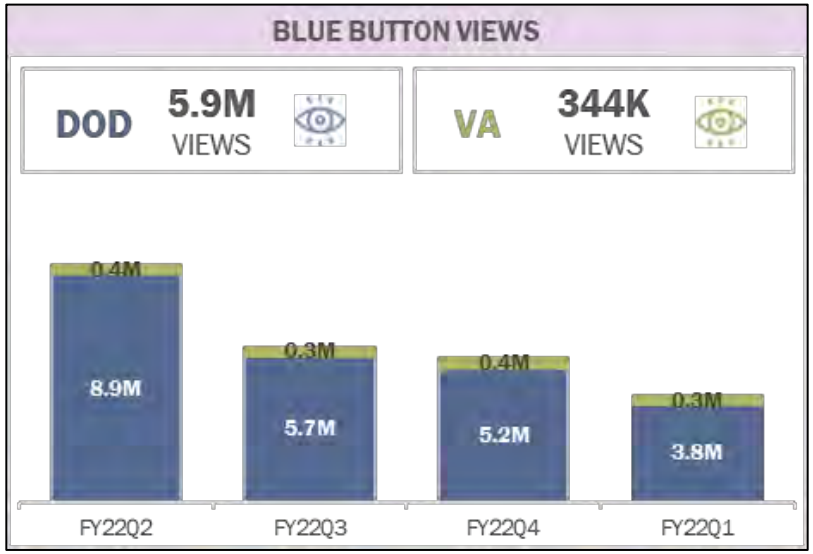
Patient Engagement

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. Together, these measures enable Department leadership and Congress to assess the degree of demand for health information from individual beneficiaries.



Blue Button Downloads

Definition
Total number of data downloads by end users per month averaged per quarter.



Blue Button Views
Definition
Average number of clinical data views generated by end users per month averaged per quarter.

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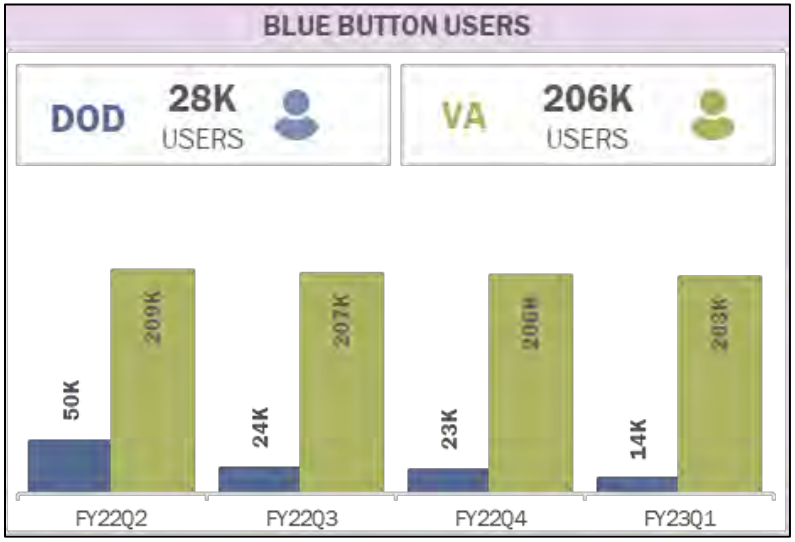
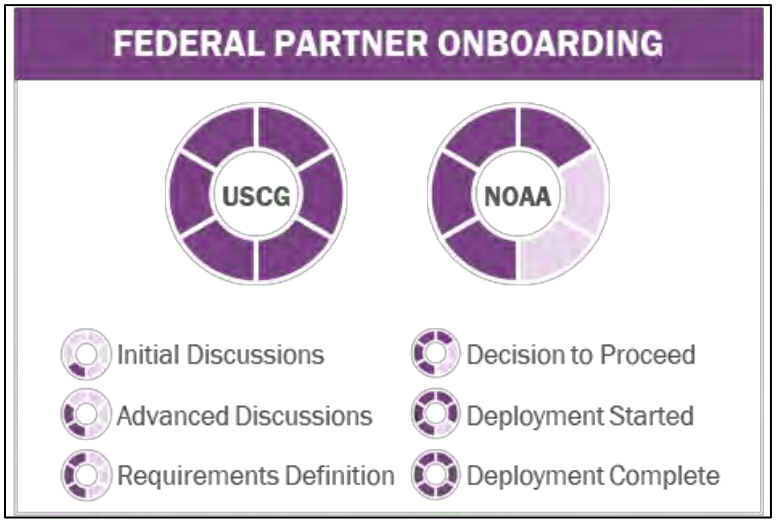


Monthly Unique Blue Button Users
Definition
Number of unique Blue Button users within a month averaged per quarter.

Federal Partner Onboarding

Value Statement: Several federal government agencies, Departments and offices have expressed interest in joining the federal EHR enterprise and employing the federal EHR to manage their health care operations. The FEHRM facilitates the introduction of these federal partners to the federal EHR by providing overview briefings, assisting with the development of functional requirements and coordinating engagement with the EHR program office. This measure enables Department leadership and Congress to assess the degree of progress toward implementation of the federal EHR by federal partner organizations.



Federal Partner Onboarding
Definition
Progress of collaborations with new federal partners who are interested in joining the federal EHR enterprise.

Appendix B: Patient Satisfaction Survey Questions

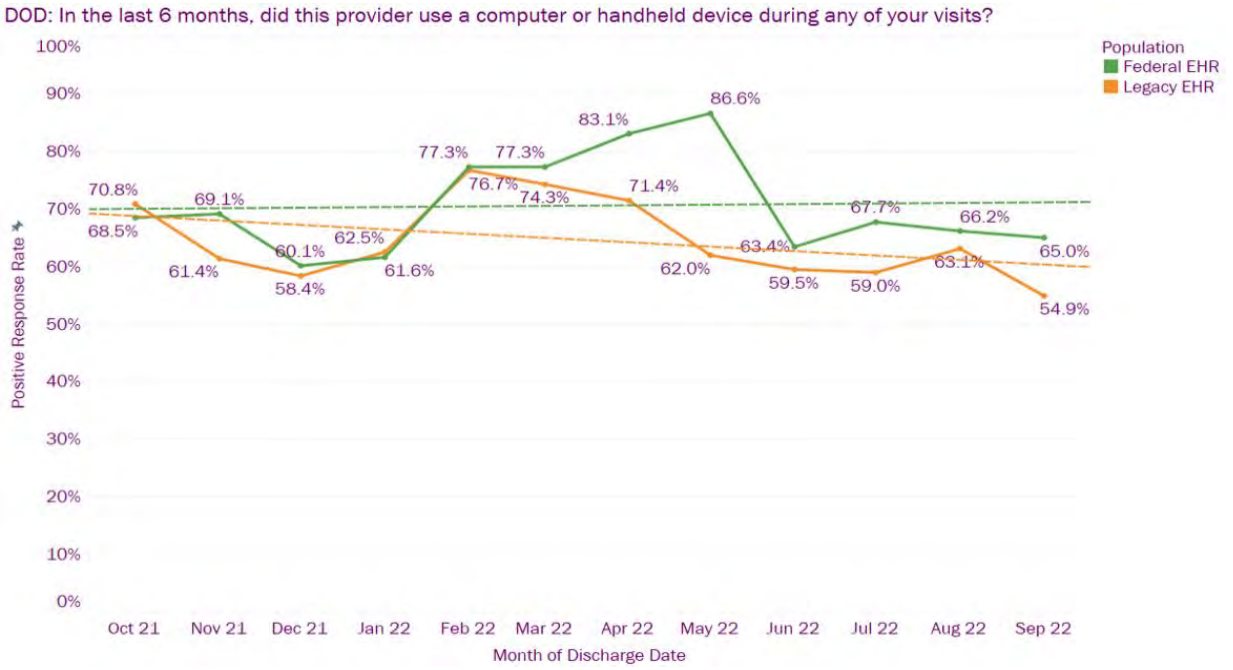
Patient Satisfaction Survey Questions

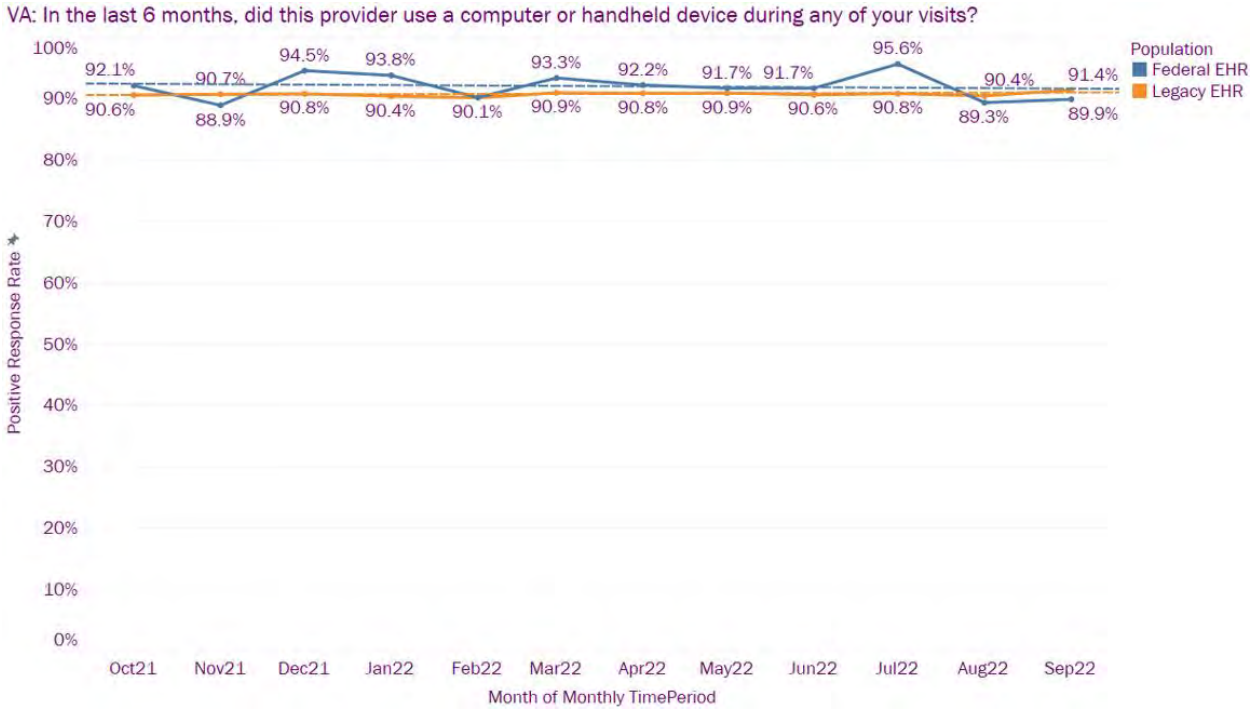
Question #	DOD and VA	Available Responses
1	In the last 6 months, did this provider use a computer or handheld device during any of your visits?	Yes No
2	During your visits in the last 6 months, did this provider ever use a computer or handheld device to look up test results or other information about you?	Yes No Don't know ('DK')
3	During your visits in the last 6 months, did this provider ever use a computer or handheld device to show you information?	Yes No
4	During your visits in the last 6 months, did this provider ever use a computer or handheld device to order your prescription medicines?	Yes No DK
5	During your visits in the last 6 months, was this provider's use of a computer or handheld device helpful to you?	Yes, definitely Yes, somewhat No
6	During your visits in the last 6 months, did this provider's use of a	Harder Neither Easier

Question #	DOD and VA	Available Responses
	computer or handheld device make it harder or easier for you to talk with him or her?	

Patient Satisfaction Visual Analysis

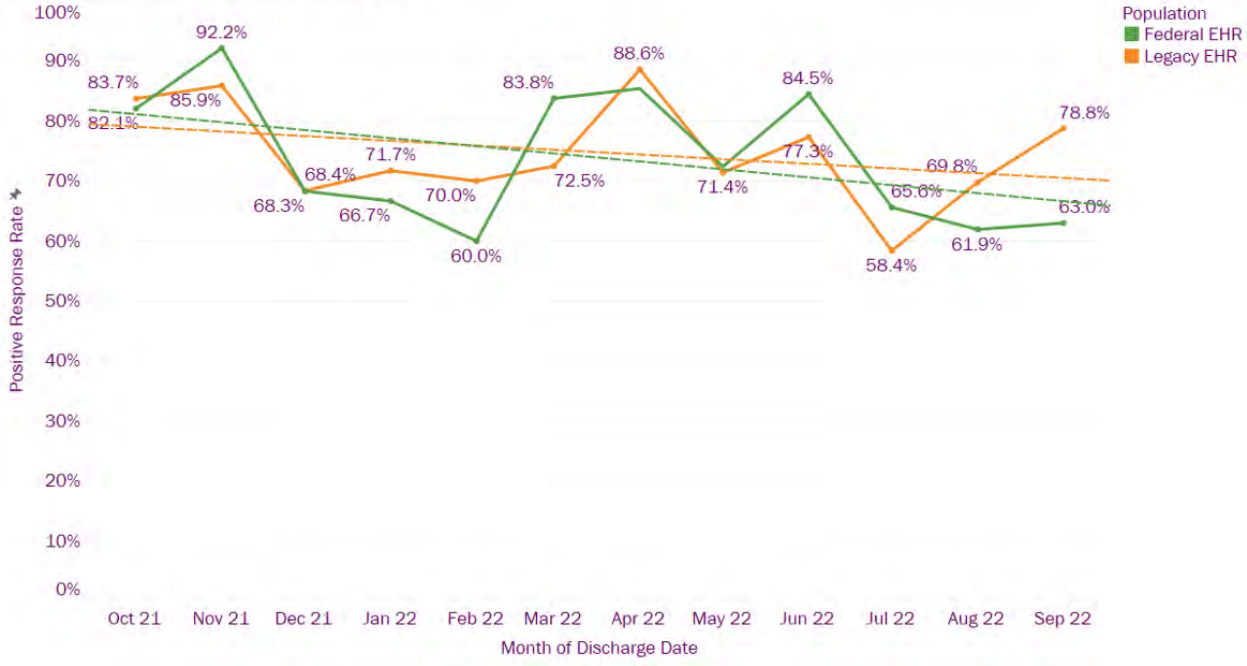
Question 1: Percentage of Positive Responses (Yes)



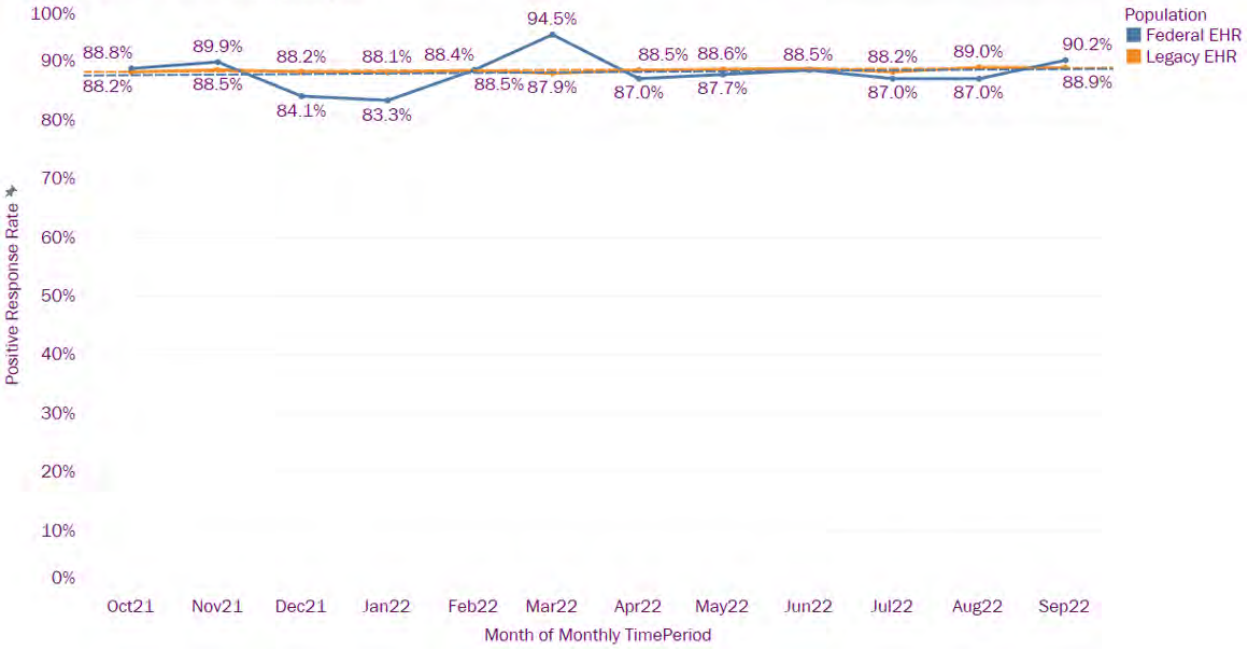


Question 2: Percentage of Positive Responses (Yes)

DOD: During your visits in the last 6 months, did this provider ever use a computer or handheld device to look up test results or other information about you?

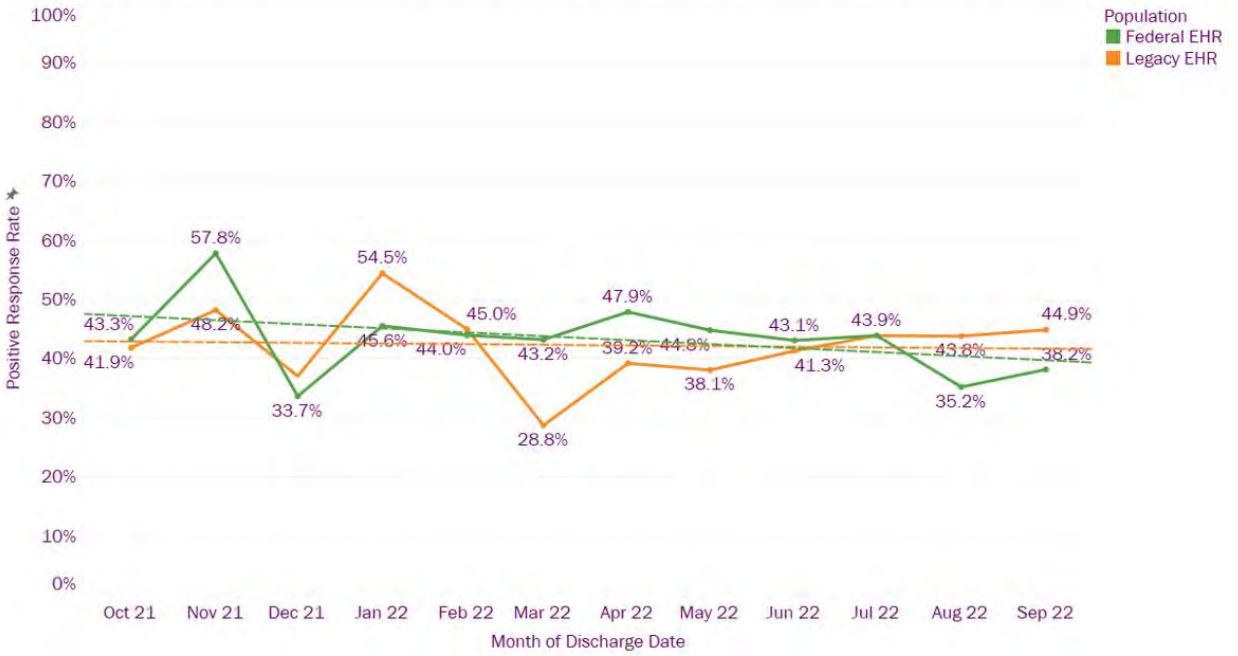


VA: During your visits in the last 6 months, did this provider ever use a computer or handheld device to look up test results or other information about you?

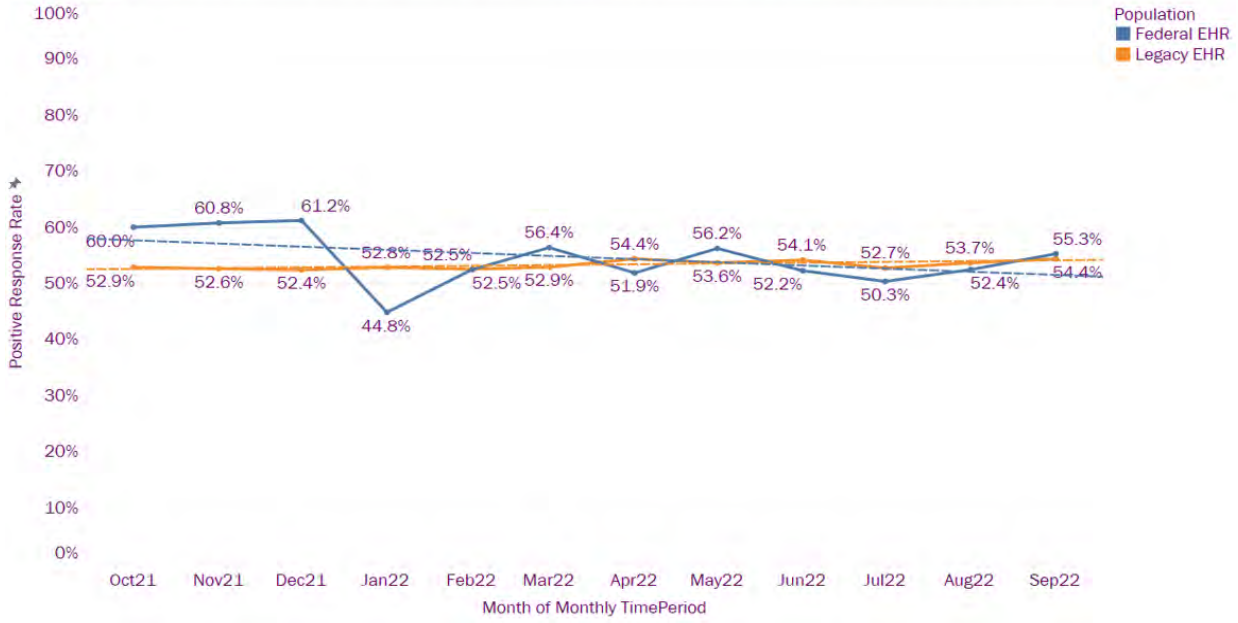


Question 3: Percentage of Positive Responses (Yes)

DOD: During your visits in the last 6 months, did this provider ever use a computer or handheld device to show you information?



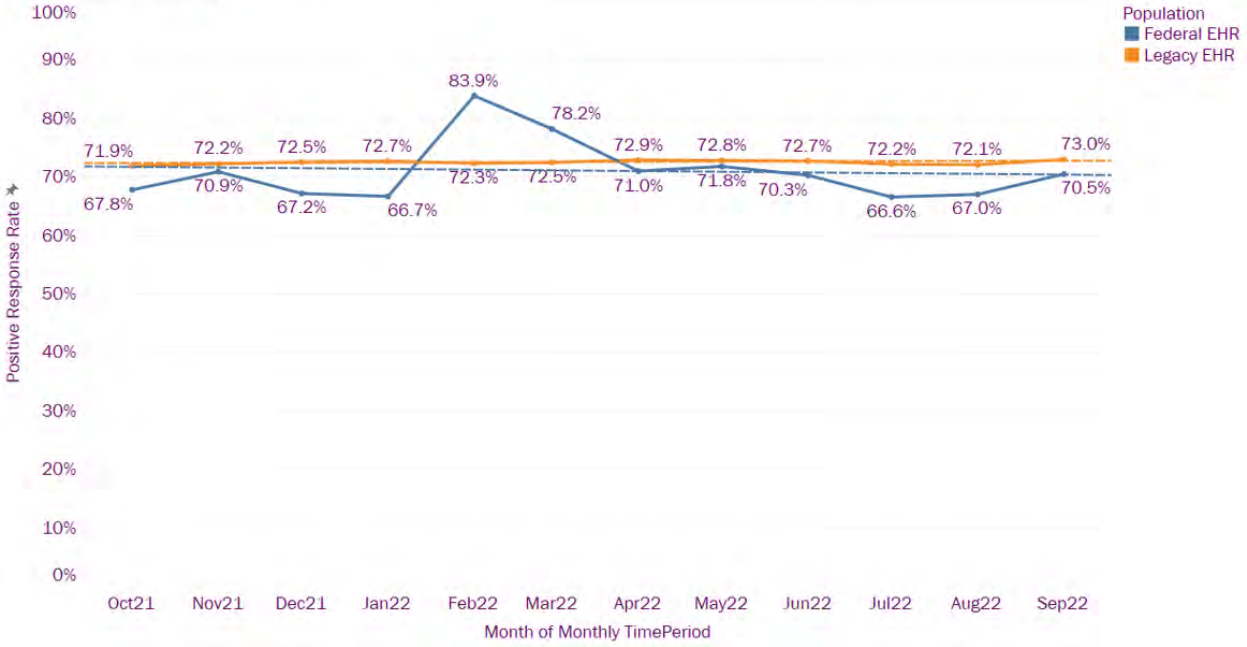
VA: During your visits in the last 6 months, did this provider ever use a computer or handheld device to show you information?



Question 4: Percentage of Positive Responses (Yes)

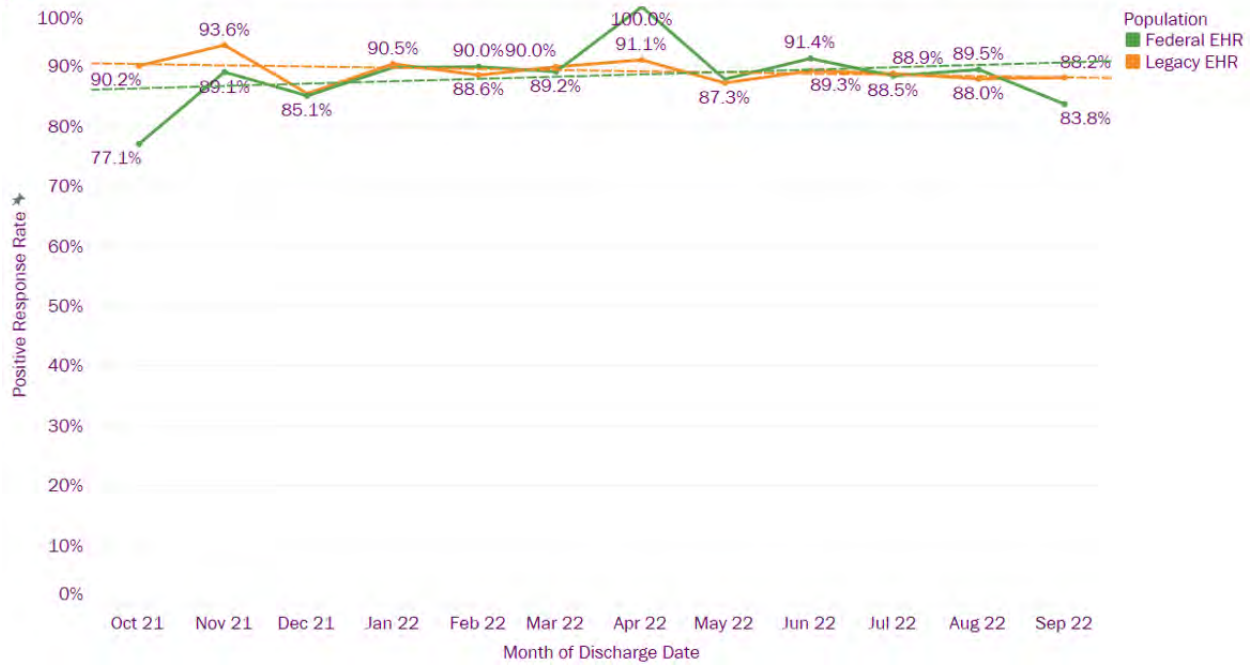
DOD: During your visits in the last 6 months, did this provider ever use a computer or a handheld device to order your prescription medicines?

VA: During your visits in the last 6 months, did this provider ever use a computer or a handheld device to order your prescription medicines?

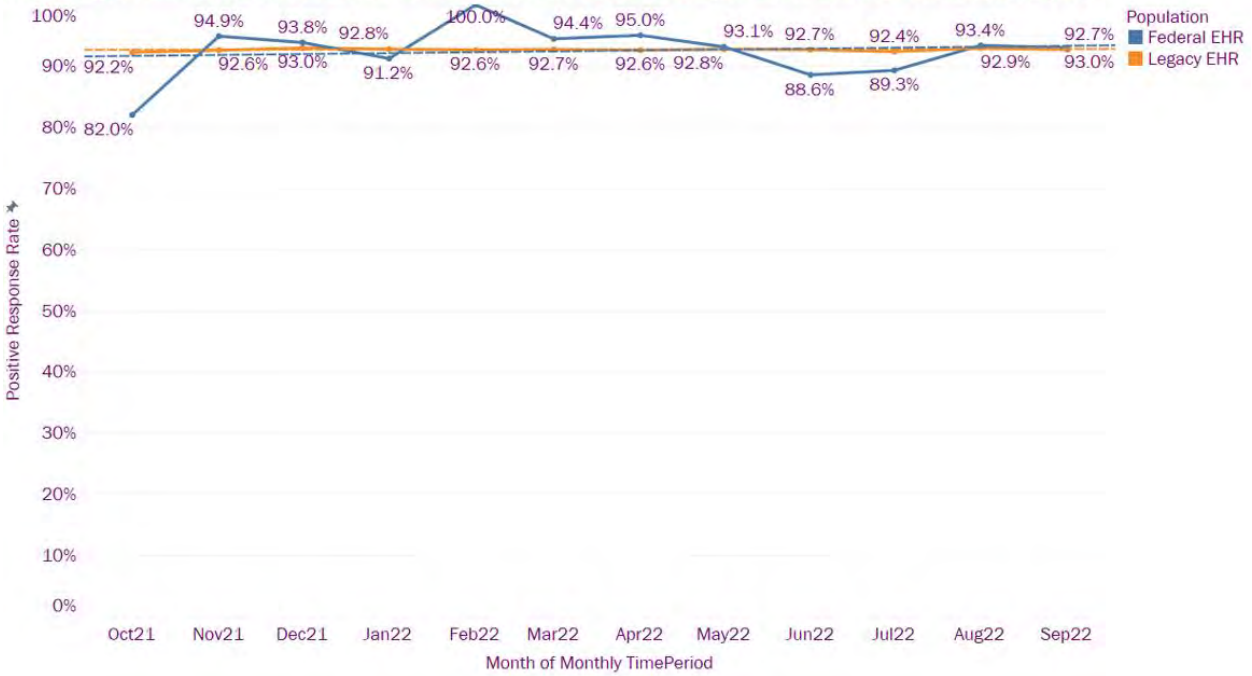


Question 5: Percentage of Positive Responses (Yes)

DOD: During your visits in the last 6 months, was this provider's use of a computer or handheld device helpful to you?

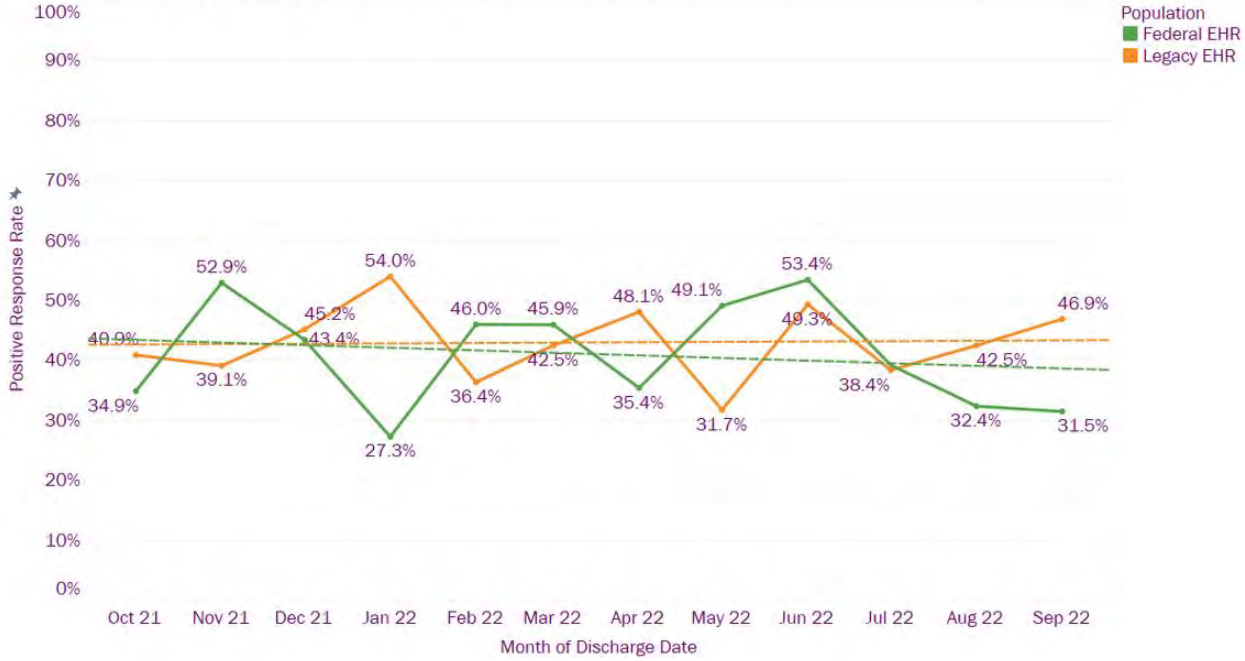


VA: During your visits in the last 6 months, was this provider's use of a computer or handheld device helpful to you?



Question 6: Percentage of Positive Responses (Easier)

DOD: During your visits in the last 6 months, did this provider's use of a computer or handheld device make it harder or easier for you to talk with him or her?



VA: During your visits in the last 6 months, did this provider's use of a computer or handheld device make it harder or easier for you to talk with him or her?