Computerized Patient Record System

# Department of Veterans Affairs

Veterans Health Administration

# EHRM Sprint Report

**March 2023**

**Version 1**

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## Foreword

The implementation of a new electronic health record (EHR) is one of the largest strategic and tactical projects in the history of the Department of Veterans Affairs (VA). VA's implementation of the Cerner Government Services, Inc. electronic health record will create a single joint patient record between VA and the Department of Defense, with the goal to create a seamless health record for Veterans from their entry into military service and then through the course of their VA care.

We acknowledge that the progress of this project has not met Veteran or VA expectations.

Throughout this EHR Modernization (EHRM) program, we as an organization have learned a lot. In 2022, it became more and more evident that our structure and our processes were not optimal for successful deployments or to fix issues identified after deployments. Furthermore, it was evident that there was still much work to be done to standardize processes across VA and to continually optimize the new record for use in VA.

In July 2022, VA made the decision to delay deployment to the Boise VA Medical Center, promising to dig deeper into our readiness for deployments and address feedback from our frontline users – resulting in our October 13, 2022, announcement that we would delay upcoming deployments until June 2023, while we underwent an aggressive "assess & address" period to diagnose and fix problems.

After that announcement, VA leadership established the EHRM Sprint Project Team, a collaborative, multidisciplinary, enterprise-wide team to assess what needed to be fixed before we went live again and ensure that our deployments are successful going forward.

In addition to identifying the integrated solutions needed to ensure patient safety, VA took a hard look at how we as an enterprise might make better, faster decisions about the configuration of our new EHR, readiness for "go-live," and how we deliver care to Veterans in VA – to better meet the needs of our Veterans and health care providers.

The Sprint Team's report is now complete. Based on this report, we are implementing changes in our structure for decision-making and the processes for "go-live" decisions. The report also recommended specific solutions to issues critical to patient care, for example:

- Accuracy, enterprise standardization, and reliability of data collected for upload to the new system in Data Collection Workbooks. This includes extra checks to ensure that the right data is uploaded.
- Management of clinical and administrative orders. This includes ensuring that when a VA employee needs to place an order for a Veteran, they can easily find the right order and it goes where it needs to go.

- Standardization of EHR Naming conventions, including for locations, to ease cognitive burden and better support VA's enterprise scale.

Some of the solutions are already completed; in other cases, durable solutions may take many months, so we're pursuing interim solutions. We will continue to implement the team's recommended solutions to ensure that we are fully ready for the next deployment.

To the dedicated staff on the front lines who worked tirelessly to flag concerns with the system – this Sprint was a direct result of your efforts, and we thank you for your unwavering commitment to Veterans. We want to also thank our EHRM-Integration Office colleagues who are working tirelessly to improve the system and ensure safe and effective deployments. Working together to modernize the EHR system, we will create a lifetime of safe, reliable, and seamless care – and ensure the best possible experience at VA for both Veterans and VA health care personnel.

Sincerely,

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Under Secretary for Health
Veterans Health Administration

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Acting Program Executive Director,
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## 1.0 Executive Summary

On October 13, 2022, the Department of Veterans Affairs (VA) announced the delay of upcoming go-live deployments of VA's new electronic health record (EHR) system until June 2023 to allow for improvements that better support patient safety and system reliability. Following this announcement, VA and Veterans Health Administration (VHA) leadership established the EHR Modernization (EHRM) Sprint Team, a collaborative, multidisciplinary, enterprise-wide team. This team assessed concerns and developed recommended solutions for the most impactful and critical patient safety issues as identified by the National Center for Patient Safety (NCPS) led Patient Safety Team (PST), inclusive of facility, Veterans Integrated Service Network (VISN), and national members.

## 2.0 Background

The implementation of the EHR system, Cerner Government Services, Inc. (Cerner), is one of the largest strategic projects in the history of the VA. Cerner creates a single joint patient record between VA and the Department of Defense (DoD) with the goal of enhancing care for American Service members and Veterans, providing continuity from their first day of military service to their care received by VA.

On October 13, 2022, VA announced the delay of deployments of VA's new EHR system until June 2023 to allow for improvements that better support patient safety and system reliability. Following this announcement, VA and VHA leadership established the EHRM Sprint Project Team, a collaborative, multidisciplinary, enterprise-wide team. This team assessed concerns and developed recommended solutions for the most impactful and critical patient safety issues identified by the NCPS led PST review. Four key patient safety related areas of focus were identified.

1) Unknown queue and related issues (including medications)
2) No show and cancelled appointment orders failed to route to scheduling queues
3) Add Referral button not creating visible external site referral for worklist action
4) Usability issues with the EHR application, allowing providers to order procedure charge codes for imaging without ordering the actual clinical imaging

The EHRM Sprint Team met in Washington, DC, on October 18-20, 2022. Over the course of 3 days, the EHRM Sprint Team confirmed the Sprint would focus on developing recommended solutions to address the issues identified by the PST review. Note: Additional issues are also being addressed as part of a longer-term effort outside of the EHRM Sprint project.

Based on the PST's review of key areas of focus, the EHRM Sprint project consisted of the following work streams:

- **Governance:** Designed and established rapid decision-making bodies and processes within VHA to determine and prioritize key functional requirements of the system
- **Orders Audit:** Identified and implemented resolutions to address and identify as-yet unknown ordering issues
- **Data Collection Workbooks (DCW) Improvements:** Developed recommended solutions to standardize DCWs components and processes at all sites
- **Orders Usability:** Defined valid solutions to improve usability of order functionality to decrease the likelihood of incorrect order entry

This multidisciplinary team, also known as the EHRM Sprint Team, included key partners from:

- EHRM-Integration Office (EHRM-IO)
- Cerner Solution Consultants
- VHA Clinical Services
- VHA NCPS
- VHA Office of Health Informatics (OHI) Clinical Informatics and Data Management Office
- VHA OHI Strategic Investment Management
- VHA Office of Healthcare Transformation
- VHA Operations
- VHA Under Secretary for Health (USH)
- VISN 10 and VISN 20

The EHRM Sprint Team obtained honest, open opinions and insights through field input that helped inform process changes across VA to ensure a more consistent experience for Veterans. The EHRM Sprint Team also coordinated the solution transitions to the appropriate stakeholders for solution execution, post-Sprint. Anticipated execution and implementation for many solutions are expected in 2023 and will be included in the Program's integrated master schedule. In addition to developing recommended solutions, the Team is developing processes to act on the recommended solutions, and future recommended solutions.

## 3.0 Overview

### 3.1 Overarching

The EHRM Sprint Team was a collaborative, multidisciplinary, enterprise-wide team assessing concerns and developing recommended solutions for the most impactful and critical patient safety issues identified by the VA PST review with the new EHR.

Image 1, below, represents the framework the EHRM Sprint Project used to develop issue solutions and for phased execution.


*Image 1: EHRM Sprint Project Framework*

The Sprint Team reviewed over 450 submitted issues from VHA and prioritized 30 to address during the Sprint, based on their contribution to the safety notice to Veterans and prioritization for deployment critical path.

The Sprint then created three focus areas to address the 30 issues, in addition to a governance focus area. These areas provided structure for issue identification, resolution, and implementation. Details regarding those focus areas, including objectives and outcomes, follow in this report.

Below (Image 2) is a summary of the 30 safety issues, organized into categories, that were addressed during this EHRM Sprint Project:

| Area | Issue |
|---|---|
| **Cardiology** | Diagnostic echocardiogram orders entered as Current Procedural Terminology (CPT) codes |
| **Care Pathways/ Referrals** | Referral order loss |
| **Identity** | Wrong provider selection |
| **Imaging** | Radiology imaging (e.g., pelvic ultrasound) orders as CPT codes |
| **User Roles** | Clinical staff ability to check in/outpatients via ambulatory organizer |
| **Scheduling** | Ambulatory scheduling |
| **Software** | Home oxygen ($O^2$) requisition |
| | Core locations do not match scheduling locations. Core location standardization in progress - re-work for in-deployment and live sites. |
| **Orders** | Cancelled future lab orders not routed to ordering provider inbox |

| Area | Issue |
|---|---|
| | Issues with prosthetic order migration |
| | Wrong provider being selected in Cerner, from multiple sites |
| | Nurse orders defaulting to clinical algorithm instead of proposed orders |
| | Prosthetic and Sensory Aids Service (PSAS) order issues |
| | Results reporting not going to message center |
| | CPT codes ordered instead of intended order |
| **Readiness** | Clinic build errors in Walla Walla and Roseburg |
| | Ambulatory schedules (reg/sched): live sites report many problems with clinic builds, widespread inaccuracy. 1) Do not reflect what was in the DCW, 2) No change control process, 3) no visibility before go-live to check/change. |
| **Referrals and Consults** | Referrals in house |
| | Scheduling |
| | External site referrals not routed to worklist (add referral button) |
| **Unknown Queues and Others** | Require daily or weekly monitoring and management of items showing up in the Unknown Queue |
| **Pharmacy** | Staff must update medication lists at every visit because updated medication information did not carry over to the next appointment. |
| | Medication reconciliation |
| | Aggregate issue: Multiple pharmacy issues, focus on measles, mumps, rubella (MMR) inconsistency. Inefficient processes increase full-time employee (FTE) needs at sites. Expired meds not on active/workflow/med history/med rec list. |
| | Cancelled prescription queue |
| | Discontinued prescriptions without probable replacement |
| | Duplicate Consolidated Mail Outpatient Pharmacy (CMOP) and local Medication Dispenses |
| | Duplicate prescriptions (Rx) and med orders |
| | Rx delay or omission |
| | Status of med orders not visible to ordering providers |

*Image 2: 30 Safety Issues Addressed by the EHRM Sprint Project*

## 3.2 VHA EHRM Governance

The governance focus area worked to establish a lean, responsive, and rapid decision-making model for VHA to define and prioritize system requirements. Additionally, a National Council Transition Team, consisting of EHRM-IO and VHA leaders, was established to coordinate a comprehensive transition plan to enable

successful transition of the National Councils from EHRM-IO to VHA in quarter (Q) 2 fiscal year (FY) 2023.

### 3.3 Orders Audit

Facilities identified issues where orders could not be routed correctly. The Orders Audit focused on addressing medical orders that did not reach their intended destination and developing recommended solutions to ensure orders are routed to the proper location in the system.

### 3.4 Usability for Order Entry

VA medical center staff identified instances where the EHR system is difficult for health care personnel to navigate or use, which can lead to end user errors that cause inefficiencies, delays in care and patient safety concerns. The Usability for Order Entry focus area focused on defining feasible solutions to improve usability of orders functionality to decrease the likelihood of incorrect order entry.

### 3.5 DCW Improvements

The DCWs are an important planning tool used to ensure naming, locations, and other items, such as VA Medical Center (VAMC) physicians, are programmed into the system at each site. Each VAMC and Consolidated Patient Accounting Center (CPAC) has its own naming conventions for locations, tests, and medications. The new EHR is an opportunity to standardize these data elements to support standardized care workflows across the system. The current process for filling out DCW spreadsheets and moving the data to the new EHR system lacks consistency and standardization, which may result in errors and/or incorrect local EHRM build. For larger sites, there are several hundred data elements that must be validated by the sites, which is a burden that can be greatly reduced through standard data elements. The DCW Improvements focus area focused on developing recommended solutions for standardizing DCW components and processes at all sites. A standardized approach will create a reliable, accurate picture for EHR builds and result in positive downstream impacts to patient safety and effective use of the new EHR.

## 4.0 Outcomes

### 4.1 Overarching Objectives and Outcomes

The primary objectives of the EHRM Sprint Team were to assess concerns and develop recommended solutions for the most impactful and critical patient safety issues identified by the VA PST review. Overall, the Sprint Team identified 138 solutions to address the 30 issues, as well as establishment of EHRM governance to provide structure for generating requirements and decision-making.

### 4.2 Governance Objectives and Outcomes

A governance structure within an organization provides standard processes and practices that are decided upon by representatives of the health system clinical and

business communities and health system program teams that have the ultimate authority to make certain decisions. The newly established EHRM governance bodies and processes will ensure that decisions will be made by the right groups in a timely manner. The new EHRM governance is critical because decisions VHA makes regarding EHRM have direct impacts on how VA delivers care to Veterans. Therefore, it is critical that all key stakeholder groups are involved in the decision-making process.

#### 4.2.1 Transition National Councils from EHRM-IO to VHA for Decision-Making in Functional Areas

The EHRM-IO National Councils are decision-making groups that specialize in specific clinical and functional areas related to EHRM. The Councils are staffed by subject matter experts (SME) with a broad range of expertise and experience. The Councils were established in 2018, and have been instrumental in supporting EHR deployment, post-go-live and sustainment activities. To better coordinate the work of these Councils with the functional areas of the VHA, the Councils have transitioned from EHRM-IO management to VHA at the end of January 2023. Under VHA, each Council aligns under an Assistant Under Secretary for Health (AUSH) or Chief Officer (CO), serving as the voice of VHA to drive a culture of standardization, integration, and continuous improvement to enhance the Veteran experience (See Image 3, below). As these governance bodies and processes are new, VA will continuously assess for gaps and make adjustments  to ensure the new governance system meets its objectives.

| AUSH for Clinical Services<br>Dr. Erica Scavella | AUSH for Patient Care Services<br>Mr. M. Christopher Saslo | AUSH for Discovery, Education, and Affiliate Networks<br>Dr. Carolyn M. Clancy | Acting AUSH for Support Services<br>Ms. Deborah E. Kramer | AUSH for Operations<br>Ms. RimaAnn O. Nelson | Chief Financial Officer<br>Ms. Laura Duke | AUSH Assistant Under Secretary for Health for Integrated Veteran Care<br>Dr. Miguel LaPuz | Chief Officer of Workforce Management and Consulting<br>Ms. Jessica Bonjorni | Chief Informatics Officer<br>Mr. Chuck Hume | AUSH for Quality and Patient Safety<br>Dr. Gerard Cox |
|---|---|---|---|---|---|---|---|---|---|
| Acute Provider | Acute Care Delivery | Research *Previously under QSV* (New) | Supply Chain | Bed Management (New) | Business Operations | Integrated Veteran Care – *Previously under Business Operations as Community Care/Registration/Scheduling* (New) | Training (New) | Community Data Integration | Quality, Safety and Value |
| Ambulatory | Geriatrics and Extended Care | Health Professions Training (New) | Healthcare Technology Management *(Previously known as Technical Management)* | Workforce Management and Operations (Sunset) | | | | | |
| Behavioral Health | Patient Engagement and Virtual Health | | | | | | | | |
| Clinical Support Services | Pharmacy | | | | | | | | |
| Dentistry | Rehabilitation and Acute Clinical Ancillaries | | | | | | | | |
| Perioperative Care | Sterile Processing (New) | | | | | | | | |
| Emergency Medicine | Nursing (New) | | | | | | | | |

Legend
- Existing Council
- Proposed New Council
- Sunset Council

CROSS-COUNCIL ENABLING ENTITIES

| Ethics | Regulatory |
|---|---|

*Image 3: Future State Councils and Alignment to AUSH/COs (above)*

### 4.2.2 Establish Interdisciplinary Decision Group (IDG) for Enterprise-Wide Decisions

The IDG coordinates multiple functional groups to provide a single, definitive voice for VHA on EHRM decisions. The IDG enables VHA to make decisions on cross-functional issues that can range from requirements, data integration, user experience and patient safety, and as appropriate, escalates issues to VHA USH and/or VHA Governance Board with proper cross-functional input. EHRM-IO has non-voting members on the IDG to consult on any requirements that will ultimately impact the schedule or vendor management. In support of effective decision-making, the IDG will consider the input of potentially impacted stakeholders, and will also review any established policies related to the matters being evaluated.

### 4.2.3 Stand Up Decision Support Team (DST) to Coordinate and Track Decision-Making Process

The DST ensures that issues are tracked and effectively routed for review and decision-making to the National Councils and/or the IDG. The DST coordinates and aligns requirements on issues impacting users and provides the IDG with issue summaries for action. Once decisions are made, they are disseminated to

impacted users (e.g., National Councils, VISNs, VAMCs, CPACs) and are summarized as needed for senior VHA and VA leadership. The DST will track all communication and decision support information for documentation purposes.

The governance focus area established a lean, responsive, and rapid decision-making model to support VHA EHRM (Image 4). The focus area also enabled successful transition of the National Councils from EHRM-IO to VHA in Q2 FY 2023.

| Governance | Example #1<br>EHRM IDG | Example #2<br>EHRM DST | Example #3<br>National Councils |
|---|---|---|---|
| **Issue** | • Undefined VHA EHRM decision authority/decision-making processes contribute to variable VHA EHRM program performance, resulting in negative health care delivery impacts | • Lack of VHA enterprise wide EHRM issue management coordination and tracking | • No clear alignment, integration and oversight of EHRM National Councils within VHA or VHA governance system about decision-making for functional requirements impacting health care delivery |
| **Solution** | • Established the VHA EHRM Interdisciplinary Group (IDG) to improve EHRM deployment efforts by providing a regular forum for cross-functional issue prioritization, resolution tracking and decision-making, and escalation of unresolved issues | • Established the VHA EHRM Decision Support Team (DST) to ensures issues are effectively routed for review and decision-making to the VHA EHRM Interdisciplinary Group (IDG) and/the VHA EHRM National Councils | • Developed and prepared to execute (FY23 Q2) the transition of EHRM National Councils from Electronic Health Records Modernization Integration Office (EHRM-IO) to VHA to best support EHRM-IO as an extension of the VHA Program Offices |
| **Value to Veterans** | • Best serves Veterans by supporting those who serve our Veterans and their families by sustaining a focus on a culture of safety committed to zero harm aligned to VHA's High Reliability vision and goals. | • Timely resolution of issues with EHRM deployment, averting potential negative impacts to health care delivery for Veterans and designing a Veteran-centric system focused on quality, safety, and patient outcomes. | • Timely resolution of issues with EHRM deployment, averting potential negative impacts to health care delivery for Veterans and designing a Veteran-centric system focused on quality, safety, and patient outcomes |
| **Value to End Users** | • Improve EHRM deployment efforts by providing a regular forum for cross-functional issue prioritization, resolution, tracking, decision-making, and escalation of unresolved issues by representing the full engagement of perspectives from throughout the enterprise | • Established VHA processes to coordinate issues impacting users; issues prepared for VHA EHRM decision-makers to action, issues reported to a centralized tracker that is coordinated with other VHA governance bodies to provide access and transparency to end users on the status of issues, decisions, and resolutions | • Provides subject matter expertise from the field and operational leadership to inform the development of validated functional requirements, support standardized clinical and business workflow development, inform issue management, and support change management related to the decisions made in the Councils |

*Image 4: Examples of Impactful Solutions from Governance Solutions (above)*

## 4.3 Orders Audit Objectives and Outcomes

The Orders Audit Group focused on developing recommended solutions to address medical orders that did not reach their intended destination.

Order issues were characterized into three primary areas:

1. **Orders Queues:** Within enterprise EHR systems, there are queues to capture orders that may not route to the proper location within the system due to design, configuration, or user action. The queues and reports serve as safety nets for monitoring and rapid resolution to ensure prompt patient care and integrity of the system. This is a standard part of the EHR product that all customers manage.

2. **Configuration Issues:** VA has identified configurations of the EHR that cause issues with orders routing or management. These do not end up in the orders queues and must be addressed at the source.
3. **Undiscovered Orders Issues:** VA has identified that some orders are not being processed as intended and not making it into the queue safety net. Configurations are not being proactively reviewed to determine cause and effects associated with these orders. Initiatives include monitoring drift from safe system configurations and using machine learning to identify anomalies in steps of the ordering system.

The Orders Audit Group prioritized issues and launched 10 subgroups to address orders queues and configuration issues. Existing mitigations and long-term solutions were identified. A strategy was developed for undiscovered orders issues and ongoing surveillance of EHR configurations for patient safety.

Identifying root causes and resolving issues with orders to ensure:

- Timely care is provided
- Providers have trust in the record
- Rework is reduced (with a goal of elimination)

During the Sprint, each of these issues was transitioned to the applicable SME/stakeholder leaders within VA to review and develop solutions (see Image 5). Examples of Impactful Solutions from Orders Audit can be found in Image 6.

| Issues | Responsible Organization | Implemented |
|---|---|---|
| Add Referral Button | PST / EHMR-IO | Partial – Estimated (Est) FY 2023 Q4 |
| Pharmacy Dispensing/Lost Orders | Pharmacy Benefits Management (PBM) / EHRM-IO | Partial – Est FY 2023 Q4 |
| General Lab Default Bench | EHRM-IO | Partial – Est FY 2023 Q4 |
| Radiology Undiscovered Orders | EHRM-IO / VHA | Partial – Est FY 2023 Q4 |
| Messages to Duplicate Provider Accounts | EHRM-IO | Partial – Est FY 2023 Q4 |
| No Show Cancellations | Integrated Veteran Care (IVC) | Partial – Est FY 2023 Q4 |
| Prosthetics Orders | PSAS / EHRM-IO | Partial – Est FY 2023 Q4 |
| Refused Orders Inbox | Health Information Management Service (HIMS) / EHRM-IO | In Progress – Est FY 2023 Q4 |

| Issues | Responsible Organization | Implemented |
|---|---|---|
| Unknown / Needs Location Queues | IVC / VHA | Partial – Est FY 2023 Q4 |
| Undiscovered Issues Management | EHRM-IO / VHA | Partial – Est FY 2023 Q4 |

*Image 5: Orders Audit Issue Status*

| Orders Audit | Example #1 "Add Referral" Button | Example #2 Imaging Orders | Example #3 Lab Orders |
|---|---|---|---|
| Issue | • "Add Referral" button allows users to create a referral case without a signed order<br>• Blank fields cause external scheduling problems | • If an imaging order is missing correct routing location information, the order defaults to the "Virtual Room" and no alert is provided to providers or staff, which may result in exams not being completed | • Lab orders route to the General Lab Default Bench if system not built/used correctly<br>• If the site is not monitoring the General Lab Default Bench, labs may not be performed |
| Solution | • An operations job was created and is running daily to fill in missing data fields and critical look backs completed<br>• Longer term solutions in development by Cerner<br>• Policy updates to prohibit use of "Add Referral' button in draft SOP | • Smart alerts now appear when an order will not route correctly<br>• Implemented discern alerts<br>• Developing SOP<br>• Develop a national monitoring plan and associated standardized report | • Ensure appropriate staff have access to the General Lab Default Bench<br>• Provide job aid and troubleshooting guides<br>• Educate providers regarding encounters and lab orders. |
| Value to Veterans | • Reduces the likelihood of delays in care for Veterans | • Reduces the likelihood of delays in care for Veterans | • Lab orders can be more easily monitored, avoiding delays in care for Veterans |
| Value to End Users | • Streamlines user experience with the EHR, resulting in more efficient, reliable processes and delivery of care | • Will keep orders out of the Virtual Room and allow them to stay in scheduling, reducing rework for staff | • Access to the right tools, information, and training to effectively monitor lab orders and ensure lab orders are placed. |

*Image 6: Examples of Impactful Solutions from Orders Audit*

## 4.4 Orders Usability Objectives and Outcomes

Usability issues within the ordering process are contributing to inefficiencies, delays in care and patient safety concerns. The Usability for Order Entry Group focused on defining feasible solutions to improve the functionality, accuracy, and efficacy of orders to decrease the likelihood of incorrect order entry.

Some of the expected outcomes and benefits resulting from the Usability for Order Entry assessment and recommended solutions include:

- Solutions that decrease the likelihood of incorrect order entry, making it easier for employees to enter the correct orders for additional actions related to Veteran care.
- A smoother home oxygen ordering process allowing providers to enter orders as intended.

- Orders entered by non-providers can be entered with the appropriate co-signer, when indicated, allowing for patient care needs to move forward without system delays.
- Medications can be seen by providers if offered at their home facility or to those in which the provider is provisioned.
- Scheduling locations can be seen by providers when entering the order for all locations for which they are provisioned.

The EHRM Sprint aimed to address the following Order Entry Issues:

1. **Home Oxygen:** Variation in Home $O^2$ ordering resulting in delays of care, interruption of care delivery due to incorrect or incomplete orders, incorrect synonyms causing incorrect order selection, missing order fields, and failure to provide a vendor acceptable order print out.
2. **Non-Provider Ordering:** Non-providers are able to enter orders with and without signatures. Multiple contributing factors cause the orders to either correctly process or appear in refused queue, incorrect encounters, lost orders, delays in care, and process without provider signatures. Additionally, non-provider order entries are resulting in loss of revenue and unauthorized charges being placed in the EHR.
3. **Order Titles:** Providers can mistake CPT Charge codes for imaging and non-imaging procedures/studies, unaware they did not order the actual clinical procedure.
4. **Provider Selection:** Wrong selection of provider when selecting between providers with similar names. The vast number of providers in the system combined with limited filtering capabilities, results in frequent mistaken selection of provider selection, particularly when similar names are visible.
5. **Scheduling Queue:** Graphic user interface of revenue cycle leads to inefficiencies and risks of selecting lower urgency for the appointment than needed.
6. **Pharmacy Prescriptions Migrate in Acute Status:** Prescriptions are migrated in an “acute” status, which means that they do not trigger automated reminders for refills.
7. **Pharmacy Medication Options:** Within order search, providers are offered too many brands or versions of some common medications that are not offered at their home facility, resulting in un-fillable orders.
8. **Scheduling Location Errors:** Providers are given a large list of scheduling locations, leading to scheduling orders for locations for which they are not assigned.

During the Sprint, each of these issues was transitioned to the applicable SME/stakeholder leaders within VA to review and develop solutions (see Image 7). Examples of Impactful Solutions from Orders Usability can be found in Image 8.

| Issues | Responsible Organization | Implemented |
|---|---|---|
| Home Oxygen Requisition | DST-Council, Solution Expert | In Progress – Est January 2023 |
| Non-Provider Ordering | DST-IDG, VHA Program Office, DST-Council, EHRM-IO, Solution Expert | In Progress – Est May 2023 |
| Pharmacy Order | DST-Council | Partial – Est February 2023 |
| Order Titles | Solution Expert, DST-Council | In Progress – Est July 2023 |
| Provider Selection | Solution Expert, DST-Council | In Progress – Est March 2023 |
| Scheduling Issues | Solution Expert, EHRM-IO, IVC, DST-Council | Partial – Est July 2023 |

*Image 7: Orders Audit Issue Status*

| Orders Usability | Example #1 Prescriptions | Example #2 Clinical Orders | Example #3 Scheduling Location |
|---|---|---|---|
| Issue | • Prescriptions migrated in an "acute" status, meaning they did not trigger automated reminders for refills<br>• Too many brands/ versions of common meds not offered at home facility, resulting in un-fillable orders | • Orders to generate billing codes and orders to schedule actual clinical procedures/studies similar, which could result in care delays when providers add charge orders that should have been scheduling orders. | • Ordering providers do not see desired location in scheduling location dropdown<br>• Providers enter orders under old encounter |
| Solution | • Software changes that allow for medications to be migrated in a functional "maintenance" status and to create a "Rx visualization parameter" | • Tech enhancements to automatically filter views to "Clinical Order"<br>• Naming methodology to add a prefix in front of all charge orders | • Technical enhancement on follow-up orders that limits the available options in the "VA Scheduling Location" drop down field when placing orders |
| Value to Veterans | • Prescriptions are automatically refilled when applicable<br>• New prescriptions can be provided by the covered pharmacy formulary | • Veterans will not be erroneously charged for care that was intended to be scheduled until after the care has been received. | • Veteran may be contacted timely for accurate scheduling needs the first time |
| Value to End Users | • Providers will be able to more clearly see and act upon prescriptions in advance of expiration<br>• Sites will have more control over what does and does not display on the order catalog | • Providers can more easily and correctly select the appropriate order for care to be provided without erroneous charges and re-work | • Providers will no longer see the entire list of locations available at the facility and will only be able to select from locations with scheduling build associated to the order |

*Image 8: Examples of Impactful Solutions from Orders Usability*

## 4.5 DCW Improvements Objectives and Outcomes

DCWs provide direction to Cerner regarding how to configure VA's new EHR for each facility. The current process does not use an enterprise approach to assure consistency based on VA standards. A standardized approach will create a more reliable and accurate set of instructions for site-based EHR builds and by extension, should result in positive downstream impacts for patient safety and enabling effective use of the new EHR.

The DCW Improvements focus area provided solutions for standardizing DCW components and processes at all sites. The Sprint initially focused on three DCWs that Cerner terms as Core DCWs, critical to proper configuration of Millennium: Organizations Locations and Aliases, Scheduling, and Scheduling Security.

The approach and scope of the DCW Improvements focus area included:

- Identifying and prioritizing additional DCWs (potentially to be addressed post-Sprint) that have downstream patient safety impacts
- Analyzing prioritized DCWs and developing solutions for implementation with a focus on standardization and automation
- Developing a DCW Standard Operating Procedure (SOP)
- Identifying future opportunities to improve the accuracy and reliability of data captured by the DCWs

Expected outcomes and benefits resulting from the DCW Improvements focus area assessment and recommended solutions include:

- Implementation of a DCW SOP that will clarify and improve the roles and responsibilities of the full DCW process, including timelines (T-minus schedule) necessary to support future deployments
- Development of an enterprise DCW Database to improve collection, validation, and visibility of DCW data for transfer into Cerner
- Implementation of an enterprise patient care location (PCL) standard at active, in-flight, and future sites to improve the consistency and reliability of location data
- Addition of a provider identifier column in the Scheduling DCW to avoid errors and duplications in entry of providers into the EHR
- Identification of standards within the DCWs, including the PCL, appointment types and provider naming conventions and credentials

During the Sprint, each of these issues was transitioned to the applicable SME/stakeholder leaders within VA to review and develop solutions (see Image 9). Examples of Impactful Solutions from DCW Improvements can be found in Image 10.

| Issues | Responsible Organization | Implemented |
|---|---|---|
| Organizations Locations DCW | Multiple solutions owners: EHRM-IO Program Management Office (PMO), | In Progress – Est FY 2023 Q2 |

| Issues | Responsible Organization | Implemented |
|---|---|---|
| | EHRM-IO DFC, Collaborative Readiness | |
| Scheduling DCWs | Multiple solutions owners: EHRM-IO – PMO, Collaborative Readiness, DST– IDG, DST – Council | In Progress – Est FY 2023 Q2 |
| Scheduling Security DCWs | Multiple solutions owners: EHRM-IO – PMO, Collaborative Readiness, DST– IDG, DST – Council | In Progress – Est FY 2023 Q2 |
| Standard Operating Procedure | EHRM-IO | In Progress – Est FY 2023 Q2 |
| Data Automation | DST-IDG | In Progress – Est FY 2023 Q2 |
| PCL Standard | Multiple solutions owners: DST – Council, VHA Program Office | In Progress – Est FY 2023 Q2 |

*Image 9: DCW Improvements Issue Status*

| DCW Improvements | Example #1 DCW SOP | Example #2 DCW Database | Example #3 Patient Care Location Standard |
|---|---|---|---|
| Issue | • DCW processes are confusing and unreliable, resulting in poor quality info being transferred into the EHR<br>• Roles and responsibilities for the DCWs are not consistent and clear to all stakeholders. | • DCW approach does not encompass enterprise approach to completion that consistently inputs reliable, accurate information into the EHR build, resulting in downstream EHR use impacts | • VA does not have an enterprise patient care location standard, resulting in signification naming variations and manual entry errors within DCWs<br>• Errors inconsistencies in patient care locations may result in clinic grid errors |
| Solution | • Implement DCW Standard Operating Procedure (SOP) that will clarify and improve the roles and responsibilities of full DCW process | • Development of a DCW Database to improve collection, validation, and visibility of DCW data for transfer into Oracle Cerner | • Implementation of an enterprise patient care location standard at active, in-flight, and future sites to improve consistency and reliability of location data |
| Value to Veterans | • A safer, more reliable transition to Oracle Cerner Millennium with fewer impacts to timeliness and quality of patient care | • A safer, more reliable transition to Oracle Cerner Millennium with fewer impacts to timeliness and quality of patient care | • A safer, more reliable transition to Oracle Cerner Millennium with fewer impacts to timeliness and quality of patient care |
| Value to End Users | • Improved delineation of roles and responsibilities, leading to less rework, confusion, and stress in preparation for go-live<br>• An EHR that is safer and more reliable for end users and Veterans | • Reduced workload and improved accuracy of DCW information<br>• Clear standards for key information in the EHR, leading to a more reliable EHR and reporting<br>• Stable structures where the data is dynamic and transparent across VA | • Clear expectations for patient care locations, resulting in less rework and a more effective transition to Oracle Cerner Millennium |

*Image 10: Examples of Impactful Solutions from DCW Improvements*

## 4.7 Sprint Impactful Solutions and Outcomes

Throughout the Sprint, solutions were identified to provide value to Veterans, and to the end users who provide care to Veterans. The Sprint resolved issues impacting all steps

of the EHR journey, as depicted by Image 11 that follows. This holistic approach to issue resolution is intended to ensure better care for the Veteran.

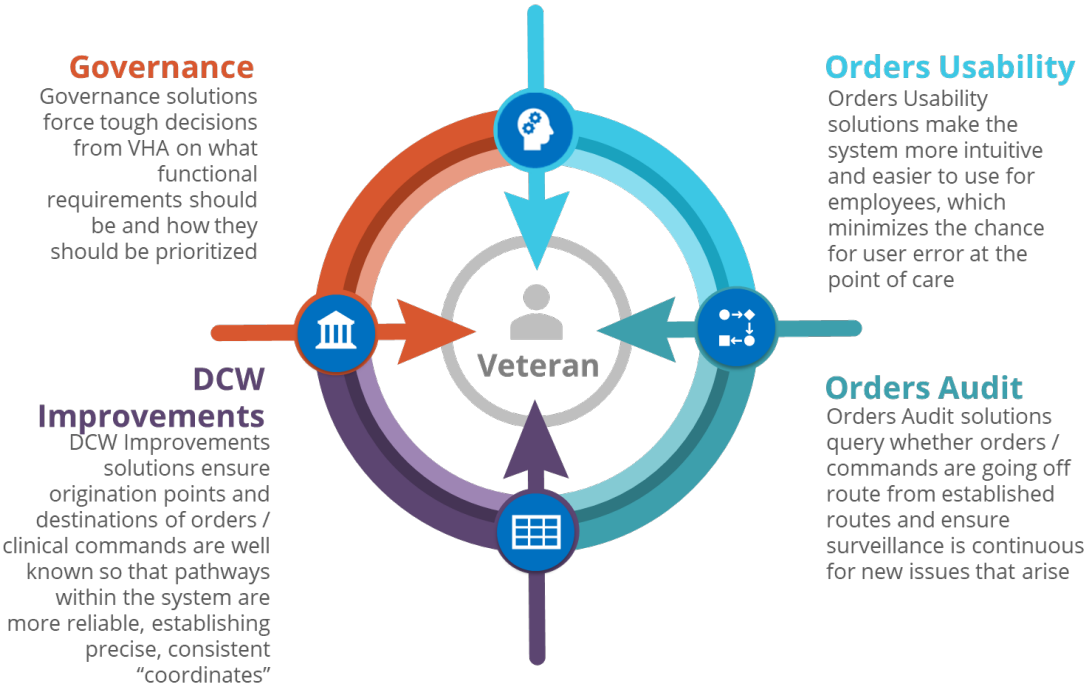



*Image 11: Sprint Impacts Across EHR Journey*

## 5.0 Transition Recommendations

As solutions are developed, they will be transitioned to the appropriate business lead for review and implementation. Business Leads in VHA and EHRM-IO have been identified for transition and/or implementation. Please see Appendix 1 for a summary of solutions and Responsible Organizations.

## 6.0 Next Steps

The safe and effective deployment of an enterprise EHR system requires a commitment to continuous improvement. This involves proactive work on system improvements, a responsive and agile approach to management and remediation of issues identified through use of the system, and an organized structure to support readiness assessments and decision-making for future deployment sites. In support of future deployments, there are several efforts being pursued beyond those described in the EHRM Sprint Report.

Of note, improvements across these functions are critical prior to deployment at level one facilities and those facilities with clinical research trials that require order entry.

1. **Ordering Surveillance Mechanisms:** This work has two parts: First, VA will conduct simulations of Computerized Provider Order Entry (CPOE) with Clinical

Decision Support (CDS) system performance using an EHR/CPOE Assessment Tool. This assessment tool is used by more than 2,000 U.S. hospitals every year to measure the safety performance of their operational EHRs as part of the Leapfrog Hospital Safety Survey. Second, VA will conduct analyses of orders to look for as-yet unknown causes for orders not completing as intended. This work is based on successful approaches VHA uses to identify and monitor problems with Veterans Health Information Systems and Technology Architecture (VistA) orders.

2. **User-Adoption Interventions:** Cerner trains VA employees on how to use its software with a focus on how to use features to do common tasks like complete documentation or place orders. Given this training, users have had trouble applying this software knowledge to the accomplishment of their jobs. Additional adoption interventions, based on best practice from other healthcare systems, are required. These interventions include more over-the-shoulder or at-the-elbow support than is already provided, including by peers, to help users make the transition from VistA to Cerner and to understand new ways of getting work done with the new EHR.

3. **Research:** VA's research mission is core, defined in statute, and is essential for the future of Veteran health care. Moreover, VHA's ability to retain faculty is foundational for success against VA's goals across all four of its missions, to include high-quality and timely delivery of health care. Research faculty must maintain their clinical research studies to retain funding and meet timelines outlined in grants. Any site that has clinical research that requires ordering through Cerner (e.g., National Cancer Institute Oncology trials) need PowerPlans (a set of orders that are grouped together to communicate care for a patient) to support the Veterans' care delivered within the study. On a sustained basis, amendments to existing trials or new trials will need to be supported through PowerPlan modifications in a responsive and timely manner.

4. **Patient Safety Related IT Enhancements – New Service Requests (NSR):** VHA EHRM governance has validated a set of NSRs that will need remediation through an IT solution. As part of the EHRM Sprint, the NCPS validated and ranked critical Patient Safety issues requiring development or enhancement work. See Appendix 5 for the highest priority patient safety related IT enhancement needs (NSRs) in ranked order.

5. **Enterprise Site Readiness Dashboard / Assessment Process** – VA is developing an enhanced Enterprise Site Readiness dashboard and associated assessment methods, to provide shared visibility of readiness — from a program, technical, and operational standpoint. The metrics, dashboard, and surrounding processes will support shared program management, enable earlier risk

mitigation efforts, and inform leadership decision-making regarding readiness for deployment efforts and go-lives.

6. **Return to Baseline Productivity at Current Sites**: Most of the current sites have not returned to baseline productivity in terms of per-full-time-equivalent-employee (FTEE) in clinical assignments. Sites have hired more people in an attempt to provide service to Veterans at a level pre-go live. Revenue realization is also reduced. Services in facilities that have returned to baseline have taken far more time than is standard in the industry (i.e., 90 days). The lag in productivity, decrease in revenue collection, and increased hires are symptoms of deficiencies in the product design, product configuration, configuration/process standardization, and training/adoption programs, which are referenced above. Deployment decisions for future sites should be informed by success in addressing these causes and evidenced by improvement in operations at current facilities.

7. **Simulation of High-Risk Clinical Scenarios:** Clinical simulation of high-risk clinical scenarios at the VA National Simulation Center or other locations is an important and necessary capability to support clinicians becoming more comfortable using the new EHR in highly complex clinical care delivery scenarios, and in doing so potentially to identify unexpected safety risks or system configuration issues introduced by the new system. Simulation allows for a better understanding of the complicated interchange between all interfaced technologies as well as the human factors of care delivery in complex clinical environments – including procedural care, intensive care, emergency care, and other care environments.

As these improvements are developed and implemented, VHA, EHRM-IO, and Cerner will continue to evaluate site and personnel readiness at upcoming go-live sites, with some portions of each of these efforts serving as a prerequisite for moving forward.

## 7.0 Conclusion

The Sprint accomplished its objective to assess concerns and develop recommended solutions for the most impactful and critical patient safety issues identified by the VA PST review with the new EHR. Enterprise collaboration is ongoing to implement the identified solutions, coordinate program efforts through improved governance, and support collaborative readiness assessments for future go-lives.

# 8.0 Appendices

## Appendix 1: EHRM Sprint Issue Status and Transition Point of Contact

This table contains a summary of EHRM solutions and Responsible Organization.

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| 1 | DCWs | The Provider Group and the Non-Facility Organization DCWs are no longer part of the Cerner Organizations Locations DCW process. | Ensure that the Provider Group and Non-Facility Organizations Worksheets are not shared with facilities in the future. | In Progress | Process | 6 months or less |
| 2 | DCWs | No single facility Point of Contact (POC) to coordinate DCWs completion, resulting in confusion and stress for departments, and lack of consistency in quality of DCWs. | Develop and implement an enterprise-wide DCW SOP. The SOP will clarify roles and responsibilities for all DCWs and will improve the integration of VISN clinical entities providing care under the umbrella of the facility (e.g., Clinical Resource Hub). Need to identify: SOP business owner, update frequency, communications plan/sharing mechanism, and storage location. Clarify Cerner responsibilities needed at each facility and minimum FTE | In Progress | Process | 6 months or less |
| 3 | DCWs | Location field nomenclature varies across facilities which causes confusion and limits VA's ability to collect key clinical and operational data, including workload and referral consistency. | Investigate the possibility to modify the DCW spreadsheet by adding drop down boxes to reduce manual entry errors. Fix drop-downs that are inaccurate. | In Progress | Technology | 6 months or less |
| 4 | DCWs | Submission timeline for the Organization Locations not clear and does not match DoD standards | Request to change the submission timeline of the Organizations Locations DCW to T-55 weeks for initial submission and T-6 weeks for final submission. | In Progress | Process | 6 months or less |
| 5 | DCWs | Manual input of resources, including provider names, into the scheduling DCW may result in duplicate user accounts, leading to issues with scheduling with the correct provider. | Add a column for Electronic Data Interchange Personal Identifier (EDIPI) into the DCW resource spreadsheet. | In Progress | Technology | 6 months or less |
| 6 | DCWs | Many DCWs request the same inputs with no alignment, resulting in a lack of integration inefficiencies, and errors. | Define the connections and interdependencies between DCWs. | In Progress | Process | 6 months or less |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| 7 | DCWs | Many DCWs request the same inputs with no alignment, resulting in a lack of integration inefficiencies, and errors. | Review the order of DCW completion to ensure DCWs with similar inputs are completed at the same time (e.g., Capacity Management DCW should be completed alongside Organizations Locations DCW). | In Progress | Process | 6 months or less |
| 8 | DCWs | Lack of timely engagement and multiple collection of DCWs for national and VISN-based services (e.g., Clinical Resource Hub, NESSU, Clinical Contact Centers). | Define course of action to redress concerns with the Clinical Resource Hub / Clinical Call Center locations | In Progress | Technology | 6 months or less |
| 9 | DCWs | National decision to only have one scheduling keychain per site limits facilities' ability to restrict access to specific scheduling locations based on need. | Revisit the previously made national decision and increase the number of keychains available to sites, including the impact to maintenance and resources or provide concise language/communication on decision. | In Progress | Technology | 6 months or less |
| 10 | DCWs | Sites that have gone live with Cerner Millennium have not implemented PCLs. Tickets have been placed, awaiting status update from Cerner. Some in-flight sites have had their DCWs updated to reflect the standardized PCL). Future sites will need to utilize the standardized PCL while developing their DCWs | Implement the patient care location standard at all active, in-flight, and future sites. Identify a national PCL Manager. | In Progress | Process | 6 months or less |
| 11 | DCWs | Cerner workflows require duplication of station identifiers. For example, Facility Office of Community Care (OCC), Employee Whole Health, Occupational Health use the same station identifier as the main medical center. | New station modifiers to be created by the Office of Finance, for those that are duplicated. (OCC, Employee Health, Occupational Health) | In Progress | Technology | 6 months or less |
| 12 | DCWs | Nationally approved crosswalk of appointment types for a standardized PCL framework. | Develop a nationally approved list of appointment types in Cerner | In Progress | Process | 6 months or less |
| 13 | DCWs | A PCL Manager (aka: Patient Care Solution Expert) has not been identified . | Following leadership guidance, a PCL Solutions Expert needs to be identified to ensure implementation and adherence of PCL standards. | Complete | People | 6 months or less |
| 14 | DCWs | Manual entry of data into DCWs and variation in approach by facilities (including virtual programs) leads to errors and inconsistencies. | DCW Database to improve coordination, accuracy, and transparency of information being entered into the DCWs. | In Progress | Technology | Greater than 6 but less than 12 months |
| 15 | Orders Audit | •In Referral Management, the "Add Referral" button allows users to create a referral case without a signed ambulatory referral order | Education to field | Complete | People | Already Implemented |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| | | •When the referral is created using the button, the “Refer from Location” and “organization ID” fields are left blank<br>•If the referral case is routed to an “external practice site,” with those blank fields, then it will not display on a user’s referral worklist | | | | |
| 16 | Orders Audit | •In Referral Management, the “Add Referral” button allows users to create a referral case without a signed ambulatory referral order<br>•When the referral is created using the button, the “Refer from Location” and “organization ID” fields are left blank<br>•If the referral case is routed to an “external practice site,” with those blank fields, then it will not display on a user’s referral worklist | Ops Job Implemented that adds any missing information for referrals created via the button | Complete | Technology | Already Implemented |
| 17 | Orders Audit | •In Referral Management, the “Add Referral” button allows users to create a referral case without a signed ambulatory referral order<br>•When the referral is created using the button, the “Refer from Location” and “organization ID” fields are left blank<br>•If the referral case is routed to an “external practice site,” with those blank fields, then it will not display on a user’s referral worklist | Site review of 88 high priority referral cases | Complete | People | Already Implemented |
| 18 | Orders Audit | •In Referral Management, the “Add Referral” button allows users to create a referral case without a signed ambulatory referral order<br>•When the referral is created using the button, the “Refer from Location” and “organization ID” fields are left blank<br>•If the referral case is routed to an “external practice site,” with those blank fields, then it will not display on a user’s referral worklist | Site review of 930 medium priority referral cases | In Progress | Process | Greater than 12 months |
| 19 | Orders Audit | •In Referral Management, the “Add Referral” button allows users to create a referral case without a signed ambulatory referral order<br>•When the referral is created using the button, the “Refer from Location” and “organization ID” fields are left blank | Prohibiting the search and selection of an external provider or practice site from the Add referral Button in progress with Cerner | In Progress | Technology | 6 months or less |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| | | •If the referral case is routed to an "external practice site," with those blank fields, then it will not display on a user's referral worklist | | | | |
| 20 | Orders Audit | •In Referral Management, the "Add Referral" button allows users to create a referral case without a signed ambulatory referral order<br>•When the referral is created using the button, the "Refer from Location" and "organization ID" fields are left blank<br>•If the referral case is routed to an "external practice site," with those blank fields, then it will not display on a user's referral worklist | Add privilege to Add referral button to configure so an organization can disallow use of the function and improve labeling of button on screen | In Progress | Technology | Greater than 6 but less than 12 months |
| 21 | Orders Audit | There are technical defects in Cerner related to Dispensing and Lost Medication Orders, which are not currently being captured in the standard Cerner workflows (E-Rx Monitor, Work Queue Monitor, Dispense Monitor, Claims Monitor, PowerChart, Discern Reporting Tool, and OP Pharmacy). VHA identified these defects, reported them to Cerner, and monitors them continuously through a VISN 20 "Outpatient Pharmacy Monitoring" dashboard. | Outpatient Pharmacy Monitoring Dashboard | Complete | Technology | Already Implemented |
| 22 | Orders Audit | There are technical defects in Cerner related to Dispensing and Lost Medication Orders, which are not currently being captured in the standard Cerner workflows (E-Rx Monitor, Work Queue Monitor, Dispense Monitor, Claims Monitor, PowerChart, Discern Reporting Tool, and OP Pharmacy). VHA identified these defects, reported them to Cerner, and monitors them continuously through a VISN 20 "Outpatient Pharmacy Monitoring" dashboard. | SOP for use of Outpatient Pharmacy Dashboard | In Progress | Policy | Greater than 6 but less than 12 months |
| 23 | Orders Audit | There are technical defects in Cerner related to Dispensing and Lost Medication Orders, which are not currently being captured in the standard Cerner workflows (E-Rx Monitor, Work Queue Monitor, | Recommended solutions for Improvements to Communication involving Ticketing System of potential safety issues | Complete | Technology | Already Implemented |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| | | Dispense Monitor, Claims Monitor, PowerChart, Discern Reporting Tool, and OP Pharmacy). VHA identified these defects, reported them to Cerner, and monitors them continuously through a VISN 20 “Outpatient Pharmacy Monitoring” dashboard. | | | | |
| 24 | Orders Audit | There are technical defects in Cerner related to Dispensing and Lost Medication Orders, which are not currently being captured in the standard Cerner workflows (E-Rx Monitor, Work Queue Monitor, Dispense Monitor, Claims Monitor, PowerChart, Discern Reporting Tool, and OP Pharmacy). VHA identified these defects, reported them to Cerner, and monitors them continuously through a VISN 20 “Outpatient Pharmacy Monitoring” dashboard. | Select Block 8 Updates. | In Progress | Technology | 6 months or less |
| 25 | Orders Audit | • Labs hit General Lab (GL) Default Bench if something not built or ordered correctly. If the site is not monitoring the GL Default Bench, labs may not be performed. Mitigation efforts will need to be included in all lab builds for future go-live sites.<br>• Encounter ordering location is not the same as the location activating the order.<br>• Order is not routed to local service resource. | Field Education- Identify Local Reviewers | Complete | People | Already Implemented |
| 26 | Orders Audit | • Labs hit GL Default Bench if something not built or ordered correctly. If the site is not monitoring the GL Default Bench, labs may not be performed. Mitigation efforts will need to be included in all lab builds for future go-live sites.<br>• Encounter ordering location is not the same as the location activating the order.<br>• Order is not routed to local service resource. | Education materials- Job Aid and troubleshooting guide | Complete | People | Already Implemented |
| 27 | Orders Audit | • Labs hit GL Default Bench if something not built or ordered correctly. If the site is not monitoring | Alert or Warning for entering providers (when a provider attempts to place an order outside their credentialed location) | In Progress | Technology | Greater than 6 but less than 12 months |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| | | the GL Default Bench, labs may not be performed. Mitigation efforts will need to be included in all lab builds for future go-live sites.<br>• Encounter ordering location is not the same as the location activating the order.<br>• Order is not routed to local service resource. | | | | |
| 28 | Orders Audit | No visibility to the end users of the imaging orders present in the Virtual Room. | Development of Virtual Room Audit Report | Complete | Technology | Already Implemented |
| 29 | Orders Audit | End Users can place an imaging order which routes to the Virtual Room. | Addition of Discern Alerts to prevent the placement of orders which many result in Virtual Room routing. | Complete | Technology | Already Implemented |
| 30 | Orders Audit | Radiology Super Users are not fully aware of what the Virtual Room is or how to mitigate orders in this location. | Provide supplemental training materials for radiology Super Users. Creation of tip sheets to provide end users with instruction on how to run the Virtual Room Audit report | Complete | People | Already Implemented |
| 31 | Orders Audit | There is no standardization across the enterprise for monitoring the orders reports and some queues lack report requirements. | Develop a queue monitoring strategy, resourcing proposal, a define report requirements. Educate end users on the existence, management, and prevention of imaging orders to orders queues. | In Progress | Policy | Greater than 6 but less than 12 months |
| 32 | Orders Audit | VISN Chief Medical Officers, VISN Diagnostics Integrated Clinical Community (ICC) Leads, and Health Systems Specialists do not have access to review Cerner data. | Update weekly VISN Diagnostics presentations to include number of patients listed on Virtual Room Audit list. | Complete | Process | Already Implemented |
| 33 | Orders Audit | There is not a sustainable way for monitoring the Virtual Room Audit at the National/VISN levels. A National/VISN level monitoring solution would allow for observing anomalies to facilitate future mitigations/solutions. | Create a National Oversight Report, including a dashboard. Accompanying monitoring plan should identify owners, frequency of monitoring, and roles/responsibilities at the National/VISN levels. | In Progress | Technology | Greater than 12 months |
| 34 | Orders Audit | There is not a standardized process to create new clinics. | Create a SOP for creating new clinics. | In Progress | Policy | Greater than 6 but less than 12 months |
| 35 | Orders Audit | Orders are not always associated with active facility and imaging locations. | Create a pre-check audit to assure orders are associated to a resource, facility, and imaging locations. | Complete | Policy | Already Implemented |
| 36 | Orders Audit | There is a desire to prevent end users from creating orders which will result in routing to the Virtual Room location. | Create an alert or hard stop to warn users that the order to be placed is missing information. | In Progress | Technology | Greater than 12 months |
| 37 | Orders Audit | Orders in Virtual Room will greatly diminish once suggested improvements are established. Alerts to end user fixes | Create an alert for Radiology Super Users to be notified when orders go to the Virtual Room. | In Progress | Technology | Greater than 12 months |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| | | would be the optimal notification that an order has been sent to the Virtual Room. | | | | |
| 38 | Usability | Prescriptions migrate in acute status from the legacy system. The downstream impact is these prescriptions “fall off the profile” and do not trigger renewal notices. | Education Material | Complete | People | Already Implemented |
| 39 | Usability | Prescriptions migrate in acute status from the legacy system. The downstream impact is these prescriptions “fall off the profile” and do not trigger renewal notices. | “Completed Prescriptions” filter made available by default | Complete | Technology | Already Implemented |
| 40 | Usability | Prescriptions migrate in acute status from the legacy system. The downstream impact is these prescriptions “fall off the profile” and do not trigger renewal notices. | SmartZone alert | In Progress | Technology | 6 months or less |
| 41 | Usability | Prescriptions migrate in acute status from the legacy system. The downstream impact is these prescriptions “fall off the profile” and do not trigger renewal notices. | Task Order 52: This is a funded software change that allows for medications to be migrated in a functional “maintenance” status which was not possible to this point. | In Progress | Technology | 6 months or less |
| 42 | Usability | Options appear on medication list that are not actually offered by local pharmacy or CMOP | Configuration change to only allow formulary medications to appear on initial search | Complete | Technology | Already Implemented |
| 43 | Usability | Options appear on medication list that are not actually offered by local pharmacy or CMOP | Standard report on common prescriptions to allow for facilities to review to trigger modifications | Complete | Technology | Already Implemented |
| 44 | Usability | Options appear on medication list that are not actually offered by local pharmacy or CMOP | Task Order 52: Creation of an Rx visualization parameter which gives sites more control on what does and does not display on the order catalog | In Progress | Technology | 6 months or less |
| 45 | Usability | Order synonyms for home oxygen and home $O^2$ are not linked thus they bring up different orders. Only home $O^2$ brings up the correct Power plan. Home oxygen evaluations, initiations, renewals and discontinue have delays in care, lost orders, and can go undetected. | Correct order synonym matching. | In Progress | Technology | 6 months or less |
| 46 | Usability | PSAS Home $O^2$ order is preventing correct fields from being entered, and clinicians are unable to specify complex therapy. Impact- Incorrect orders, delays in treatment, inefficient workflows | Correct Liters per Minute (LPM) fields to allow range and decimal points (must assure this does not break any interfaces). | In Progress | Technology | 6 months or less |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| 47 | Usability | PSAS Home $O^2$ order is preventing correct fields from being entered, and clinicians are unable to specify complex therapy. Impact- Incorrect orders, delays in treatment, inefficient workflows | Add box for special instructions or additional field to indicate use of pulse dose or portable oxygen concentrator | In Progress | Technology | 6 months or less |
| 48 | Usability | Vendor document missing key elements. Documentation of faxing vendor, vendor receipt or any updates in care or status change are not available in the health record. Impact: RT tracking on secondary record to prevent harm or discontinuation of oxygen service to the veteran. Also work arounds to get vendor order content into form; Additionally, there are workflow-related concerns with regards to inconsistency in the way requisitions are printed, leading to information that is inconsistent between those requisitions (appears training issue) | Create enterprise-wide standards for vendor content.<br><br>Assure all elements of the order form maintain the content when printing occurs which is required for faxing the order. Create enterprise-wide standards for vendor content.<br><br>Assure all elements of the order form maintain the content when printing occurs which is required for faxing the order. | In Progress | Technology | 6 months or less |
| 49 | Usability | No multi-patient task list, no report or searchable option to be able to track patients on home oxygen. Forces the use of shadow record excel to assure patient follow up and service not discontinued if renewal not performed in specified timeframe. Impact: Forces RT to maintain a shadow record to assure patient safety | Create way to monitor/track Home $O^2$ patients<br><br>Short-term: (mitigation) create a report of patients on home oxygen | In Progress | Technology | 6 months or less |
| 50 | Usability | No multi-patient task list, no report or searchable option to be able to track patients on home oxygen. Forces the use of shadow record excel to assure patient follow up and service not discontinued if renewal not performed in specified timeframe. Impact: Forces RT to maintain a shadow record to assure patient safety | Create way to monitor/track Home $O^2$ patients and take specific actions within the chart.<br><br>Long-term: Create multi-patient task list. | In Progress | Technology | 6 months or less |
| 51 | Usability | “Communication types” describe the reasons why a non-provider is independently writing an order. These are currently inappropriately utilized and confusing. - This has led to orders appearing in the refused queue, | Change communication types to Per Protocol-cosign and Per protocol, must also complete 1b thru e (ID# 52-58) prior to implementation. | In Progress | Technology | Greater than 6 but less than 12 months |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| | | unknown queue, and on incorrect encounters. | | | | |
| 52 | Usability | ** Uncovered during Human Factor Engineering (HFE) that PathNet and RadNet have different communication types. PathNet only has order no proposed orders, reviewing RadNet this week. | Align communication types in PathNet and RadNet.<br><br>Adding radiology & lab to team to review appropriate times for order vs. Propose. | In Progress | Technology | Greater than 6 but less than 12 months |
| 53 | Usability | "Communication types" describe the reasons why a non-provider is independently writing an order. These are currently inappropriately utilized and confusing. This has led to orders appearing in the refused queue, unknown queue, and on incorrect encounters.<br><br>Unclear by all non-provider groups when co-signatures are required.<br><br>NOTE: Legacy forced co-signature prior to orders being active. Active nature of the unsigned order not transparent to the end user | Clear delineation of what order types require co-signature by a provider. Specification if this varies according to the non-provider staff entering. Include in 1c. | In Progress | Policy | 6 months or less |
| 54 | Usability | "Communication types" describe the reasons why a non-provider is independently writing an order. These are currently inappropriately utilized and confusing. This has led to orders appearing in the refused queue, unknown queue, and on incorrect encounters.<br><br>No national policies in place outside of rules for charging for non-provider non-cosigned orders. Local facility policies are present in several non-provider groups. | Develop enterprise-wide policy that will cover entry of orders by non-providers (all groups)<br><br>Includes rescinding of PBM memo stopping protocols with medications.<br><br>Will clarify what orders need co-signature & what method (order vs. Proposal see 1b) | In Progress | Policy | 6 months or less |
| 55 | Usability | "Communication types" describe the reasons why a non-provider is independently writing an order. These are currently inappropriately utilized and confusing. This has led to orders appearing in the refused queue, unknown queue, and on incorrect | Establishment of national protocols; ideal joint DOD & VA- Targeting Ambulatory first | In Progress | Policy | 6 months or less |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| | | encounters.<br><br>Enterprise not clear on if protocols can be utilized and in the past, they were national and local facility level protocols.<br><br>Older policy memo from PBM indicated no protocols with medications but ONS and Primary Care Program office had refuted the memo. | | | | |
| 56 | Usability | "Communication types" describe the reasons why a non-provider is independently writing an order. These are currently inappropriately utilized and confusing. This has led to orders appearing in the refused queue, unknown queue, and on incorrect encounters. | Development of Training Documents | In Progress | People | 6 months or less |
| 57 | Usability | Orders require diagnosis code entry; non-providers are not in scope to diagnose but can with policy coverage provide "reason for" under the symptom options or preexisting problem list diagnosis. | Include in the policy above (line 56); work with HIMS & charge services to partner on directions | In Progress | Policy | 6 months or less |
| 58 | Usability | Pharmacy and supply formulary is combined and cannot be separated. Causes risk due to access to supply ordering causes access to all medications, scope of practice, billing issues, delays in care if must propose. Monitoring is required to guard against inappropriate ordering | Separate ordering class of supplies and medications. Must assure this would not break ordering without co-sig for protocol meds. | In Progress | Technology | Greater than 6 but less than 12 months |
| 59 | Usability | Extreme issue with orders not having appropriate Healthcare Common Procedure Coding System (HCPCS) and CPT code and Professional and Technical charges for non-provider order entry. When non-providers enter incorrect charges and coding are placed as well as instances of loss of revenue. Large impact on HIMS and Billing staff to clean up incorrect charges/coding. Difficulty to clinicians and non-providers in that order charges are invisible to any clinical staff. | Initial solution proposed not tenable (creation of duplicate order catalogs with non-provider HCPCS & CPT codes & segmented to VA only; documents and power forms specific to VA). Proposals of new order catalogs & segregation of VA and DOD orders per HIMS council. The resolution options proposed would break the activities that have been in process to merge power plans and order components Enterprise Capability Framework in Cerner and force formation of a separate order catalog for VA providers | In Progress | Policy | 6 months or less |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| | | | and non-providers that is impossible to sustain. | | | |
| 60 | Usability | Staff able to order and select co-signature and order is immediately released without a signature including medication. Note: Attempted NSR 443475139 to disable ordering and it was rescinded in 24 hours due to full work stoppage, delays in care, severe inefficiencies in workflow in ambulatory | Implemented for all nursing levels for the system to default to proposed requiring the staff to have to consciously select order instead. | Complete | Technology | Already Implemented |
| 61 | Usability | CPT codes ordered instead of intended order | Change “All” filter to “Clinical Orders” | In Progress | Technology | 6 months or less |
| 62 | Usability | CPT codes ordered instead of intended order | Add prefixes to all CPT charge orders (CHRG, RQST, or "$ ") to the FRONT of all relevant orders. *Add a dollar sign and a space to the front of all charge orders as a prefix; this is a two-character intervention that reduces risk of hitting character limit issues.* | In Progress | Technology | 6 months or less |
| 63 | Usability | Workflow Improvements | Multiple workflows merit specific improvement in an individualized manner to reduce dependence on the orders search screen. One example is that for point of care radiology users were commonly misidentifying CPT orders for point of care tests as the actual test.<br><br>For this item we have a change request (CR) in that uses a “popup” dialog to document the required information for the charge, and makes it very clear to the user that they are entering a charge order. This serves as only one example of multiple other more targeted workflow efforts that can be made to reduce dependency on the orders search for CPT codes | In Progress | Technology | 6 months or less |
| 64 | Usability | CPT entry overhaul | This will be a multilaterally considered NSR for Cerner to consider IP changes to improve CPT entry for providers | In Progress | Technology | Greater than 12 months |
| 65 | Usability | Governance changes to charge orders | Communicate with IDG on how to streamline change management with regards to new CPT orders and modification of CPT orders | In Progress | Process | 6 months or less |
| 66 | Usability | Order Issues, Build Issue, ordering providers do not see desired location in Scheduling location dropdown, and Providers enter orders under old encounter | Redesign of VA Follow-up order | In Progress | Technology | 6 months or less |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| 67 | Usability | Order Issues, Build Issue, ordering providers do not see desired location in Scheduling location dropdown, and Providers enter orders under old encounter | Technical enhancement that now limits the available options in the “VA Scheduling Location” drop down field when placing Orders. Providers will no longer see the entire list of locations available at the facility and will only be able to select from locations with scheduling build associated to the order. | Complete | Technology | Already Implemented |
| 68 | Usability | Order Issues, Build Issue, ordering providers do not see desired location in Scheduling location dropdown, and Providers enter orders under old encounter | Refinement of provider and scheduler training to adjust internal VA processes to maximize workflows within Cerner | In Progress | People | 6 months or less |
| 69 | Orders Audit | Orders will sit in unknown que or lag in VISTA. Queue has required frequent monitoring.<br>Issues related to ordering Prosthetics<br>1) PSAS Not being able to keep open a chain of communication with providers on why an order was denied 2) ordering very confusing have 3 types, mail to patient, receive in clinic, have delivered to clinic 3) rehab mentions cannot connect referrals to PSAS orders | Daily report Monitored by PSAS chief to check for any orders that don't have filler IDs | Complete | Process | Already Implemented |
| 70 | Orders Audit | Orders will sit in unknown queue or lag in VISTA. Queue has required frequent monitoring.<br>Issues related to ordering Prosthetics<br>1) PSAS Not being able to keep open a chain of communication with providers on why an order was denied 2) ordering very confusing have 3 types, mail to patient, receive in clinic, have delivered to clinic 3) rehab mentions cannot connect referrals to PSAS orders | Unfunded NSR - Upstream Registration | In Progress | Technology | Greater than 12 months |
| 71 | Orders Audit | Orders will sit in unknown queue or lag in VISTA. Queue has required frequent monitoring.<br>Issues related to ordering Prosthetics<br>1) PSAS Not being able to keep open a chain of communication with providers on why an order was denied 2) ordering very confusing have 3 types, mail to patient, receive in clinic, have delivered to clinic 3) rehab mentions | Unfunded NSR - Multiple enhancements to mitigate workflow bottlenecks to facilitate communication between users of Cerner and VistA | In Progress | Technology | Greater than 12 months |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| | | cannot connect referrals to PSAS orders | | | | |
| 72 | Orders Audit | Orders will sit in unknown queue or lag in VISTA. Queue has required frequent monitoring.<br>Issues related to ordering Prosthetics 1) PSAS Not being able to keep open a chain of communication with providers on why an order was denied 2) ordering very confusing have 3 types, mail to patient, receive in clinic, have delivered to clinic 3) rehab mentions cannot connect referrals to PSAS orders | Unfunded NSR - Replacement of PSAS | In Progress | Technology | Greater than 12 months |
| 73 | Orders Audit | Orders will sit in unknown queue or lag in VISTA. Queue has required frequent monitoring.<br>Issues related to ordering Prosthetics 1) PSAS Not being able to keep open a chain of communication with providers on why an order was denied 2) ordering very confusing have 3 types, mail to patient, receive in clinic, have delivered to clinic 3) rehab mentions cannot connect referrals to PSAS orders | Adjust workflow to facilitate ordering providers sending orders to OT/PT vs. Prosthetics | In Progress | Process | Greater than 6 but less than 12 months |
| 74 | Orders Audit | Orders will sit in unknown queue or lag in VISTA. Queue has required frequent monitoring.<br>Issues related to ordering Prosthetics 1) PSAS Not being able to keep open a chain of communication with providers on why an order was denied 2) ordering very confusing have 3 types, mail to patient, receive in clinic, have delivered to clinic 3) rehab mentions cannot connect referrals to PSAS orders | Continual education and engagement by PSA to sites to facilitate current workflows and reviews | Complete | Process | Already Implemented |
| 75 | Orders Audit | No means to monitor volume in refusal inbox and unattended mailboxes, causing delay in corrective action in some cases, months later | Updated report request submitted using updated query logic from Cerner | In Progress | Technology | 6 months or less |
| 76 | Orders Audit | No means to monitor volume in refusal inbox and unattended mailboxes, causing delay in corrective action in some cases, months later | New interim report using Cerner provided query for weekly dissemination to facilities | In Progress | Technology | 6 months or less |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| 77 | Orders Audit | Lack of standardization in the number of refusal orders inboxes | Decision was made to have only one refusal orders inbox resulting in Spokane placing a ticket to remove the Community Based Outpatient Clinic inboxes | In Progress | Process | 6 months or less |
| 78 | Orders Audit | Need to identify proxy for interim coverage when on a provider is on leave. Ambulatory non -provider selects order instead of proposed order for vaccinations and then does not switch back to proposed for remainder of orders | Determine if non-provider training needs to be more robust- conduct review of non-provider training materials Determine need to create standardized job aids | In Progress | People | 6 months or less |
| 79 | Orders Audit | Nursing user role, does not have the privilege to forward refused orders to the correct provider, thus requiring HIM to do this | Need to review approved workflow, determine nursing user role and submit CR requesting privilege to forward | In Progress | People | 6 months or less |
| 80 | Orders Audit | 1) Current manual monitoring of the inbox is challenged by the lack of existing queue fields 2) The initial clinical does not receive notification of the refused co-sign order | 1) Determine new NSR to request the display of the patient's date of birth, clinician who refused to co-sign the order, the correct provider the order has been forwarded to, or location of the order in question 2) Additional part of NSR | In Progress | Technology | Greater than 12 months |
| 81 | Orders Audit | Lab Reflex (additional test when initial lab results are abnormal) are being refused co-sign for various reasons | Determine if previous setting change for reflex only to not require a co-signature can be applied to all lab reflex orders (reflex only and those additional orders due to abnormal results) | In Progress | People | Greater than 12 months |
| 82 | Orders Audit | Refused Order email template has low response rate | Reorganized template and Job Aid + Tip sheet | In Progress | Process | 6 months or less |
| 83 | Orders Audit | Ongoing issues with referrals: Lost or end up in the lost queue, wrong station, not viewable to end site, etc. | Operations job that updates the location codes of referrals that are placed using the incorrect workflow | Complete | Technology | Already Implemented |
| 84 | Orders Audit | Errors related to various results. Errors in results routing properly. Per Cerner the last confirmed results reporting gap Pulmonary Function Test (PFT) will be resolved with a change control ticket due to go live October 15, 2021. Generally, the pattern was that gaps only became evident when reported via JPSR and as demonstrated above the list of items is extremely broad. Comprehensive fixes were difficult as the routing varies between the major forms of diagnostic tests (imaging, path, lab, etc). | Updated routing rules address and PFT issue control applied. | Complete | Technology | Already Implemented |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| 85 | Orders Audit | •Spokane discovered cancelled future lab orders are not routing to the ordering provider's inbox for review of appropriate cancellation and co-signature as expected in the EHR workflow. Instead, cancelled lab orders have been routing to the Message Center Inbox of a Cerner employee. •>120,000 cancelled lab orders over 90 days for VA and DOD Veterans are in this Inbox and they have not been opened or addressed. The number was the limit Spokane can retrieve. Cerner tickets were entered. Cerner associates on the Patient Safety Team are tracking the issue and conducting an audit. •Root cause: under investigation | Discern Rule Modified and issue resolved. | Complete | Technology | Already Implemented |
| 86 | Orders Audit | Ordering Issues, Build Issues, ordering providers do not see desired location in scheduling drop down | Technical enhancement added to the system limiting the available options in the "VA Scheduling Location" drop down field when placing Orders. | Complete | Technology | Already Implemented |
| 87 | Orders Audit | Ordering Issues, Build Issues, Ordering providers do not see desired location in scheduling drop down | Discern Reports sites were Identified for sites to manage and audit the Unknown and VA Needs | Complete | Technology | Already Implemented |
| 88 | Orders Audit | Ordering Issues, Build Issues, Ordering providers do not see desired location in scheduling drop down | Training material developed and added to Maintenance Training | Complete | Technology | Already Implemented |
| 89 | Orders Audit | Ordering Issues, Build Issues, Ordering providers do not see desired location in scheduling drop down | Developed Quick Reference Guide for managing and monitoring the Unknown Queue | Complete | Process | Already Implemented |
| 90 | Orders Audit | Ordering Issues, Build Issues, Ordering providers do not see desired location in scheduling drop down | Developed an audit pre-go live to ensure scheduling locations are captured | Complete | Process | Already Implemented |
| 91 | Orders Audit | Order Issues, Build Issue, ordering providers do not see desired location in Scheduling location dropdown, and Providers enter orders under old encounter | Redesign of VA Follow-up order | In Progress | Technology | Greater than 6 but less than 12 months |
| 92 | Orders Audit | Build Issues | Electrocardiogram Order Flexing/Redesign | In Progress | Technology | 6 months or less |
| 93 | Orders Audit | Order Issues, Build Issue, ordering providers do not see desired location in Scheduling location dropdown, and Providers enter orders under old encounter | Implementation of a System Alert: An alert displays notifying providers when attempting to place an order with a missing or unmapped scheduling location. | Complete | Technology | Already Implemented |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| 94 | Orders Audit | Order Issues, Build Issue, ordering providers do not see desired location in Scheduling location dropdown, and Providers enter orders under old encounter | Message Center Notification - Order cannot be scheduled | Complete | Technology | Already Implemented |
| 95 | Orders Audit | Order Issues, Build Issue, ordering providers do not see desired location in Scheduling location dropdown, and Providers enter orders under old encounter | Standard Operating Procedure developed for mitigating and monitoring the Unknown and VA Needs Scheduling Location Queues | Complete | Technology | Already Implemented |
| 96 | Orders Audit | Plan to merge provider duplicate accounts to one active account per provider | Merge Duplicate Provider Accounts | Complete | Technology | Already Implemented |
| 97 | Orders Audit | Create report of established Message Center proxies for local sites to review and utilize for surveillance. | Surveillance Report Created | Complete | Policy | Already Implemented |
| 98 | Orders Audit | Proposal to have name and account associated with primary VA location | Associate name and account with primary VA Location | In Progress | Technology | 6 months or less |
| 99 | Orders Audit | Develop SOP to assist in prevention creation of duplicate accounts (address both) | Develop SOP to assist in prevention of creation of duplicate accounts | Complete | Policy | Already Implemented |
| 100 | Orders Audit | Ensuring stronger testing practices and risk aversion prior to future configuration deployments | Interface Regression Testing | Complete | Technology | Already Implemented |
| 101 | Orders Audit | Ensuring stronger testing practices and risk aversion prior to future configuration deployments | Update Checklists for missed steps | Complete | Process | Already Implemented |
| 102 | Orders Audit | Ensuring stronger testing practices and risk aversion prior to future configuration deployments | Update training required | Complete | People | Already Implemented |
| 103 | Orders Audit | Ensuring stronger testing practices and risk aversion prior to future configuration deployments | Deep dive testing opportunities for each issue | In Progress | Policy | Greater than 6 but less than 12 months |
| 104 | Orders Audit | Ensuring stronger testing practices and risk aversion prior to future configuration deployments | Mitigate the gap of testing request item changes | In Progress | Technology | Greater than 6 but less than 12 months |
| 105 | Orders Audit | Ensuring stronger testing practices and risk aversion prior to future configuration deployments | Integrate Solution Expert (SE) testing into Integrated testing | In Progress | Technology | Greater than 6 but less than 12 months |
| 106 | Orders Audit | Ensuring stronger testing practices and risk aversion prior to future configuration deployments | Provisioning Improvements | In Progress | Policy | Greater than 6 but less than 12 months |
| 107 | Orders Audit | Ensuring stronger testing practices and risk aversion prior to future configuration deployments | Empowering Risk Logging | In Progress | Technology | Greater than 6 but less than 12 months |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| 108 | Orders Audit | Ensuring stronger testing practices and risk aversion prior to future configuration deployments | Audit post training process compliance | In Progress | Process | Greater than 6 but less than 12 months |
| 109 | Orders Audit | Ensuring stronger testing practices and risk aversion prior to future configuration deployments | Improving Clinical Requirements Gathering | In Progress | Process | Greater than 6 but less than 12 months |
| 110 | Orders Audit | An appointment type configuration issue resulted in no showed and cancelled appointments to not repopulate reschedule requests on reschedule queue. | Build Configuration updated (NSR 445152209) to prevent reschedule requests from dropping out of the workflow. As aligned to current policy, low risk appointment types are not currently turned on. | Complete | Technology | Already Implemented |
| 111 | Orders Audit | An appointment type configuration issue resulted in no showed and cancelled appointments to not repopulate reschedule requests on reschedule queue. | There is regular engagement and coordination between EHRM-IO Solution experts and IVC with clinical programs and Cerner sites on implementation and policy alignment. | Complete | Policy | Already Implemented |
| 112 | Orders Audit | An appointment type configuration issue resulted in no showed and cancelled appointments to not repopulate reschedule requests on reschedule queue. | Ongoing review of all no showed and cancelled appointments to ensure appropriate follow up was received. | Complete | People | Already Implemented |
| 113 | Orders Audit | An appointment type configuration issue resulted in no showed and cancelled appointments to not repopulate reschedule requests on reschedule queue. | Regular reports available for sites to facilitate review of appointments that were cancelled and no showed. | Complete | People | Already Implemented |
| 114 | Orders Audit | An appointment type configuration issue resulted in no showed and cancelled appointments to not repopulate reschedule requests on reschedule queue. | IVC is providing instruction and guidance on ongoing requirements to review and use of available reports | In Progress | Policy | 6 months or less |
| 115 | Orders Audit | An appointment type configuration issue resulted in no showed and cancelled appointments to not repopulate reschedule requests on reschedule queue. | The Cerner canceled and no-show appointment report provides details of the appointment types that did not populate on the reschedule request work queue. The report should be used to prioritize, review, and determine the appropriate follow up needed. | Complete | Technology | Already Implemented |
| 116 | Orders Audit | Orders are not always associated with active facility and imaging locations. | Changes level of approval needed for orders to appropriately be managed via the Virtual Room | In Progress | Technology | Greater than 6 but less than 12 months |
| 117 | Orders Audit | There are technical defects in Cerner related to Dispensing and Lost Medication Orders, which are not currently being captured in the standard Cerner workflows (E-Rx | Outpatient Pharmacy Monitoring Dashboard Improvements - transition from using syndicated data | In Progress | Technology | Greater than 12 months |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| | | Monitor, Work Queue Monitor, Dispense Monitor, Claims Monitor, PowerChart, Discern Reporting Tool, and OP Pharmacy). These defects have been identified as occurring during four specific Cerner actions, which are listed below. VHA identified these defects, reported them to Cerner, and monitors them continuously through a VISN 20 "Outpatient Pharmacy Monitoring" dashboard. | | | | |
| 118 | Usability | Provider in Urology entered an order off an old encounter resulting in the scheduling task routing to Primary Care instead of Urology | Temporary solution to break queue down by provider (implemented at Spokane only) | Complete | Technology | Already Implemented |
| 119 | Usability | Providers inappropriately routing follow-up orders to a scheduling location to which they are not responsible. | Resource design to only allow a provider to enter follow-up orders to VA locations to which they are assigned or provisioned. | In Progress | Technology | 6 months or less |
| 120 | Usability | Scheduling queue does not include pertinent filter options such as requested begin date and service by date. | Allow end-user to filter by more than one column at a time | In Progress | Technology | 6 months or less |
| 121 | Usability | The volume of columns displayed in the queue make it difficult to navigate and takes too long to load the task list. | Adjust default queue items to only show those items that are necessary for scheduling actions to occur | In Progress | Technology | 6 months or less |
| 122 | Usability | Scheduling queue management is not standardized across sites | Create guidance (SOP) to set up filter/queues to display to see most pertinent information (short term while CRs are being implemented) | In Progress | Policy | 6 months or less |
| 123 | Usability | Scheduling queue management is not standardized across sites | Complete user needs analysis to ensure columns needed match the work being done by schedulers | Complete | People | Already Implemented |
| 124 | Usability | When filters are set and user leaves the view, the queue resets the filters setting (not the preferences) | Queue preferences views remain locked until user signs out. | In Progress | Technology | Greater than 6 but less than 12 months |
| 125 | Usability | Users are unable to filter by appointment type | Create a designated filter for by appointment type | In Progress | Technology | 6 months or less |
| 126 | Usability | Facility and virtual programs share the same Queues and cannot efficiently prioritize their scheduling orders. Virtual programs are unable to locate their program and providers' scheduling orders in the Queues and Worklists. Local facility staff need to sift through their Queues to locate their provider orders. It's nationwide and applies to all virtual programs, e.g., Clinic Resource | Create CRH consolidated list for "Reschedule Requests", "Requests" and "Work Queues" in the Queues perspective | In Progress | Technology | Greater than 6 but less than 12 months |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| | | Hub (CRH), Veteran Healthcare Centers, National Tele-mental Health Centers, Genomics, etc. | | | | |
| 127 | Usability | Provider in Urology entered an order off an old encounter resulting in the scheduling task routing to Primary Care instead of Urology | Third fixable queue is the long-term fix for the issue from Spokane. Underneath request list queue this is a requested resource option.<br><br>This is a last resort option to be implemented only if the above CRs do not work, as this would add an additional queue for scheduling staff to actively manage. | In Progress | Technology | Greater than 12 months |
| 128 | Usability | Wrong provider selected to be associated with an order entry Impact: proposed orders are going to wrong provider. | Installing a 'pop-up' rule to assign provider credentialing to clarify provider selection window to ensure the appropriate provider is being selected when submitting the order. | In Progress | Technology | 6 months or less |
| 129 | Usability | Wrong provider selected to be associated with an order entry Impact: proposed orders are going to wrong provider. | Creating a rule by which the location as determined by the credentialing table automatically populates the "Services" column of the search menu. This would allow users to see the actual location a provider is at before clicking on them and receiving the above discern alert | In Progress | Technology | 6 months or less |
| 130 | Usability | Wrong provider selected on Message Center, which uses a different search engine from the providers search for orders | Creating more columns on the search menu to better be able to tell providers apart. | In Progress | Technology | Greater than 6 but less than 12 months |
| 131 | Orders Audit | Ensuring stronger testing practices and risk aversion prior to future configuration deployments | LeapFrog FlightSim | In Progress | Technology | 6 months or less |
| 132 | Orders Audit | Ensuring stronger testing practices and risk aversion prior to future configuration deployments | Data modeling to discover potential risks of data and process model | In Progress | Technology | Greater than 12 months |
| 133 | DCWs | Lack of clear naming convention for providers within DCWS | Set a standard naming convention for resources (providers) | In Progress | Process | 6 months or less |
| 134 | DCWs | Lack of clear naming convention for providers within DCWS | Develop a finite credential (title) list for VA | In Progress | Process | 6 months or less |
| 135 | DCWs | Lack of access to Cerner tools to understand and audit DCW data | Increase access to Discern Visual Developer for non-production tables | In Progress | Technology | 6 months or less |
| 136 | DCWs | Opportunities to revise deployment schedule to improve outcomes and catch errors from the DCWs | Cerner-VA agile deployment proposal | In Progress | Process | 6 months or less |
| 137 | DCWs | Issues related to the National DCWs need to be revisited | Set of critical issues related to the National DCWs that need to be reviewed by the EHRM National Councils | In Progress | Process | 6 months or less |

| # | Workstream | Issue and Description | Solution | Status | Solution Type | Estimated Implementation Timeframe |
|---|---|---|---|---|---|---|
| 138 | Usability | No ability to print documents from system to send to vendor with correct format and necessary required items | Add printing option that ensures printing out of system in required format<br><br>For the various identified RT orders, update in Digital Negative Camera Profiles Tools Order Catalogue by checking the "Active" checkbox allowing printing on demand for the identified items related to PSAS, Home $O^2$, and positive airway pressure. | In Progress | Technology | 6 months or less |

## Appendix 2: EHRM Sprint Issues by Responsible Workgroup

| Orders Audit Issues: 14 Primary; 1 Secondary | | Responsible Workgroup *Primary / Secondary* | | |
|---|---|---|---|---|
| **Area** | **Issue** | **Orders Audit** | **DCW** | **Usability** |
| **Care Pathways/ Referrals** | Referral order loss | ***P*** | ***S*** | |
| **Unspecified** | Ambulatory scheduling | ***P*** | | ***S*** |
| **Orders** | Cancelled future lab orders not routed to ordering provider inbox | ***P*** | | |
| | Issues with prosthetic order migration | ***P*** | | |
| | PSAS order issues | ***P*** | | |
| | Results reporting not going to message center | ***P*** | | |
| **Referrals** | Referrals not routed to worklist (add referral button) | ***P*** | | ***S*** |
| **Unknown** | Require daily or weekly monitoring and management of items | ***P*** | | |
| **Pharmacy** | Cancelled prescription queue | ***P*** | | |
| | Discontinued prescriptions without probable replacement | ***P*** | | |
| | Dupe CMOP and local med dispenses | ***P*** | | |
| | Dupe Rxs and med orders | ***P*** | | |
| | Rx delay or omission | ***P*** | | |
| | Status of med orders not visible to ordering providers | ***P*** | | |
| **Referrals** | Scheduling | ***S*** | ***P*** | |

| DCW Primary Issues: 5 | | Responsible Workgroup *Primary / Secondary* | | |
|---|---|---|---|---|
| **Area** | **Issue** | **Orders Audit** | **DCW** | **Usability** |
| | | | | |
| **Software** | Core locations do not match scheduling locations | | ***P*** | |
| **Readiness** | Clinic build errors in Walla Walla and Roseburg | | ***P*** | |
| | Ambulatory schedules (reg/sched) | | ***P*** | |
| **User Roles** | Inaccurate clinic builds | | ***P*** | |
| **Referrals** | Scheduling | ***S*** | ***P*** | |

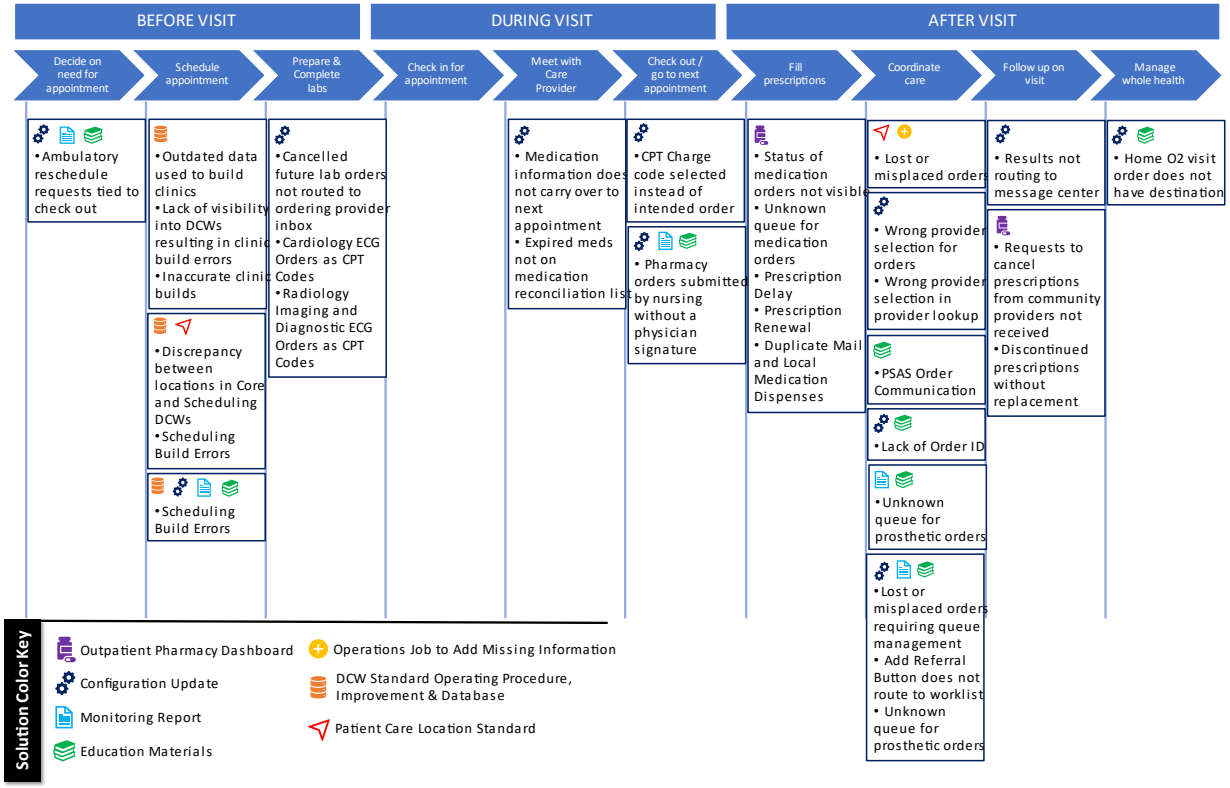
| DCW Secondary Issues: 1 | | Responsible Workgroup *Primary / Secondary* | | |
|---|---|---|---|---|
| **Area** | **Issue** | **Orders Audit** | **DCW** | **Usability** |
| **Care Pathways/ Referrals** | Referral order loss | ***P*** | ***S*** | |

| Orders Usability Issues: Primary 11; Secondary 2 | | Responsible Workgroup *Primary / Secondary* | | |
|---|---|---|---|---|
| **Area** | **Issue** | **Orders Audit** | **DCW** | **Usability** |
| **Cardiology** | Diagnostic echocardiogram orders entered as CPT codes | | | ***P*** |
| **Identity** | Wrong provider selection | | | ***P*** |
| **Imaging** | Radiology imaging (e.g., pelvic ultrasound) orders as CPT codes | | | ***P*** |
| **Software** | Home $O^2$ requisition | | | ***P*** |
| **Orders** | Wrong provider being selected in Cerner, from multiple sites | | | ***P*** |
| | Nurse orders defaulting to clinical algorithm instead of proposed orders | | | ***P*** |

| Orders Usability Issues: Primary 11; Secondary 2 | | Responsible Workgroup *Primary / Secondary* | | |
|---|---|---|---|---|
| **Area** | **Issue** | **Orders Audit** | **DCW** | **Usability** |
| | CPT codes ordered instead of intended order | | | ***P*** |
| **Referrals** | Referrals in house | | | ***P*** |
| **Pharmacy** | Staff updates med list at each visit as info not carried over | | | ***P*** |
| | Medication reconciliation | | | ***P*** |
| | Multiple pharmacy issues, focus on MMR inconsistency | | | ***P*** |
| **Unspecified** | Ambulatory scheduling | ***P*** | | ***S*** |
| **Referrals** | Referrals not routed to worklist (add referral button) | ***P*** | | ***S*** |

## Appendix 3: Blueprint

This Blueprint demonstrates how the Sprint work affects Veteran care.



**Appendix 4: Overview of VHA EHRM Governance and Decision Support Team**

The model below identifies the key elements of the VHA EHRM Governance and Decision-Making model. It incorporates the newly established IDG and the National Councils aligned under VHA and facilitated by the DST.

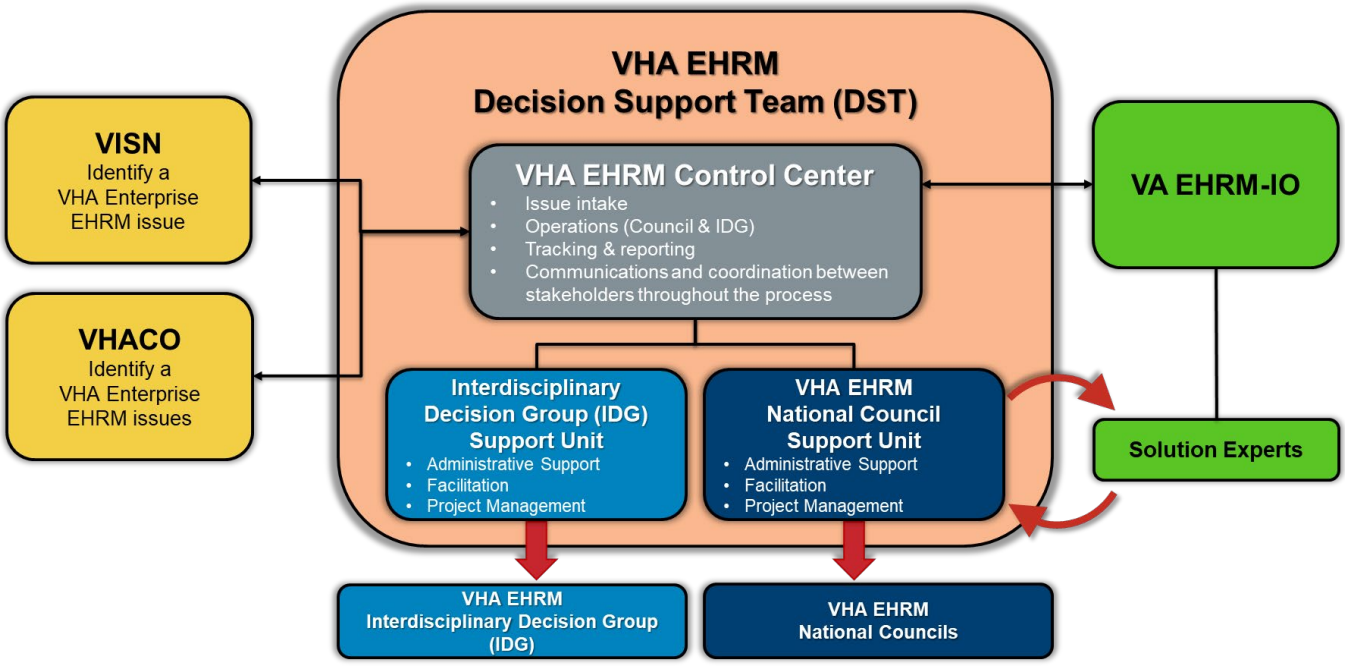
The IDG will improve EHRM deployments efforts by providing a regular forum for cross-functional issue prioritization, resolution tracking and decision-making, and escalation of unresolved issues to the USH and/or VHA Governance Board, as needed. The goal of the IDG is to make informed, coordinated recommendations that are timely and effective, ensuring safe ongoing and future EHRM operations for Veterans by enabling the sustainment and adoption of the EHRM system.

The EHRM National Councils have played a critically important role in VA EHRM implementation to date and will continue to serve as a pivotal link between EHRM-IO and the clinician and business staff as the Councils transition from EHRM-IO to VHA.

VHA EHRM National Councils support EHRM-IO as an extension of the VHA Program Offices, AUSHs and/or COs, to provide functional requirements by collaborating across Councils and providing clear, concise communications and timely responses.

The DST facilitates intake and coordination of issues, operations of the IDG and National Councils, and tracking and reporting of issues and decisions. The DST directly supports the IDG and National Councils and coordinates with the VHA Governance Board and USH. DST will communicate VHA EHRM governance decisions to impacted stakeholders.

(See Figure Below)



## Appendix 5: Patient Safety Related IT Enhancements – New Service Requests (NSR) by Highest Priority

| # | Domain | Key Safety Issue(s) | ID # | Status | Estimated Implementation Timeframe |
|---|---|---|---|---|---|
| 1 | Identity | EHRM Patient Safety - Defense Enrollment Eligibility Reporting System (DEERS) Overwriting VHA Identity<br>• Affects multiple components causing mismatch in demographics, ex. Of high Safety issue medications not delivered (improper address), unable to mitigate. Policy issues are causing block of solutions despite 5 years of joint workgroups due to roadblock on DoD/Defense Health Agency (DHA) component.<br>• DEERS Overwriting VHA Identity and Demographics; Provide the capability to automatically determine which Agency is conducting a Millennium Enterprise Master Patient Index (eMPI; external) Retrieve transaction (VA or DoD) based upon the user's provisioned position | NSR 20220870; Requirement Package WC20221202 | Submitted to EHRM-IO; under discussion | To be determined (TBD) |
| 2 | Miscellaneous/ Unspecified | EHRM Patient Safety - Scheduling Solutions<br>• Delays in care significant, queues unable to filter, extremely poor usability, tripled workload of scheduling clerks, mitigation strategies not working<br>• Scheduling Solution (scheduling queues & all enhancements or fixes to basic functionality of filters, prioritization, storage/memory from data tables, routing) | NSR 20221246; Requirement Package WC20221206 | Submitted to EHRM-IO; under discussion | TBD |
| 3 | Orders | EHRM Patient Safety - Refused Order Queue<br>• Refused order queue; orders immediately released without signature and contributing to errors, mitigation strategies not correcting core issue without IP | NSR 20221244; Requirement Package WC20221217 | Submitted to EHRM-IO; under discussion | TBD |
| 4 | Identity | EHRM Patient Safety – User Role Assignment<br>• Major errors in provider & staff selection, causes delays in care, lost orders, lost reporting of results | NSR 20221241; Requirement Package WC20221214 | Submitted to EHRM-IO; under discussion | TBD |

| # | Domain | Key Safety Issue(s) | ID # | Status | Estimated Implementation Timeframe |
|---|---|---|---|---|---|
| | | • Resolve identifier issues impacting matching of providers & staff (all mechanisms) | | | |
| 5 | Behavioral Health | EHRM Patient Safety – Patient Record Flags<br>• Patient record flags; only visible in power chart for direct care providers, no visibility to multiple disciplines including hidden visibilities to Medical Support Assistants (MSAs) & staff with direct patient contact | NSR 20221245; Requirement Package WC20221219 | Submitted to EHRM-IO; under discussion | TBD |
| 6 | Pharmacy | EHRM Patient Safety – Lack of Continuity and Virtual View<br>• Medication list view not same for pharmacy & patient then with health care team, significant medication errors and risk, multiple issues present in pharmacy without resolution from Intellectual Property (IP)<br>• Lack of synchronicity between MMR (pharmacy solution) and power chart (all other health care team members), diminished efficiency of medication refill, Cerner to develop “Virtual View” for Outpatient Medication Synonyms | NSR 20221234; Requirement Package WC20230101 | Submitted to EHRM-IO; under discussion | TBD |
| 7 | Miscellaneous / Unspecified | EHRM Patient Safety – 724 Access Ambulatory Viewer<br>• Large latencies & downtimes with only access Joint Legacy Viewer (JLV) and one onsite computer, access to care, safe delivery greatly impaired esp. for any health care team member off site of main campus during downtimes<br>• Establish downtime virtual view of the system (legacy version is read only Computerized Patient Record System which is not available in Cerner) | NSR 20221242; Requirement Package WC20221216 | Submitted to EHRM-IO; under discussion | TBD |
| 8 | N/A | EHRM Patient Safety – Message Center<br>• Message center; multiple IP fixes including selection of staff and escalation of messages. Issues with delays in care, missing orders, missing patient communication & referrals. This system is the communication hub for all health team members and patient secure messaging | NSR 20221235; Requirement Package WC20221212 | Submitted to EHRM-IO; under discussion | TBD |

| # | Domain | Key Safety Issue(s) | ID # | Status | Estimated Implementation Timeframe |
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| 9 | Referrals | EHRM Patient Safety – Referral Management<br>• Referral management (includes consults & interfacility referrals)<br>• Delays in care, work stoppage in downtime, delays in transmission, doubled workload, waiting times and other key items | NSR 20221236; Requirement Package WC20221213 | Submitted to EHRM-IO; under discussion | TBD |
| 10 | Orders | EHRM Patient Safety – Prosthetics Order and Communication Not Routing<br>• Prosthetics orders; delays in care or supplies of PSAS to veteran. Delays in moving to barcode scanning which will decrease errors, and severe delays in being able to replace existing Vista component, having to maintain legacy for years without IP | NSR 20221243; Requirement Package WC20221218 | Submitted to EHRM-IO; under discussion | TBD |
| 11 | Medication Admin | EHRM Patient Safety – User Interpretation of Warning Alerts<br>• User interpretation of warning alerts; medication errors, one pop up warning covers 4 errors, loss of safety functionality from Legacy. Reminder bar code medication administration rolled out to all clinical areas with Cerner (Legacy was only inpatient & limited Emergency Departments (ED)) so expansion of issues with new users very large | NSR 20221237; Requirement Package WC20221210 | Submitted to EHRM-IO; under discussion | TBD |
| 12 | Medication Admin | EHRM Patient Safety – Transdermal Patch Issues<br>• Transdermal patch issues; medication errors on known high risk component, loss of safety functionality from Legacy | NSR 20221238; Requirement Package WC20221207 | Submitted to EHRM-IO; under discussion | TBD |
| 13 | Medication Admin | EHRM Patient Safety – Scanning Bypass and Direct Medication Administration Record (MAR) charting<br>• Scanning bypass and direct MAR charting; reminder bar code medication administration rolled out to all clinical areas with Cerner (Legacy was only inpatient & limited EDs so expansion of issues with new users very large. Usability issues are significant | NSR 20221232; Requirement Package WC20221211 | Submitted to EHRM-IO; under discussion | TBD |

| # | Domain | Key Safety Issue(s) | ID # | Status | Estimated Implementation Timeframe |
|---|---|---|---|---|---|
| 14 | Medication Admin | EHRM Patient Safety – Point of Care (POC) Glucose<br>• POC glucose; errors with high-risk medication and cannot change the medication documentation interface without IP forcing us to now have mandatory safety fields for entry | NSR 20221239; Requirement Package WC20221208 | Submitted to EHRM-IO; under discussion | TBD |