



DEPARTMENT OF VETERANS AFFAIRS
OFFICE OF INSPECTOR GENERAL

Office of Healthcare Inspections

VETERANS HEALTH ADMINISTRATION

Ticket Process Concerns and
Underlying Factors
Contributing to Deficiencies
after the New Electronic
Health Record Go-Live at
the Mann-Grandstaff VA
Medical Center in
Spokane, Washington



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Executive Summary

This healthcare report is the third in a trilogy of reports that address allegations associated with implementation of the new electronic health record (new EHR) at the Mann-Grandstaff VA Medical Center (facility) in Spokane, Washington, received after its go-live date in October 2020.¹

Following the facility go-live of the new EHR, the VA Office of Inspector General (OIG) received a broad range of complaints alleging medication management and care coordination problems associated with implementation of the new EHR.² Due to the magnitude of the allegations, the OIG initiated two inspections. During those inspections, the OIG identified two concerns, necessitating this third report:

- Resolution of new EHR issues through the ticket process
- Factors underlying the original allegations from the medication management and care coordination inspections³

The OIG acknowledged that facility leaders and staff encountered challenges with the new EHR but remained undeterred and dedicated to servicing patients despite the added burden of COVID-19 pandemic stressors. The OIG recognized the hard work of all involved and the challenges associated with implementing the new EHR for the largest integrated healthcare system in the United States.

Ticket Process

Facility staff utilized a ticket system to request assistance or report issues that needed corrective action with the new EHR. An OIG analysis of tickets related to the medication management and care coordination allegations exposed potential patient safety concerns that are addressed in the companion reports. This section focuses on the challenges with reporting, tracking, and resolving problems through the ticket process.

¹ The first report is VAOIG, *Medication Management Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington*, Report No. 21-00656-110, March 17, 2022, <https://www.va.gov/oig/pubs/VAOIG-21-00656-110.pdf>. The second report is VA OIG, *Care Coordination Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington*, Report No. 21-00781-109, March 17, 2022, <https://www.va.gov/oig/pubs/VAOIG-21-00781-109.pdf>. “Federal Electronic Health Record Modernization” Electronic Health Record Modernization Integration Office accessed April 21, 2021, <https://www.oit.va.gov/org/fehrm/index.cfm?>. “An EHR is software that’s used to securely document, store, retrieve, share and analyze information about individual patient care. It enables a digital version of a patient [health] record.”

² Appendix A summarizes the origins of VA’s electronic health record modernization (EHRM) and key milestones.

³ Appendix C provides a list of the 57 allegations from the two inspections.

VA Office of Electronic Healthcare Record Modernization (VA OEHRM) and Cerner Corporation (Cerner) used the ticket system to record and address issues related to the new EHR implementation.⁴ From October 24, 2020, through March 31, 2021, new EHR end users placed over 38,700 tickets. VA OEHRM and Cerner classified tickets as either incidents or change requests and each classification required different actions to process.⁵ VA OEHRM guidance described an incident as something that had functioned properly in the past or a disruption in the system that negatively affected workflow. A change request was described as an application for an enhancement or configuration of the new EHR to improve the user experience. There were two categories of change requests: a standard change request was used for pre-approved modifications while a non-standard change request involved new approvals. Specifically, a non-standard change request required the engagement of VA Solution Experts, the facility's Informatics Steering Committee, and additional committees that included members from VA, Department of Defense, and Cerner.⁶

The OIG's analysis of the tickets supported substantiation of many of the allegations discussed in the two companion reports. The analysis also provided the OIG with information about reporting, tracking, and resolving ticketing problems with the new EHR.

The OIG identified multiple deficiencies and challenges with the ticket process and problem resolution:

- Cerner service desk support staff were not able to view and replicate reported issues.
- Cerner service desk support staff closed tickets prior to resolution.
- Cerner service desk support staff did not communicate ticket status to end users.
- Facility staff created workarounds instead of placing tickets.
- The ineffective change request process hindered needed EHR modifications.

As an example of how these challenges manifested at the facility, in early 2021 the former Acting Under Secretary for Health visited the facility "to spend time with frontline employees across a range of service lines, seeking to understand their experience with the implementation of the [Cerner] electronic health record [new EHR]."⁷ An after-action review from that visit found

⁴ "About Us," Cerner, accessed January 31, 2020, <https://www.cerner.com/ap/en/about>. Cerner works with healthcare facilities to develop EHRs that are based upon its *Millennium* and *HealtheIntent* template platforms.

⁵ "Electronic Health Record Modernization System Issues: Incidents vs. Changes," VA Electronic Health Record Modernization.

⁶ "Joint Change Request Process," (slide show) VA OEHRM. According to the slide show, VA Solution Experts are VA OEHRM staff who monitor new tickets, assess validity of change requests, work with Cerner to develop solutions, and validate changes in both the version of the EHR being built by Cerner and the live version of the EHR used by VA. The Informatics Steering Committee provides local leaders, guidance, and oversight of the EHR implementation.

⁷ The former Acting Under Secretary for Health was Dr. Richard Stone.

staff reported to the former Acting Under Secretary of Health that tickets entered a “black hole,” they did not receive feedback communication, and expressed “ticket fatigue” which impacted morale:

Employees voiced impassioned commitment to the mission of serving Veterans. However, without true closed loop communication through the ticketing process, they universally stated that they felt “unheard,” “abandoned,” and in some cases “disrespected” by program and vendor staff. Some voiced active consideration of attrition despite decades dedicated to VA and a strong desire to see this effort succeed.

Ticket process challenges impaired the ability of Cerner service desk support staff to address end users’ problems; led to end users’ disengagement; and prompted workarounds, which may introduce safety concerns.

VA and Veterans Health Administration (VHA) leaders identified potential patient safety concerns created by the shortcomings with the ticket process. VA initiated a strategic review of the EHR modernization effort and released a report with the results that confirmed deficiencies with ticket processes and drafted potential actions to address those findings.⁸ The strategic review results outlined multiple measures to resolve ticket process challenges and proposed measures of success to address confidence at VA sites.

The OIG found that at the time of the review, identified concerns led to limited process changes. While VA has identified proposed measures to monitor ticket process changes, the strategic review’s report stated that the measures had not been finalized and were under review.

Underlying Factors of Substantiated Allegations in Companion Reports

A detailed discussion of allegations related to medication management issues and care coordination deficiencies after go-live can be found in the first and second reports of the OIG’s trilogy of reports. The OIG determined that the root cause of the problems was due to five underlying factors:

- EHR usability problems
- Training deficits
- Interoperability challenges

⁸ “Electronic Health Record Comprehensive Lessons Learned Report,” VA Electronic Health Record Modernization, accessed January 12, 2022, https://federalnewsnetwork.com/wp-content/uploads/2021/07/071421_va_ehr_lessonslearned_FNN.pdf. The VA’s report summarized the results of a strategic review of the new EHR’s deployment.

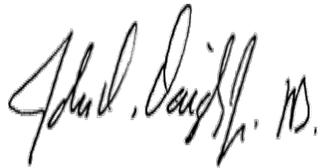
- Post go-live fix and refinement needs
- Problem resolution process challenges

The OIG concluded that resolving the underlying factors common to the substantiated allegations would resolve many of the problems identified by frontline staff. Addressing the deficiencies identified in this report prior to further deployment of the new EHR may alleviate patient safety concerns.

To address the issues identified in the medication management and care coordination reports, VA must resolve the issues with the ticketing system and the underlying factors. Accordingly, the OIG made three recommendations to the Deputy Secretary. The recommendations were related to evaluating and addressing EHR problem resolution processes, underlying factors of substantiated allegations, and a deployment schedule that reflected first addressing allegations and concerns identified in this report.

Comments

The Deputy Secretary concurred with the recommendations and provided acceptable action plans. (See Appendix E for the Deputy Secretary's response.) The OIG will follow up on the planned actions until they are completed.



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Abbreviations

DoD	Department of Defense
EHR	electronic health record
EHRM	electronic health record modernization
OEHRM	Office of Electronic Health Record Modernization
OIG	Office of Inspector General
VAMC	VA Medical Center
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network
VistA	Veterans Health Information Systems and Technology Architecture



Introduction

The VA Office of Inspector General (OIG) received a range of allegations regarding medication management and care coordination problems associated with implementation of the new electronic health record (new EHR) system after go-live at the Mann-Grandstaff VA Medical Center (facility) in Spokane, Washington.¹ Due to the magnitude of allegations and to address the potential impact on patient safety, the OIG initiated two separate, but simultaneous healthcare inspections in January 2021.² During the inspections, the OIG identified ticket process challenges as well as underlying factors common to the substantiated allegations in the companion reports. These identified concerns necessitated this third report.

Throughout the inspections, the OIG found facility leaders and staff encountered challenges with the new EHR but remained undeterred and dedicated to servicing patients despite the added burden of COVID-19 pandemic stressors. The OIG recognized the hard work of all involved and the challenges associated with implementing the new EHR for the largest integrated healthcare system in the United States.

Facility Background

The facility, part of Veterans Integrated Service Network (VISN) 20, includes four community clinics located in three different states.³ The facility operates 24 hospital and 34 community living center beds. Patient referrals for tertiary care are coordinated with the VA Puget Sound Health Care System and the VA Portland Health Care System.⁴ From October 1, 2019, through

¹ "Federal Electronic Health Record Modernization," Electronic Health Record Modernization Integration Office, accessed April 21, 2021, <https://www.oit.va.gov/org/fehrm/index.cfm?>. "An EHR is software used to securely document, store, retrieve, share and analyze information about individual patient care. It enables a digital version of a patient [health] record."

² VA OIG, *Medication Management Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington*, Report No. 21-00656-110, March 17, 2022, <https://www.va.gov/oig/pubs/VAOIG-21-00656-110.pdf>. VA OIG, *Care Coordination Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington*, Report No. 21-00781-109, March 17, 2022, <https://www.va.gov/oig/pubs/VAOIG-21-00781-109.pdf>.

³ The community clinics are in Wenatchee, Washington; Libby, Montana; and Ponderay and Coeur d'Alene, Idaho.

⁴ VHA Handbook 1142.01, *Criteria and Standards for VA Community Living Centers (CLC)*, August 13, 2008. A VA community living center, formerly known as a nursing home care unit, provides a skilled nursing environment for patients needing short and long stay services.

September 30, 2020, the facility served over 35,000 patients. The Veterans Health Administration (VHA) classifies the facility as least complex.⁵

VA Electronic Health Record Modernization Project

In June 2017, the VA began the process of acquiring a new electronic health record. The course of that acquisition and deployment of the new EHR is detailed in [appendix A](#). Prior OIG reports published on VA's implementation of the new EHR are listed in [appendix B](#).

Allegations and Related Concerns

Following the October 24, 2020, go-live date of the new EHR at the facility, the OIG received complaints alleging medication management and care coordination problems associated with implementation of the new EHR at the facility. The allegations were evaluated through two healthcare inspections. The 57 allegations addressed by these two inspections are summarized in [appendix C](#).⁶

The OIG identified concerns related to resolving new EHR issues involving the ticket process and associated challenges. The OIG also identified underlying factors related to the original allegations from the two inspections.

The OIG identified two areas of concern

- Resolution of new EHR issues through the ticket process
- Factors underlying the original allegations from the medication management and care coordination inspections.

Scope and Methodology

This report provides an analysis of information gathered during the two healthcare inspections initiated in January 2021.

⁵ VHA Office of Productivity, Efficiency and Staffing, *Facility Complexity Model*, accessed July 27, 2021. The VHA Facility Complexity Model categorizes medical facilities by complexity level based on patient population, clinical services offered, educational and research missions. Complexity Levels include 1a, 1b, 1c, 2, or 3. Level 1a facilities are considered the most complex. Level 3 facilities are the least complex.

⁶ The underlined terms are hyperlinks to appendices. To return from the appendix, press and hold the "alt" and "left arrow" keys together.

From January 26 through August 9, 2021, the OIG interviewed facility leaders and staff, VA Office of Electronic Health Record Modernization (VA OEHRM) staff, and VHA leaders.⁷ The OIG conducted a virtual site visit given ongoing concerns with travel and the potential spread of COVID-19.

The OIG reviewed relevant VA OEHRM, VHA, and facility policies. Other documents reviewed specifically related to the planning, preparation, and implementation of the new EHR and included SharePoint sites, decision memorandums, contract documents, presentations, briefings, and evaluations. The OIG also reviewed electronic health records and facility Joint Patient Safety Reports.⁸

The OIG analyzed substantiated allegations from the companion reports. Through that analysis, the OIG made the determination that these allegations related to underlying factors. While the OIG acknowledges that the identification of common factors reflects a considered interpretation, the OIG thinks that the factors identified furthers the understanding of challenges faced by the facility with the new EHR.

The OIG analyzed tickets placed to record and process end user problems with the new EHR. The analysis included tickets from VA and Cerner Corporation (Cerner) systems.⁹ From October 24, 2020, through March 31, 2021, new EHR end users placed over 38,700 tickets. The OIG qualitatively peer-reviewed 4,094 tickets that mentioned key terms related to each allegation. This report focused on tickets related to the allegations and does not attempt to address all concerns with the new EHR identified by facility staff through tickets.

The OIG gathered information regarding actions taken to remedy alleged deficiencies with the new EHR through interviews, review of EHR-related documents, and through observations of facility staff navigating the new EHR. The OIG did not independently validate all statements made by interviewees. References within this report to the status of issues reflect the time frame from late January through early June 2021. The OIG recognizes that VA OEHRM, VHA, Cerner,

⁷ When discussing information provided by VA OEHRM in documents or learned during interviews with a VA OEHRM leader(s), manager(s), or staff member(s), the OIG uses the term *VA OEHRM staff* (whether singular or plural) generically to indicate the source of the information. VA Office of Public and Intergovernmental Affairs “VA Establishes Office of Electronic Health Record Modernization to Support Transition from Legacy Patient Data System,” news release July 12, 2018, <https://www.va.gov/opa/pressrel/pressrelease.cfm?id=5084>. To oversee the VA new EHR deployment, VA OEHRM was established in June 2018 by the former Acting VA Secretary, Peter M. O’Rourke. VA OEHRM responsibilities include management of the preparation, deployment, and maintenance of the new EHR.

⁸ VA National Center for Patient Safety, *Topics in Patient Safety* 17, no. 2, (2017): 3. The Joint Patient Safety Report system allows VHA staff to submit an electronic incident report. Electronic incident reports are reviewed by the patient safety manager or designee to determine potential severity and probability of injury. Results are analyzed to determine trends and prioritize investigative efforts.

⁹ “About Us,” Cerner, accessed January 31, 2020, <https://www.cerner.com/ap/en/about>. Cerner works with healthcare facilities to develop EHRs that are based upon its *Millennium* and *HealthIntent* template platforms.

and other involved stakeholders are engaged in continuing work related to implementation of the new EHR.

In the absence of current VA or VHA policy, the OIG considered previous guidance to be in effect until superseded by an updated or recertified directive, handbook, or other policy document on the same or similar issue(s).

The OIG substantiates an allegation when the available evidence indicates that the alleged event or action more likely than not took place. The OIG does not substantiate an allegation when the available evidence indicates that the alleged event or action more likely than not did not take place. The OIG is unable to determine whether an alleged event or action took place when there is insufficient evidence.

Oversight authority to review the programs and operations of VA medical facilities is authorized by the Inspector General Act of 1978, Pub. L. No. 95-452, §7, 92 Stat. 1101, as amended (codified at 5 U.S.C. App. 3). The OIG reviews available evidence to determine whether reported concerns or allegations are valid within a specified scope and methodology of a healthcare inspection and, if so, to make recommendations to VA leaders on patient care issues. Findings and recommendations do not define a standard of care or establish legal liability.

The OIG conducted the inspection in accordance with *Quality Standards for Inspection and Evaluation* published by the Council of the Inspectors General on Integrity and Efficiency.

Discussion

Multiple implementation problems discussed in the two companion reports remain unresolved as of June 2021 (see [appendix C](#)). This report describes challenges with reporting, tracking, and resolving problems revealed by the OIG's analysis of tickets submitted to VA and Cerner help desks after go-live of the new EHR at the facility.

The OIG identified underlying factors common to the substantiated allegations that contributed to the post-go-live deficiencies (see [appendix D](#)). This report includes a description of the underlying factors and their association to the allegations of the two inspections. The OIG is concerned that further deployment of the new EHR in VHA without effective mitigation of the identified underlying factors presents risks to patient safety. Accordingly, to address the issues identified in the medication management and care coordination reports, VA must resolve the issues with the ticketing system and the underlying factors.

Ticket Process

To assist end users when information technology changes are made to computerized systems, support centers in the form of service desk staff or the use of automated ticket software systems allow organizations to manage and resolve difficulties the end user may encounter.¹⁰ Per Help Desk Institute support center standards, service desk staff need

access to the resources (i.e., people, processes, and technology) necessary to achieve its goals and objectives. These include financial and human resources, physical facilities, technology (i.e., specialized systems and tools supported by a reliable infrastructure), specialized organizational knowledge, and/or [when applicable] third-party partnerships. Support center-specific systems and supporting processes can provide significant improvements in automation that increase the support center's efficiency, effectiveness, and productivity, which can improve the quality and consistency of support center services. Integration of support-center-specific systems with other systems used in the department and/or organization enhances these improvements even further.¹¹

Reporting Issues Through Ticket System

Following go-live, facility staff utilized a ticket system to request assistance or report issues that needed corrective action with the new EHR. VA OEHRM and Cerner staff used the ticket system

¹⁰ Support center, help desk, and service desk are synonymous terms. For consistency, this report uses the term service desk.

¹¹ "HDI Support Center Standard," Help Desk Institute, accessed June 11, 2021, <https://www.thinkhdi.com/~media/HDICorp/Files/Standards/HDI-SC-Standard-v-5-0.pdf>.

to record and address issues related to the new EHR implementation. VA OEHRM and Cerner staff classified tickets as incidents or change requests.¹² Each classification required different actions to process. VA OEHRM guidance described an incident as something that had functioned properly in the past or a disruption in the system that negatively affected workflow. A change request was described as an application for an enhancement or configuration of the new EHR to improve the user experience.

Incident Tickets Process

The intended process established for end users to report an incident with the new EHR began when they entered a ticket with the Cerner service desk for assistance. Placing tickets initiated the resolution process and provided a means for tracking.¹³ Three avenues existed for an end user to place an incident ticket—calling the Cerner service desk or entering the incident manually through one of two ticket portals (VA’s yourIT site or Cerner’s eService site).¹⁴ The Cerner service desk support staff then triaged the incident tickets and either resolved the ticket or routed it to another level of support or another team responsible for the issue. The end user was notified of the status and resolution of the ticket through the yourIT help desk portal.

Change Request Tickets Process

Change request tickets, classified as standard or non-standard, were submitted by either a supervisor or super-user.¹⁵ A standard change request, such as updating the characteristics of a medication, was used for modifications that had been pre-approved for change and were routed to the VA Solution Expert. A non-standard change request required the engagement of VA Solution Experts, the facility’s Informatics Steering Committee, and additional committees that

¹² “Electronic Health Record Modernization System Issues: Incidents vs. Changes,” VA Electronic Health Record Modernization.

¹³ “Incidents vs. Changes,” VA OEHRM website. Cerner service desk is the Cerner IT support services supporting the new EHR implementation. This service desk is not organizationally affiliated with the VA Office of Information and Technology service desk. However, calls to Cerner service desk may be routed through the VA Office of Information and Technology service desk.

¹⁴ VA, “yourIT,” accessed June 17, 2021, [yourIT - Help Center - VA ServicePortal v2](#) The VA yourIT Service Portal is a self-service portal where users can place service requests or information technology tickets that are then routed to Cerner. The portal allows for quick viewing of the status of tickets and approvals requiring end user action. Cerner, “Cerner eService,” accessed June 17, 2021, <https://businesslogin.cerner.com/?ReturnUrl=https%3A%2F%2Feservice.cerner.com%2F>. The Cerner eService site is accessible to those who have an EHR account.

¹⁵ “Mann-Grandstaff Super-User Training Overview and Expectations,” VA OEHRM. Super users are facility staff who received additional training to provide peer-to-peer support for the new EHR. Requirements for super user certification include attendance at various super user focused events and passing training competencies. Super users also learn a variety of content within and outside their user role. “EHRM System Change Control and the Joint SaAbs Process,” VA OEHRM. VA and Cerner established a process whereby staff were required to submit change requests through a superuser. Change requests were first reviewed and approved by the facility’s informatics team.

included members from VA, Department of Defense (DoD), and Cerner.¹⁶ If the change request was determined acceptable for both VA and DoD, the new EHR change was made and implemented by Cerner.¹⁷ See figure 1 for a change request completion timeline example that VA OEHRM staff provided to facility staff.

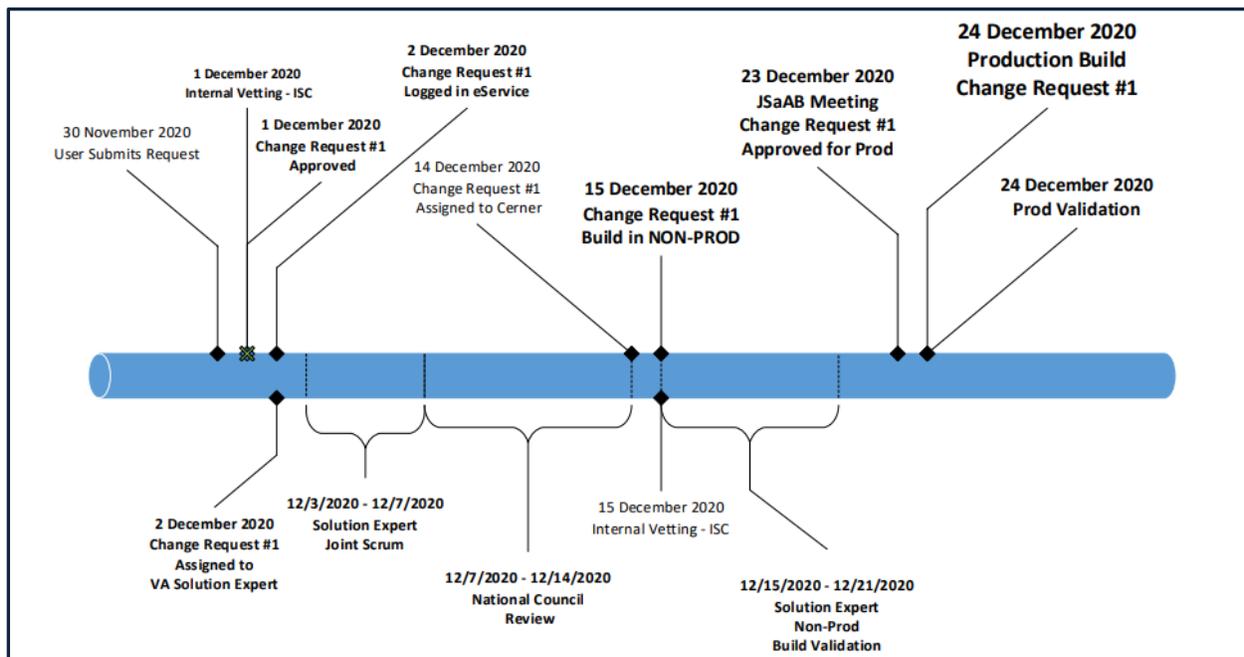


Figure 1. VA OEHRM’s graphic depicts the change request process from the time a change request ticket is submitted until implemented within the EHR.

Source: “EHRM Issue Management Mann-Grandstaff VAMC [VA Medical Center],” December 9–10, 2020,” VA OEHRM.

*The graphic utilized multiple acronyms, technical references, and EHRM organizational groups. The OIG included the figure to illustrate the challenge of facility staff to understand the change request process figure. The time frame identified on this visualization is hypothetical and unrelated to an actual request.

The OIG found this graphic confusing and included the visualization to illustrate the complexity and inexpediency of the process.

¹⁶ “Joint Change Request Process,” (slide show) VA OEHRM. According to this slide show, VA Solution Experts are VA OEHRM staff who monitor new tickets, assess validity of change requests, work with Cerner to develop solutions, and validate changes in both the version of the EHR being built by Cerner and the live version of the EHR used by VA. The Informatics Steering Committee provides local leaders, guidance, and oversight of the EHR implementation. The committee also serves as the non-standard change request decision-making body for the facility.

¹⁷ VA OEHRM, *EHRM Issue Management, Mann-Grandstaff VAMC*, December 9–10, 2020.

OIG Analysis of Tickets Related to Inspections

The OIG conducted an analysis of tickets that focused on the topics of the two inspections:

- Medication management
- Care coordination

The OIG’s analysis of the tickets supported substantiation of many of the allegations discussed in the two companion reports. The analysis also provided the OIG with information about the challenges of reporting, tracking, and resolving problems with the new EHR.

Medication Management Tickets

The OIG reviewed 221 tickets (incident and change request) related to the allegations in the medication management inspection (see OIG-identified categories of the allegations in [appendix C](#), table C.1.). The review facilitated an understanding of the medication management inspection’s allegations. The review assessed the number of closed or canceled tickets and reasons for canceling tickets.

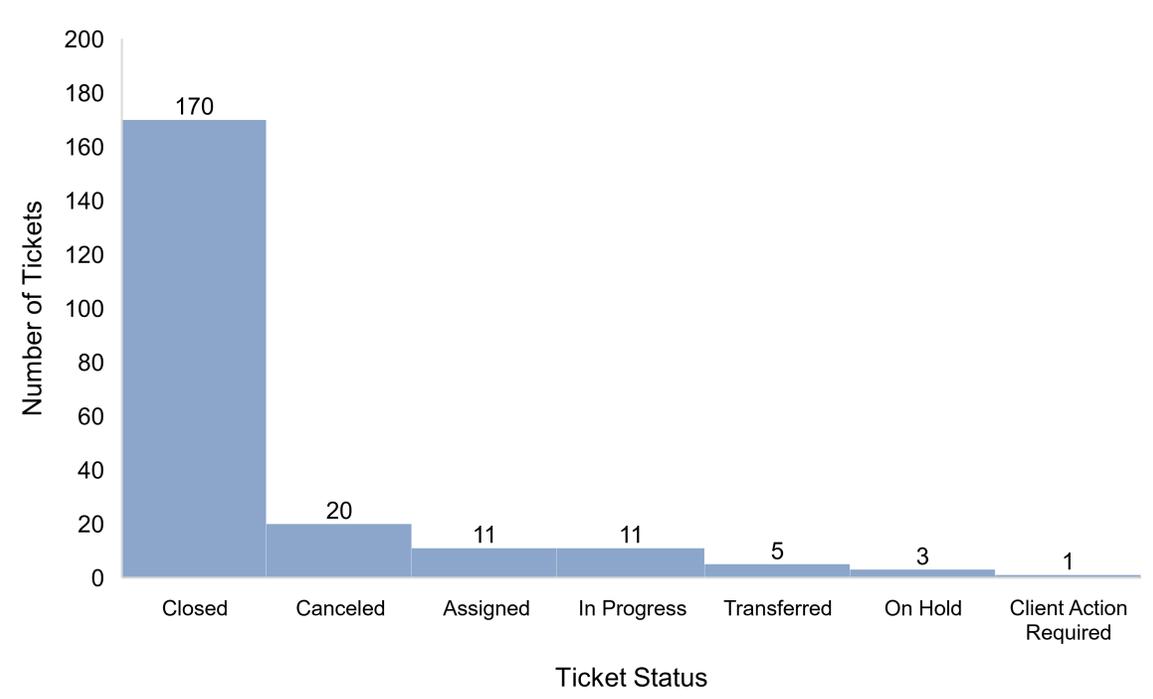


Figure 2. Cerner medication management ticket status by resolution category.

Source: OIG analysis of report allegation ticket status from October 24, 2020, through March 31, 2021.

The OIG found that as of March 31, 2021, 86 percent of the tickets reviewed had been closed (77 percent) or canceled (9 percent). Cerner service desk staff labeled the remaining 14 percent of

tickets as assigned, in progress, transferred, on hold, or client action required. Thirty-three percent of the closed tickets were found to be closed without a documented resolution.

The OIG reviewed the reasons stated by Cerner service desk support staff for cancelation of tickets:

- Duplicate ticket
- Education provided to end user
- Issue no longer being reported by the end user
- Issue required a change or enhancement request rather than an incident report

Care Coordination Tickets

The OIG identified and reviewed 210 tickets related to the care coordination inspection allegations (see OIG-identified categories of allegations in [appendix C](#), table C.2.). The review assessed the number of closed or canceled tickets and reasons for canceling tickets.

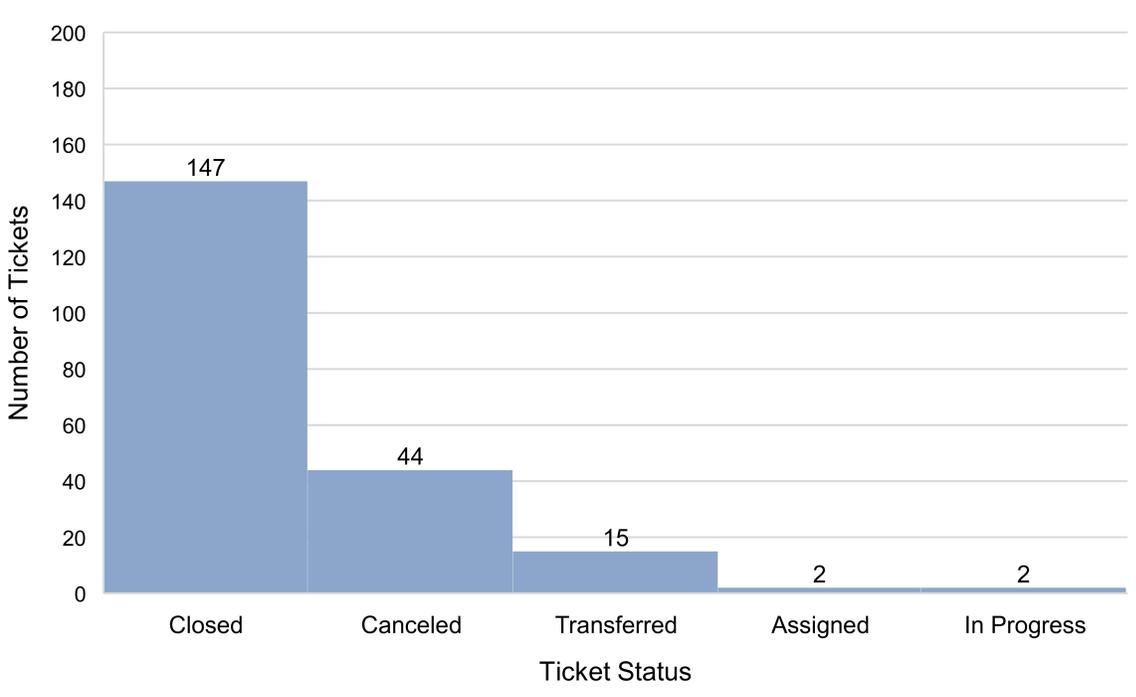


Figure 3. Cerner care coordination ticket status by resolution category.

Source: OIG analysis of report allegation ticket status from October 24, 2020, through March 31, 2021.

The OIG found that 70 percent of tickets had been closed as of March 31, 2021, and 21 percent of tickets had been canceled.¹⁸ The Cerner service desk staff labeled the remaining 9 percent of tickets as transferred, assigned, or in progress. One percent of tickets was found to be closed without a documented resolution.

The OIG reviewed the documented reasons Cerner service desk support staff canceled tickets:

- Duplicate ticket
- Resolution of the issue
- Lack of end user contact information
- Issue required a change request rather than an incident report
- “No issue”

Ticket Process Challenges

According to documents reviewed by the OIG, Cerner was contractually responsible for establishing and using service desk ticket processes for “quick resolution of issues through incident and problem management” by providing “consistent, personable, [and] helpful communication.” Ticket processes provide the means for facility staff to report and address incidents and request changes to the new EHR. Effective management of tickets restores service quickly and minimizes impact on a facility.¹⁹

The OIG identified multiple challenges with the ticket process and problem resolution:

- Cerner service desk support staff were not able to view and replicate reported issues.
- Cerner service desk support staff closed tickets prior to resolution.
- Cerner service desk support staff did not communicate ticket status to end users.
- Facility staff created workarounds instead of placing tickets.
- The ineffective change request process hindered needed EHR modifications.

These challenges impaired the ability of Cerner service desk support staff to address end users’ problems; led to end users’ disengagement; and prompted workarounds, which may introduce safety concerns. Furthermore, VA and VHA leaders identified potential patient safety and related

¹⁸ VA, *Performance Work Statement for the VA Electronic Health Record Modernization System*, Final version 2.1 October 5, 2017, amended November 7, 2017, amended November 20, 2017, amended February 16, 2018, amended May 7, 2018. Cerner service desk staff closed a ticket after the end user and VA confirmed the incident had been addressed. The OIG did not find a protocol for Cerner service desk cancellation of tickets.

¹⁹ “HDI Support Center Standard,” Help Desk Institute. Help Desk Institute is a professional association providing best practices and emerging trends within the technical service and support industry.

concerns with the new EHR ticketing process. Although VA initiated a strategic review to address these concerns, there were limited changes to the process.

Cerner Support Staff Unable to View and Replicate Issues

The OIG learned the version of the new EHR used by Cerner service desk support staff did not mirror the version of the new EHR used by facility end users.²⁰ Help Desk Institute practice standards note that service personnel, such as Cerner service desk support staff, require access to the hardware, software, and other technology used by end users. Such access maximizes troubleshooting effectiveness and is often accomplished by “mirroring” the version of the software used by end users.²¹

The OIG was concerned that Cerner service desk support staff did not have a version of the software that mirrored the facility’s end user version; therefore, replicating or viewing the identified issues was difficult. Cerner service desk support staff closed non-replicable tickets without resolution as evidenced by notations entered on the closed tickets:

- “Was unable to recreate issue with real VA patients”
- “The issue is not reproducible; client will reach out if issue happens again”
- “Not reproducible/able to find items in message center”

VA OEHRM staff shared concerns regarding foundational issues with the architecture of the Cerner ticket system. Specifically, the concern was that although Cerner had a mirror version of the DoD EHR, Cerner did not build a mirror version of the new EHR used by facility end users. Additionally, VA OEHRM staff conveyed frustration that because Cerner service desk support staff could not reproduce a reported issue, they closed the ticket, potentially delaying resolution of the problem.

The OIG determined that the lack of software needed for Cerner service desk support staff to mirror the production domain (what was seen by the end user) impeded the ability to replicate

²⁰ Aaron Wright et al., “Testing electronic health records in the “production” environment: an essential step in the journey to a safe and effective health care system,” *Journal of American Medical Information Association*, (2017); vol 24(1):188-192. Developers integrate the build domain into the *live*, or *production*, domain. End users utilize the production domain for their daily work. A mirrored domain is the use of a duplicate of the live program

²¹ “Support Services,” Cerner, accessed June 11, 2021, <https://www.cerner.com/solutions/support-services>. Cerner is a Help Desk Institute (HDI) Certified Support Center. “HDI Support Center Standard,” HDI, accessed June 11, 2021, <https://www.thinkhdi.com/~media/HDICorp/Files/Standards/HDI-SC-Standard-v-5-0.pdf>. The OIG reviewed Help Desk Institute Standards for this review.

end user issues.²² The OIG concluded that Cerner's omission of the mirror production domain for service desk support staff affected new EHR problem resolution.

Cerner Support Staff Closed Tickets Prior to Resolution

The OIG determined that Cerner service desk support staff closed tickets without resolving the end user's issue. End users place tickets to resolve system disruptions that impact workflow or improve the user experience.²³

Below are examples of facility tickets that were closed without resolution.

Example 1

A ticket regarding incomplete patient instructions was closed and remained unresolved with the comment "Closing but are meeting early next week on processes moving forward."

Although Cerner service desk support staff articulated a plan to discuss a process, closure of the ticket prior to the meeting eliminated the means to ensure the problem was addressed.

Example 2

A request for a workflow fix that would prevent veterans from scheduling appointments outside their preferred facility contained a cancelation comment stating, "nothing we can do on patient workflow, cancel."

Although Cerner service desk support staff were unable to address the issue, this inability did not negate the fact that the problem needed to be addressed and should have been forwarded to the appropriate party. By closing the ticket, the documented concern was not explored.

Example 3

An end user placed five separate tickets requesting a referral status alert and all five tickets were closed or canceled. One of the five tickets was canceled with a note "July enhancements will address these issues."²⁴

These tickets were significant because when a provider is not alerted of a status change, a patient's care may be delayed or not received. While Cerner service desk support staff noted that future enhancements were planned for July, the identified resolution was more than four months

²² VA OIG, [Training Deficiencies with VA's New Electronic Health Record System at the Mann-Grandstaff VA Medical Center in Spokane, Washington](#), Report No. 20-01930-183, July 8, 2021. The OIG recommended establishing a version of the EHR for training with close approximation to the production version of the EHR.

²³ "Incidents vs. Changes," OEHRM website.

²⁴ The ticket was placed February 18, 2021.

into the future. The OIG is concerned that this example reflects a lack of Cerner service desk support staff's recognition of the risk of such a delay and the need for an interim solution.

The closure of tickets without resolution could result in patient safety issues as well as the propagation of issues at future implementation sites.²⁵ Additionally, ticket closure without resolution contributed to facility staff reports of not being supported and not being heard.

Communication Deficits with Ticket Process

The OIG found that problems occurred related to Cerner service desk support staff communicating ticket status to the end user. As part of VA's agreement with Cerner, end users were to be notified and given the opportunity to agree that ticket resolution addressed the reported issue prior to Cerner service desk support staff closing a ticket.

The explicit language of the contract states, “

[a] ticket is considered ‘resolved’ when Cerner places the ticket in a ‘Client Action’ status for the client to approve / confirm the issue is addressed. A ticket is considered ‘completely resolved’ when VA has had [sic] approved and confirmed that a trouble ticket placed in “Client Action” has been fully addressed.”²⁶

Confirming that the reported issue had been fully addressed would create a closed loop communication process, which would have ensured that Cerner service desk support staff and end users were in agreement with ticket resolution.²⁷ Facility staff reported a lack of communication between Cerner service desk support staff and facility employees throughout the ticket process. Additionally, the OIG learned that the former Acting Under Secretary for Health visited the facility and identified similar ticket process issues.²⁸

According to a VHA after-action review, the former Acting Under Secretary for Health traveled to the facility in January 2021 “to spend time with frontline employees across a range of service lines, seeking to understand their experience with the implementation of the Cerner Millennium electronic health record [new EHR].”

²⁵ Institute of Medicine of the National Academies, Committee on Patient Safety and Health Information Technology, *Health IT and Patient Safety: Building Safer Systems for Better Care*, (Washington, D.C., The National Academies Press, 2012).

²⁶ VA, *Performance Work Statement for the VA Electronic Health Record Modernization System*, Final version 2.1 October 5, 2017.

²⁷ “Team STEPPS Fundamentals Course: Module 3. Evidence-Based Communication,” Agency for Healthcare Research and Quality, accessed November 3, 2021, <https://www.ahrq.gov/teamstepps/instructor/fundamentals/module3/ebcommunication.html>. Closed loop communication is the process of acknowledging receipt of information and then confirming with the sender of information the accuracy of the message.

²⁸ The former Acting Under Secretary for Health was Dr. Richard Stone.

An element of the after-action review from the former Acting Under Secretary for Health visit identified communication deficits with the ticket process. Staff

- shared that tickets placed with Cerner enter a “black hole” or are deleted;”
- reported a lack of transparency, staff did not receive feedback communication to close the loop on how ticket issues were resolved; and
- expressed “ticket fatigue” that resulted in choosing not to submit tickets for identified issues.

The after-action review also identified that the lack of communication affected employee morale:

Employees voiced impassioned commitment to the mission of serving Veterans. However, without true closed loop communication through the ticketing process, they universally stated that they felt “unheard,” “abandoned,” and in some cases “disrespected” by program and vendor staff. Some voiced active consideration of attrition despite decades dedicated to VA and a strong desire to see this effort succeed.

The same ticket communication deficits were again highlighted in a summary of a May 2021 VA leaders’ site visit. The summary cited that facility staff “described unhelpful, sometimes even rude interactions with the Cerner help desk” and that “often the user has no way of knowing whether their issue is being addressed or by whom.”

The OIG concluded that these communication challenges with tickets contributed to tickets not being resolved and low staff morale. Additionally, instead of continuing to place tickets, some staff developed workarounds to address system limitations to meet patient needs.

Staff Workarounds Instead of Placing Tickets

The OIG learned that staff’s challenge with tickets led to the creation of workarounds to avoid placing tickets.

Workarounds are informal temporary practices created by staff for handling exceptions to workflow processes that can be disrupted by the new EHR interface.²⁹ Although workarounds may be needed to accomplish certain tasks, they may increase patient safety risks, result in inefficiencies, and bypass security or safeguard measures.

The VA after-action review from the former Acting Under Secretary for Health visit noted that employees had “presented evidence of tickets inexplicably closed without resolution and

²⁹ Merriam-Webster.com Dictionary, “user interface,” accessed December 20, 2021, <https://www.merriam-webster.com/dictionary/user%20interface>. User interface refers to the software designed for a computer user to interact with the system.

described tickets ‘going into the void.’” Employees “described this as such a challenge that after 90 days, employees had ‘given up’ and were attempting to find their own workarounds rather than submitting tickets.” The report added, “Notably, this was universal across service lines.”

Workarounds may inadvertently create patient safety issues. Furthermore, workarounds may require staff to spend additional time and effort to provide patient care and document information.³⁰

Ineffective Non-Standard Change Request Process

As described, non-standard change requests for the new EHR involved multiple time-consuming steps that included review and approval by facility, VHA, and joint VA and DoD groups. The OIG found that the complexity of the process to resolve non-standard change requests introduced factors that led, in instances, to a time frame of weeks or months to make modifications to the new EHR.³¹

In February 2021, a VA OEHRM leader provided VHA leaders a spreadsheet with ticket data that included unresolved change requests. The data were analyzed by a VHA leader who found that 23 percent of change requests had been open for greater than 30 days and almost a third of reviewed change requests had been canceled by Cerner service desk support staff.³² The VHA leader concluded, “That really is unacceptable based on feedback and frustration from the facility and speaks to a broken process between Cerner and the Informatics Steering Committee in how tickets are being entered and processed.”

The OIG concluded that the change request process hindered the delivery of needed changes identified by end users.

³⁰ V. Blijleven, et al., “Workarounds Emerging from Electronic Health Record System Usage: Consequences for Patient Safety, Effectiveness of Care, and Efficiency of Care,” *Journal of Medical Internet Research Human Factors* (October 2017), accessed January 29, 2020, <https://www.ncbi.nlm.nih.gov/pubmed/28982645>. Derek Meeks et al., “An Analysis of Electronic Health Record-Related Patient Safety Concerns,” *Journal of the American Medical Informatics Association*, 21 (2014): 1053-1059, accessed January 29, 2020, <https://academic.oup.com/jamia/article/21/6/1053/2909293>.

³¹ “Joint Change Request Process,” VA OEHRM. Change requests submitted to the local Informatics Steering Committee required enterprise approval prior to implementation within the new EHR. This process was achieved through joint VA and DoD, solution expert and committee review. The process could take weeks due to the steps required for approval.

³² Change request data provided by the VA OEHRM Chief Medical Officer to VHA leaders totaled 621 change request tickets submitted between go-live and February 5, 2021. The OIG did not independently analyze the data provided.

Ticket Process Challenges, Patient Safety, and VA's 2021 Strategic Review

The OIG found that VA and VHA leaders identified potential patient safety concerns created by the shortcomings with the ticket process and outlined measures to address those deficiencies. To address patient safety and other concerns, VA initiated a strategic review of the new EHR modernization effort in March 2021.³³

During the strategic review period, VA leaders visited the facility in May 2021. At the time of the visit, the Assistant Under Secretary for Health for Quality and Patient Safety found that “users of the Cerner EHR continue[d] to experience problems that constitute[d] risks to veteran safety” and that due to “growing frustration with the responsiveness of the Cerner ticketing system” facility end users had increasingly relied on VHA’s patient safety reporting tool to record EHR concerns.

In July 2021, VA released a report with the results of the strategic review that confirmed deficiencies with ticket processes and proposed potential actions to address those findings.³⁴ The strategic review of EHRM found that “partially established ticket and help desk operations...impacted user functionality and satisfaction.” The review added that “many issues were reported through the Cerner ticket system and through other reporting mechanisms that were identified as potentially impacting patient safety.” The strategic review results outlined multiple measures for VA to address ticket process challenges:

- Building a dashboard to provide transparency on the status of ticket resolution
- Re-engineering ticket and change request processes
- Prioritizing tickets that affect quality, safety, and efficiency of care

The strategic review proposed measures of success to address confidence at VA sites:

- Average number of days to ticket resolution
- Total number of open service desk tickets
- Total number of post go-live tickets related to user role assignments and patient safety
- Tickets related to “digital patient experience tools”

³³ VA Office of Public and Intergovernmental Affairs, “VA announces strategic review of Electronic Health Record Modernization program,” news release, March 19, 2021, <https://www.va.gov/opa/pressrel/pressrelease.cfm?id=5647>.

³⁴ “Electronic Health Record Comprehensive Lessons Learned Report,” VA Electronic Health Record Modernization, accessed January 12, 2022, https://federalnewsnetwork.com/wp-content/uploads/2021/07/071421_va_ehr_lessonslearned_FNN.pdf. The VA’s report summarized the results of a strategic review of the new EHR’s deployment.

- Time to resolution of critical and major issues
- Percentage of open service desk tickets assigned to analysts
- Percentage of open service desk tickets in testing phases
- Percentage of closed service desk tickets

The OIG found that identified concerns led to limited process changes. VA OEHRM staff described the process changes to the OIG. In particular, Cerner agreed that change request tickets would be held in a queue and routed to the facility’s Informatics Steering Committee rather than being closed. Cerner also agreed to no longer cancel tickets when the end user could not be contacted. However, other process changes still need to be made. The long-term change management process, which was still being built, was owned by Cerner. When completed, the new change management system is supposed to integrate the VA Office of Information and Technology and Cerner help desks that would facilitate transparency of the process through “dashboarding of outstanding tickets.”

The OIG concluded that multiple factors contributed to an ineffective problem resolution process for identified concerns with the new EHR. VA and VHA leaders acknowledged that the ticket process deficits impaired the ability to identify and address patient safety concerns. While VA has identified proposed measures to monitor ticket process changes, the strategic review’s report stated that the measures had not been finalized and were under review.

Underlying Factors of Substantiated Allegations in Companion Reports

In the two companion reports referenced above, the OIG evaluated a range of allegations regarding medication management and care coordination issues that created potential patient safety events following the new EHR implementation. In order to have a broader perspective on the allegations, the OIG completed an analysis of substantiated allegations (both resolved and unresolved). The OIG analysis yielded the identification of five underlying factors:

- EHR usability problems
- Training deficits
- Interoperability challenges
- Post go-live fix and refinement needs
- Problem resolution process challenges

A summary of the allegations, OIG findings, resolution status, and association of the substantiated allegations to the identified underlying factors is found in [appendix D](#). The nature

of these underlying factors and their significance is addressed in detail in the following sections. The frequency of substantiated allegations for the five underlying factors is provided in figure 4.

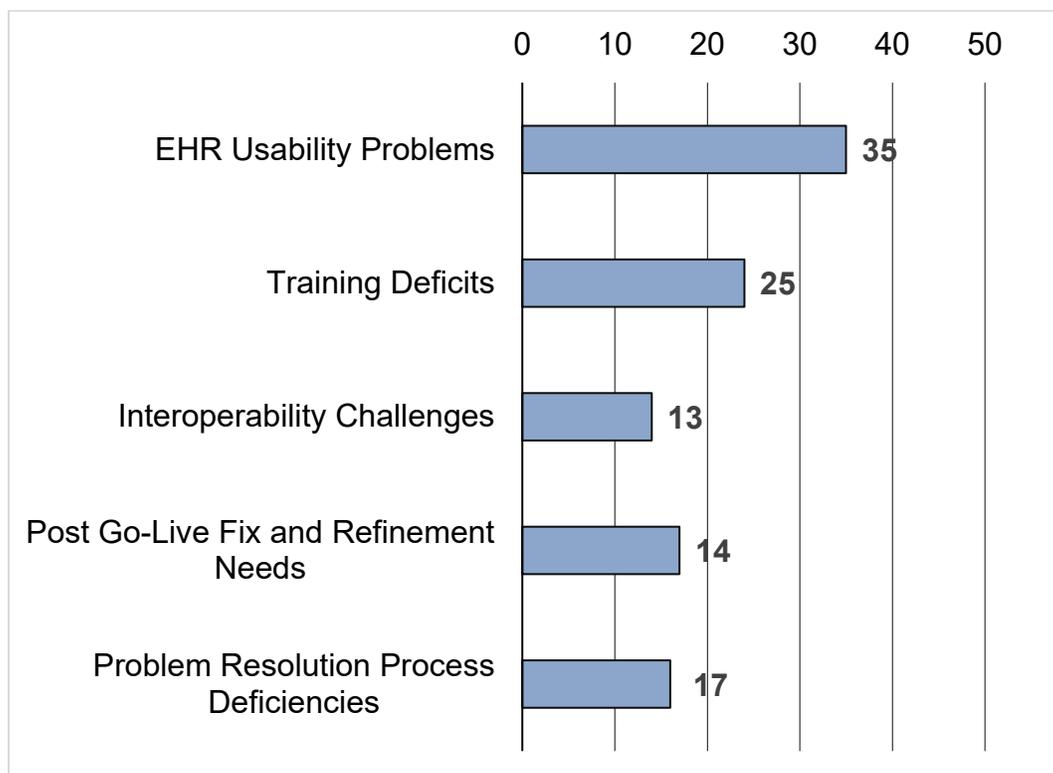


Figure 4. Allegations breakdown by underlying factors.

Source: OIG analysis of underlying factors of substantiated report allegations.

*Allegations may be associated with more than one underlying factor.

The capacity to capture and effectively utilize longitudinal healthcare information and rapidly share data for provider coordination is an important factor in the provision of safe, high-quality care, and a significant benefit of an EHR. Potential benefits of an EHR may expand with integration of other health information technology functions and software that supports clinical decision making, increases efficiency, and automates processes that reduce opportunities for human error.³⁵

However, an Institute of Medicine, Committee on Patient Safety and Health Information Technology report stated, “evidence in the literature about the impact of health IT [information technology] on patient safety is mixed.” The report identified growing concern that health information technology focused on administrative and economic benefits “may be creating new paths to failure.” The report observed that “many problems with health IT relate to usability,

³⁵ Orna Fennelly et al., “Successfully implementing a national electronic health record: a rapid umbrella review,” *International Journal of Medical Informatics*.” Institute of Medicine (US) Committee on Quality of Health Care in America. *To Err is Human: Building a Safer Health System*, National Academies Press (US), 2000.

implementation, and how software fits with clinical workflow.” The report noted that “[p]oorly designed, implemented, or applied, health IT can create new hazards in the already complex delivery of health care, requiring health care professionals to work around brittle software.” It further cautioned “[g]iven the large investments being made in health IT, there is a great need to ensure that the new technology is actually improving safety of care.”³⁶

VA OEHRM staff confirmed the importance of understanding the unintended consequences of healthcare information technology during development and implementation efforts in order to support EHR-related patient safety. VA OEHRM staff noted concerns regarding the lack of a cohesive process for identifying, evaluating, and responding to VA-wide potential patient safety issues arising during this large-scale healthcare information technology transformation and acknowledged the need for process improvements in the new EHR implementation. A VHA leader referenced the complexity of deploying the new EHR and reported patient safety concerns and other implementation challenges identified following go-live of the new EHR.

EHR Usability Problems

EHR implementation research identifies usability as a major factor in successful implementation and links poor usability to increased patient safety risks, inefficiencies, and provider frustration and stress.³⁷ The concept of usability relates to the user-system interface:

[H]uman-computer interaction literature defines usability as the degree of effectiveness, efficiency, and satisfaction with which users of a system can realize their intended task.³⁸

Beyond the interface design, usability for health information technology “entails developing an in-depth understanding of how frontline health care professionals (“end users”) perform their work” and designing systems to support the end users’ needs.³⁹

The OIG identified 35 allegations related to EHR usability problems from the two inspection companion reports (see [appendix D](#)). The OIG identified multiple EHR usability problems:

- Elements of the new EHR’s user interface failed to block likely sources of human error and increased patient safety risks.
- Elements of the new EHR’s user interface were not optimized for clinical workflows.

³⁶ Institute of Medicine of the National Academies, Committee on Patient Safety and Health Information Technology, *Health IT and Patient Safety: Building Safer Systems for Better Care*.

³⁷ Raj Ratwani et al., “Mind the Gap: A systematic review to identify usability and safety challenges and practices during electronic health record implementation,” *Applied Clinical Informatics*, 16, No. 7 (2016): 1069-1087.

³⁸ Lisette C. Roman et al., “Navigation in the electronic health record: A review of the safety and usability literature,” *Journal of Biomedical Informatics*, 67 (2017): 69-79.

³⁹ Ratwani, “Mind the Gap: A systematic review to identify usability and safety challenges and practices during electronic health record implementation.”

- Patient data separated across sections of the new EHR negatively affected care coordination and increased the burden on providers.
- Navigation difficulties created inefficiency for staff completion of patient care functions.
- Limited and restricted views of the new EHR based on the role of the user failed to account for varied staff duties and coordination needs.

Training Deficits

Literature on EHR usability and safety challenges “highlighted training and support for clinicians as a critical component” of successful EHR implementation.⁴⁰

The OIG substantiated 25 allegations related to EHR training deficits from the two inspection companion reports (see [appendix D](#)). The OIG identified several training deficits:

- Insufficiency of training content
- Insufficiency of direct support for facility staff during the adoption and implementation of the new EHR
- “Button-ology” approach to training and training materials⁴¹

A published OIG report offers a more in-depth review of training deficiencies associated with the implementation of the new EHR.⁴²

Interoperability Challenges

EHR implementation research identifies interoperability as a critical factor needed “[t]o enable health information exchange both within and across healthcare organizations.” Timely availability of patient health information is important to support safe, high-quality health care. EHR interoperability considerations may include integration with existing technology,

⁴⁰ Ratwani, “Mind the Gap: A systematic review to identify usability and safety challenges and practices during electronic health record implementation.”

⁴¹ John E. Russell, Merinda Kaye Hensley, “Beyond buttonology: Digital humanities, digital pedagogy, and the ACRL Framework,” *College & Research Libraries News*, vol. 78, no. 11, 2017: 588. “Button-ology” refers to basic training that reviews different features of a software interface in an introductory way, such as instructing users on which buttons to click to perform various tasks. A prior OIG review of training deficiencies during implementation of the new EHR described that “facility staff coined the term “button-ology” to describe applications training content, as its focus was on which button to press to get a desired system outcome.” VA OIG, *Training Deficiencies with VA’s New Electronic Health Record System at the Mann-Grandstaff VA Medical Center in Spokane, Washington*.

⁴² VA OIG, *Training Deficiencies with VA’s New Electronic Health Record System at the Mann-Grandstaff VA Medical Center in Spokane, Washington*.

integration with external networks, standardization requirements for interconnectivity, and decision-making processes related to information management.⁴³

The OIG identified 13 allegations related to interoperability challenges from the two inspection companion reports (see [appendix D](#)). The OIG identified several interoperability challenges:

Process limitations for correcting data errors or inconsistencies

Patient contact information such as names, addresses, telephone numbers, and email addresses were overridden by outdated DoD data during migration to the new EHR. Interim measures to manually correct information were unsuccessful as the DoD data remained the primary linked data source. Corrected information reverted back to the outdated data each night at midnight.

Workflow issues with some external systems

An instance of this challenge included transmission failures of prescriptions to the Consolidated Mail Outpatient Pharmacy due to address and direction deficiencies or package size.⁴⁴

Interoperability between the new EHR and established reporting tools

For example, patient data for a national monitoring tool for suicide prevention, failed to populate from medical record notes.

Post Go-Live Fixes and Refinement Needs

Following a go-live with the new EHR, fixes and refinements of the system to correct content elements that do not work as intended are expected. This was true at the facility. For example, one allegation was that staff were unable to view patients' service-connected conditions in the new EHR that affected providers' ability to document care related to specific service-connected conditions. If problem resolution processes fail to resolve identified issues in a satisfactory and timely manner, these issues may affect patient care as well as provider confidence in the system.

The OIG identified 14 allegations related to post go-live fixes and refinement needs from the two inspection companion reports (see [appendix D](#)). The OIG identified that some substantiated allegations were unresolved and required post go-live fixes and refinements to address errors in system workflows and changes to components of the new EHR.

⁴³ Orna, "Successfully implementing a national electronic health record: a rapid umbrella review."

⁴⁴ "VA Mail Order Pharmacy," VA Pharmacy Benefits Services, accessed June 8, 2021, https://www.pbm.va.gov/PBM/CMOP/VA_Mail_Order_Pharmacy.asp. The Consolidated Mail Outpatient Pharmacy is an off-site facility with automated systems that provides approximately 80 percent of outpatient prescriptions to veterans by mail.

Problem Resolution Process Challenges

Successful EHR implementation requires effective pathways and processes for resolution of identified problems. Seventeen allegations from the two inspection companion reports were related to the problem resolution (ticket process) challenges identified by the OIG (see [appendix D](#)).

Conclusion

During two inspections evaluating allegations related to the new EHR, the OIG identified concerns with resolving EHR problems, specifically challenges with the ticket process. The OIG also identified underlying factors related to substantiated allegations from the two inspections.

The OIG found that multiple elements contributed to an ineffective ticket problem resolution process for addressing issues with the new EHR, which in turn impacted the reporting of issues with potential patient safety concerns. The OIG's analysis identified five underlying factors common to the substantiated allegations that if resolved, could address reported patient safety concerns and other implementation challenges identified following go-live. The OIG is concerned that deployment of the new EHR without resolution of the deficiencies presents risks to patient safety.

Recommendations 1–3

1. The Deputy Secretary completes an evaluation of the new electronic health record problem resolution processes and takes action as warranted.
2. The Deputy Secretary completes an evaluation of the underlying factors of substantiated allegations identified in this report and takes action as warranted.
3. The Deputy Secretary ensures the electronic health record modernization deployment schedule reflects resolution of the allegations and concerns discussed in this report.

Appendix A: Electronic Health Record Modernization

In the 1980s, VA developed one of the earliest EHRs that became Veterans Health Information Systems and Technology Architecture (VistA) in 1996.⁴⁵ VistA is a comprehensive health information system and EHR that provides all capabilities required for VA clinical, business, and administrative processes, and serves an essential role in VA's healthcare delivery mission. In June 2017, former VA Secretary David Shulkin determined that a "substantial investment" was required in order to maintain and improve VistA's operational capability, and "keep pace with the improvements in healthcare information technology and cybersecurity." Further, after many years of attempting to achieve EHR interoperability, VA and the DoD were unable to adopt the same EHR or create a congressionally required interoperable medical record platform.

In February 2017, the DoD began deployment of its new EHR, known as Military Health System (MHS) GENESIS. At its core, MHS GENESIS is the commercial EHR developed by Cerner. On June 1, 2017, former VA Secretary David Shulkin announced it to be in the public's interest to contract with Cerner to have a common EHR platform across VA and the DoD.⁴⁶ In this announcement, Secretary Shulkin determined that VA may issue a solicitation directly to Cerner for the acquisition of the EHR system that the DoD was deploying.

On May 17, 2018, former Acting VA Secretary, Robert Wilkie announced that the VA had signed a \$10 billion contract with Cerner to transition to a new EHR system. Since the new VA-wide EHR would share the same commercial software platform and data hosting environment as the DoD EHR, VA would further benefit from the DoD's recent early deployment experience.⁴⁷ DoD began the rollout of MHS GENESIS in Spokane, Washington, on February 7, 2017, at Fairchild Air Force Base and continued that roll out at additional sites in the Pacific Northwest. The DoD's early EHR deployments faced multiple delays and setbacks. DoD shared lessons learned to assist and guide VA's deployment strategy.⁴⁸

To oversee the VA new EHR deployment, VA OEHRM was established in June 2018.⁴⁹ VA OEHRM responsibilities include management of the preparation, deployment, and maintenance

⁴⁵ "History of IT at VA," DigitalVA, accessed January 31, 2020, <https://www.oit.va.gov/about/history.cfm>. Within the context of this report, the VistA system is referred to as the legacy EHR. Office of Information and Technology, Enterprise Program Management Office, *VA Monograph*, January 13, 2017, accessed January 11, 2020, https://www.va.gov/VISTA_MONOGRAPH/VA_Monograph.pdf.

⁴⁶ VA, Office of the Secretary, *Determination and Findings*, June 1, 2017.

⁴⁷ The United States Senate confirmed Robert Wilkie as the Secretary of Veterans Affairs on July 23, 2018. Mr. Wilkie was the Acting Secretary from March 28 to May 29, 2018.

⁴⁸ VA OEHRM staff reported that DoD shared lessons learned to inform EHR configuration decisions.

⁴⁹ "VA Establishes Office of Electronic Health Record Modernization to Support Transition from Legacy Patient Data System."

of the new EHR.⁵⁰ VA OEHRM leadership includes an Executive Director, Chief Medical Officer, and Chief Technology Integration Officer.⁵¹

EHRM Milestones

March 28, 2020. The facility was scheduled to be the first VHA medical center to implement the new EHR. However, on February 10, 2020, a VA spokesperson announced the new EHR's deployment would be postponed, six weeks prior to the intended go-live date, as the new EHR was only "75-80 percent" ready.

April 3, 2020. The former VA Secretary informed Congress that the COVID-19 pandemic necessitated a shift in overall priorities and directed that VA OEHRM efforts take a non-intrusive posture with VHA healthcare operations to ensure that health care at VHA facilities was not impeded. As reported by a facility staff member, when the COVID-19 pandemic caused facility priorities to shift, only a limited number of staff continued new EHR-related work.

August 7, 2020. VA announced that activities at the facility for an October go-live of the new EHR had resumed.⁵² VA work not directly involving facility staff had continued during the COVID-19 pandemic delay. VA work during that time included infrastructure readiness requirements at the facility and completion of the requisite 73 interfaces for go-live, including design, build, connectivity, and technical testing requirements.⁵³

October 24, 2020. Facility providers and administrators began using the new EHR for clinical and administrative work.

March 19, 2021. Nearly five months after the go-live of the new EHR at the facility, VA announced that an ongoing analysis of the facility's new EHR post-deployment activities had prompted a "strategic review" and "need for a schedule shift" of future go-live sites. The review was planned to last less than 12 weeks. The VA Secretary commented⁵⁴

A successful EHR deployment is essential in the delivery of lifetime, world-class health care for our Veterans....After a rigorous review of our most-recent deployment at Mann-Grandstaff VA Medical Center, it is apparent that a strategic

⁵⁰ On June 25, 2018, the former Acting VA Secretary, Peter M. O'Rourke, established VA OEHRM.

⁵¹ "Leadership," VA Office of Electronic Health Record Modernization, accessed January 17, 2020, <https://www.ehrm.va.gov/about/bios>.

⁵² VA, *VA Responds to COVID-19 with Schedule Revisions to Electronic Health Record Implementation*, accessed October 22, 2020, <https://www.ehrm.va.gov/news/article/read/va-responds-to-covid-19-with-schedule-revisions-to-electronic-health-record-implementation>.

⁵³ The VA OEHRM Director of Change Management opined that, in hindsight, the lack of VA OEHRM contact during this period was a significant factor, which hindered Change Management's ability to prepare facility staff for the upcoming transition.

⁵⁴ "VA announces strategic review of Electronic Health Record Modernization program."

review is necessary. VA remains committed to the [Cerner] solution, and we must get this right for Veterans.

In the role of Acting Deputy Secretary, Dr. Carolyn Clancy, led the strategic review effort with frequent engagement from VA Secretary Denis McDonough.

July 2021. The VA published the initial results of the strategic review through the Comprehensive Lessons Learned Report. The VA identified key areas “to ensure the success of future deployments and to prevent and reduce issues at future sites”:

- Improving the veteran experience
- Ensuring patient safety
- Providing extended training to frontline employees
- Building confidence at VA sites
- Implementing organizational and program improvements
- Improving operational efficiencies
- Making governance effective
- Centralizing data management for workers and veterans⁵⁵

December 2021. VA announced an updated deployment plan for the new EHR. The plan included a revised deployment schedule and outlined changes in management and governance of EHRM “to address previously identified organizational challenges with limited stakeholder inputs in decision making, accountability, and information sharing transparency.”⁵⁶ The future EHRM management structure announced by VA did not include VA OEHRM staff and identified a new position to lead the VA’s EHRM, the Program Executive Director for EHRM Integration, working under the Deputy Secretary.⁵⁷

⁵⁵ “Electronic Health Record Comprehensive Lessons Learned Report,” VA Electronic Health Record Modernization.

⁵⁶ VA Office of Public and Intergovernmental Affairs “VA advances Electronic Health Record Modernization program,” news release December 1, 2021, <https://www.va.gov/opa/pressrel/pressrelease.cfm?id=5745>.

⁵⁷ VA Office of Public and Intergovernmental Affairs, *Electronic Health Record: Comprehensive Lessons Learned, Progress Update, November 2021*, accessed December 1, 2021, <https://www.va.gov/opa/docs/EHRM-Comprehensive-Lessons-Learned-Progress-Update-FINAL-11-29-21.pdf>. “VA Advances Electronic Health Record Modernization.”

Appendix B: Prior OIG Reports

The following is a summary of facility or new EHR-related reports released by the OIG since 2020.

In a report issued November 10, 2021, the OIG conducted an audit of VHA and VA OEHRM's implementation of the patient scheduling component of the new EHR at two sites, the Chalmers P. Wylie VA Ambulatory Care Center in Columbus, Ohio, and the Mann-Grandstaff VA Medical Center in Spokane, Washington. The OIG made eight recommendations to address deficiencies with training and implementation of the new EHR's scheduling system.⁵⁸ As of December 1, 2021, the eight recommendations remained open.

The OIG also reviewed training for the facility's transition to the new EHR. In a report issued July 8, 2021, the OIG made 11 recommendations to address deficiencies related to EHR training content and delivery, the evaluation of training, Cerner's contractual performance for training, reviewing governance of the electronic health record modernization effort, establishment of a group with expertise in VHA operations and Cerner electronic health record use, tracking EHR patient complaints, and assessing employee morale.⁵⁹ As of December 1, 2021, the 11 recommendations remained open.

The OIG conducted an audit of VA's development and reporting of cost estimates for IT upgrades needed to support the electronic health record modernization (EHRM) program. The OIG made six recommendations related to ensuring an independent cost estimate, reassessing the cost estimate for program-related IT infrastructure upgrades in accordance with VA-cost-estimating standards, development of procedures in alignment with VA cost estimate guidance, ensuring cost estimates for all IT infrastructure upgrades are disclosed in the program life-cycle cost estimated presented to Congress, formalizing agreements with Office of Information and Technology and VHA to identify expected funding contributions from each entity, and establishing procedures for updating life-cycle cost estimated and ensuring disclosure in congressionally mandated reports.⁶⁰ The report was issued July 7, 2021; as of December 1, 2021, the six recommendations remained open.

The OIG conducted an audit of VA's development and reporting of costs estimates for physical infrastructure upgrades necessary to support the new EHRM program. The OIG made five recommendations related to ensuring an independent life-cycle cost estimate including physical

⁵⁸ VA OIG, [New Patient Scheduling System Needs Improvement as VA Expands Its Implementation](#), Report No. 21-00434-233, November 10, 2021.

⁵⁹ VA OIG, *Training Deficiencies with VA's New Electronic Health Record System at the Mann-Grandstaff VA Medical Center in Spokane, Washington*.

⁶⁰ VA OIG, [Unreliable Information Technology Infrastructure Cost Estimates for the Electronic Health Record Modernization Program](#), Report No. 20-03185-151, July 7, 2021.

and infrastructure costs, VHA development of a cost estimate for physical infrastructure upgrades in accordance with VA-cost-estimating standards, incorporation and updating of upgrade costs in facility assessments, and disclosure of costs to Congress.⁶¹ The report was issued May 25, 2021; as of December 1, 2021, the five recommendations remained open.

In a facility-related report issued April 27, 2020, the OIG reviewed the new EHR system's implementation to evaluate the potential impact of the transition on access to care, as well as the capabilities that would be initially available. The OIG made eight recommendations to address the impact of the transition to the new EHR system.⁶² As of December 1, 2021, three recommendations remained open.

A separate report was issued the same day in which the OIG examined VA's physical and IT infrastructure to determine readiness to proceed with EHR implementation and to identify infrastructure challenges that could affect the overall system deployment schedule. The OIG made eight recommendations to address infrastructure-related deficiencies.⁶³ As of December 1, 2021, three recommendations remained open.

On January 8, 2020, the OIG issued another facility-related report that addressed concerns with a departure of providers, inadequate staffing leading to intensive care unit closure, decreased operating room availability, and a temporary leadership appointment. The OIG found that facility leaders were aware of the concerns and had made management decisions to address them. The OIG did not find that the identified concerns were problematic. The OIG recommended that the Facility Director act to ensure that patients have timely access to care.⁶⁴ As of February 23, 2021, no recommendations remained open.

⁶¹ VA OIG, [*Deficiencies in Reporting Reliable Physical Infrastructure Cost Estimates for the Electronic Health Record Modernization Program*](#), Report No. 20-03178-116, May 25, 2021.

⁶² VA OIG, [*Review of Access to Care and Capabilities during VA's Transition to a New Electronic Health Record System at the Mann-Grandstaff VA Medical Center, Spokane, Washington*](#), Report No. 19-09447-136, April 27, 2020.

⁶³ VA OIG, [*Deficiencies in Infrastructure Readiness for Deploying VA's New Electronic Health Record System*](#), Report No. 19-08980-95, April 27, 2020.

⁶⁴ VA OIG, [*Review of Staffing and Access Concerns at the Mann-Grandstaff VA Medical Center, Spokane, Washington*](#), Report No. 19-09017-64, January 8, 2020.

Appendix C: Allegations Discussed in Companion Reports

Table C.1. Medication Management Inspection Allegations

Category	Allegation
1. Data Migration	
Patient Contact Information	Patient contact information was not accurately imported into the new EHR.
Medication Lists	Medication lists were not accurately imported into the new EHR.
	Medication lists were imported into the new EHR as free text.
Medication Formulary	The formulary in the new EHR included medications not available at the facility and increased risks for errors when providers placed medication orders.
2. Medication Orders	
Discontinuance of Future Orders	The new EHR discontinued future medication orders written by providers.
	The new EHR discontinued future medication orders, requiring providers to write <i>stat</i> or immediate orders and causing medication delays for patients.*
	Because the new EHR discontinued future medication orders, providers who were going to be absent, arranged for colleagues to write orders for recurring medications, which created inefficiencies, increased risks for orders being missed, and possible patient safety issues.
Placing Unauthorized Orders	In the new EHR, registered nurses were able to order medications without the medication orders being reviewed and approved by the medical provider.
Processing of Outpatient Orders	Pharmacy staff using the new EHR failed to process outpatient medication orders.
	Some outpatient medication orders failed to be processed and appeared missing to non-pharmacy staff.
Lack of Notification	The new EHR did not notify prescribing providers and pharmacists about future recurring injectable medication orders that were discontinued or outpatient medication orders that did not process.
Alerts	Medication alerts in the new EHR were confusing and providers did not receive training on them.
Prescription Status	In the new EHR, providers were unable to assess the status of a filled prescription order.
Tracking Mailed Controlled Substances‡	In the new EHR, pharmacy staff were unable to consistently track mailed controlled substance prescriptions.
	In the new EHR, non-pharmacy staff were unable to consistently track mailed controlled substance prescriptions.

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Category	Allegation
Prescription Drug Monitoring Program (PDMP)**	After electronic completion of a PDMP query, providers' progress notes were not automatically populated in alignment with VHA policy, which required additional work for providers.
3. Medication Reconciliation	
Medication List Continuity	Staff had to update medication lists at every visit because updated medication information did not carry over to the next appointment.
	Medications disappeared from the reconciled medication list and medication lists were inaccurate following reconciliation.
	Staff manually entered medication lists following medication reconciliation, which introduced increased risk for error and possible safety concerns.
	Medication reconciliation required a significant amount of time to complete per patient.
Medication List Inaccuracies	Discontinued and expired medications were not viewable on medication lists during medication reconciliation, creating a patient safety issue.
	Medications administered in clinic, including recurring injectable medications administered once, did not appear on medication lists, creating a patient safety issue.
Medication Lists and Patient Use	Medication lists were not patient-friendly.

Source: *OIG analysis of allegations.*

*Merriam Webster.com Dictionary, "stat," accessed November 26, 2021, <https://www.merriam-webster.com/dictionary/stat>. Stat is a Latin word meaning immediately.

Future orders were used pre-go-live in some clinic settings to order medications that would be administered at subsequent clinic visits. A future order was reviewed for accuracy by the pharmacist and stayed active until additional action (such as administration of the medication) was taken.

‡A controlled substance is "a drug or other substance" defined by law and organized into five schedules or classes that determine the potential for abuse or harm.

**VHA Directive 1108.07, Pharmacy General Requirements, March 10, 2017. A PDMP is a "state-controlled substance monitoring program...these programs require pharmacies registered in their state to enroll and transmit (electronically) records of each dispensing of a controlled substance."

Table C.2. Care Coordination Inspection Allegations

Category	Allegations
1. Patient Record Flags	
Failure of High Risk for Suicide and Behavioral Patient Record Flags to Activate	Patient record flags used to alert staff to patients at high risk for suicide and disruptive behavior did not transfer to the new EHR, placing patients and staff at increased risk.
Visibility of Flags	The way patient record flags displayed or failed to display in parts of the new EHR raised safety concerns.
Accessibility of Suicide Risk Assessment Documents	Staff had limited access to suicide prevention, risk assessment, and reporting tools in the new EHR.
Interoperability with High Risk for Suicide Tracking Tools	Gaps existed in interoperability between the new EHR and established VHA tools that facilitated tracking and monitoring of patients at high risk for suicide.
Interoperability for Interfacility Coordination	Deficits in interoperability with the new EHR resulted in inaccurate patient record flag data displayed in the legacy EHR system still in use at other VHA sites.
Interoperability for National Monitoring	Facility data reported to the national high-risk dashboard for patients with active High Risk for Suicide patient record flags had been inconsistent since the facility transitioned to the new EHR.
2. Data Migration	
Errors in Name, Gender, and Contact Information	Deficiencies in the data migration process caused incorrect names, genders, and contact information in the new EHR for some patients.
3. Scheduling Process	
Delays in Primary Care Appointments	New EHR issues caused delays in scheduling primary care appointments.
Mental Health New Patient Scheduling	New EHR issues caused Mental Health Service to stop scheduling new patients.
Inability to Assign a Provider	If patients did not have a Spokane address, they could not be assigned to a primary care provider in the system. This resulted in the inability to assign a primary care provider in the system for homeless patients.
Appointment Information	Appointments for return to clinic visits showed as general clinic appointments and did not contain information to show which provider or specialty area within a service the patient was scheduled to see.
Appointment Reminders	Appointment reminders were absent in the new EHR.
	Appointment reminders were inadequate and did not provide locations for appointments.
	Appointment reminders did not specify when appointments were telephone visits rather than in-person appointments, resulting in patients presenting in person for telephone appointments.

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Category	Allegations
Self-Scheduling Tool Configuration	Problems with the configuration of the new self-scheduling tool, accessible in the patient portal, resulted in facility patients located in Washington State inadvertently self-scheduling appointments at a VHA site in Ohio.
4. VA Video Connect	
Appointment Failures	Many VA Video Connect appointments did not work correctly following the new EHR implementation. VA Video Connect appointments were not getting completed because the links were not working.
Provider Access	Some providers had no access to VA Video Connect since the new EHR implementation.
Appointment Check-In	Since implementing the new EHR, providers were unable to check in patients for VA Video Connect appointments. This created additional work for providers and medical support assistant staff, reducing clinic efficiency.
Misdirected VA Video Connect Appointment Links	Incorrect personal contact information caused misdirection of links used to access VA Video Connect appointments. VA Video Connect appointment links were sent to incorrect, outdated email addresses without a notice alerting providers that the email addresses were invalid.
Appointment Time Zones	Since implementing the new EHR, VA Video Connect appointments were often scheduled in the wrong time zones.
5. Referral Management	
Lost or Not Addressed Referrals	Referrals were being lost or not addressed because of difficulties in the referral management processes in the new EHR.
Tracking Referrals	The new EHR lacked a way for referring providers to track what actions had been taken for referrals, by whom and when.
Use of Messaging as a Work-Around	Due to concerns about the referral process not working consistently and the inability to track referrals in the new EHR, staff were sending messages through Message Center and sending encrypted emails after submitting referrals to ensure that referrals were seen by the receiving service.*
Referrals Within the Same Service	Deficits in the new EHR resulted in difficulties placing referrals between different programs in the same service, which could affect care coordination and result in lapses in care.
6. Laboratory Orders	
Workflow Errors	Some laboratory orders were “disappearing” and never reached the facility laboratory.
Tracking Orders	Laboratory orders were “disappearing” from the providers’ view at times, affecting coordination of care, as providers were unable to tell what had been ordered and if there was duplication in orders from other providers.

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Category	Allegations
Tracking Orders	The new EHR lacked a way for providers to track laboratory orders.
Delayed Results	Receipt of laboratory results were delayed.
7. Patient Portal and Secure Messaging	
Loss of Access	Veterans were unable to access the patient portal and use secure messaging to contact care teams in the new EHR.
8. Documentation Processes	
Financial Identification Numbers (FINs) and Chart Access	Staff were unable to access the patient chart without using a between-visit encounter and FIN.
FINs for Between-Visit Encounters	The process for using FINs in the new EHR for documentation occurring between visits created additional work for providers, reduced efficiency, and increased opportunities for documentation errors.
Nurse Documentation for New Patients	Nurses were unable to create an encounter or generate a FIN if the patient had never been seen by a provider.
International Classification of Diseases, 10th Revision (ICD-10) Code Availability	Many ICD-10 diagnostic codes were not available in the new EHR, affecting providers' ability to correctly code patient diagnoses.
Service Connection Status	Staff were unable to view patients' service-connected conditions in the new EHR, affecting providers' ability to document care as related to specific service-connected conditions.

Source: OIG analysis of allegations.

Appendix D: Allegations, Findings, and Underlying Factors

Table D.1. Summary Table of Substantiated Medication Management Inspection Allegations

Allegations	Status		Underlying Factors (X signifies an association of the substantiated allegations to the identified underlying factor; - signifies no association was identified)				
	OIG Determination	Status	EHR Usability Problems	Training Deficits	Interoperability Challenges	Post Go-Live Fix and Refinement Needs	Problem Resolution Process Deficiencies
Data Migration							
Patient contact information was not accurately imported into the new EHR.	Substantiated	Unresolved	-	-	X	-	-
Medication lists were not accurately imported into the new EHR.	Substantiated	Unresolved	X	X	X	-	-
Medication lists were imported into the new EHR as free text.	Substantiated	Unresolved	X	-	-	-	-
The formulary in the new EHR included medications not available at the facility and increased risks for error when providers placed medication orders.	Substantiated	Unresolved	X	X	-	-	X
Medication Orders							
The new EHR discontinued future medication orders written by providers.	Substantiated	Unresolved	X	X	-	-	X

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Allegations	Status		Underlying Factors (X signifies an association of the substantiated allegations to the identified underlying factor; - signifies no association was identified)				
	OIG Determination	Status	EHR Usability Problems	Training Deficits	Interoperability Challenges	Post Go-Live Fix and Refinement Needs	Problem Resolution Process Deficiencies
The new EHR discontinued future medication orders, requiring providers to write <i>stat</i> or immediate orders and causing medication delays for patients.	Substantiated	Unresolved	X	X	-	-	X
Because the new EHR discontinued future medication orders, providers who were going to be absent, arranged for colleagues to write orders for recurring medications, which created inefficiencies, increased risks for orders being missed, and possible patient safety issues.	Substantiated	Unresolved	X	X	-	-	X
In the new EHR, registered nurses were able to order medications without the medication orders being reviewed and approved by the medical provider.	Substantiated	Unresolved	-	X	-	-	X

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Allegations	Status		Underlying Factors (X signifies an association of the substantiated allegations to the identified underlying factor; - signifies no association was identified)				
	OIG Determination	Status	EHR Usability Problems	Training Deficits	Interoperability Challenges	Post Go-Live Fix and Refinement Needs	Problem Resolution Process Deficiencies
Some outpatient medication orders failed to be processed and appeared missing to non-pharmacy staff.	Substantiated	Unresolved	X	X	-	-	X
The new EHR did not notify prescribing providers and pharmacists about future recurring injectable medication orders that were discontinued or outpatient medication orders that did not process.	Substantiated	Unresolved	X	X	-	-	X
Medication alerts in the new EHR were confusing and providers did not receive training on them.	Substantiated	Unresolved	X	X	-	-	X
In the new EHR, providers were unable to assess the status of a filled prescription order.	Substantiated	Unresolved	X	X	-	-	-
In the new EHR, non-pharmacy staff were unable to consistently track mailed controlled substance prescriptions.	Substantiated	Unresolved	X	X	X	-	-

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Allegations	Status		Underlying Factors (X signifies an association of the substantiated allegations to the identified underlying factor; - signifies no association was identified)				
	OIG Determination	Status	EHR Usability Problems	Training Deficits	Interoperability Challenges	Post Go-Live Fix and Refinement Needs	Problem Resolution Process Deficiencies
After electronic completion of a PDMP query, providers' progress notes were not automatically populated in alignment with VHA policy which required additional work for providers.	Substantiated	Unresolved	X	X	-	-	X
Medication Reconciliation							
Staff had to update medication lists at every visit because updated medication information did not carry over to the next appointment.	Substantiated	Unresolved	X	X	-	-	-
Medications disappeared from the reconciled medication list and medication lists were inaccurate following reconciliation.	Substantiated	Unresolved	X	X	-	-	-
Staff manually entered medication lists following medication reconciliation, which introduced increased risk for error and possible safety concerns.	Substantiated	Unresolved	X	-	X	-	X

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Allegations	Status		Underlying Factors (X signifies an association of the substantiated allegations to the identified underlying factor; - signifies no association was identified)				
	OIG Determination	Status	EHR Usability Problems	Training Deficits	Interoperability Challenges	Post Go-Live Fix and Refinement Needs	Problem Resolution Process Deficiencies
Medication reconciliation required a significant amount of time to complete per patient.	Substantiated	Unresolved	X	X	X	-	X
Discontinued and expired medications were not viewable on medication lists during medication reconciliation, creating a patient safety issue.	Substantiated	Unresolved	X	X	-	-	X
Medications administered in clinic, including recurring injectable medications administered once, did not appear on medication lists, creating a patient safety issue.	Substantiated	Unresolved	X	X	-	-	-
Medication lists were not patient-friendly.	Substantiated	Unresolved	X	-	-	-	X

Source: OIG analysis.

* Status of issue reflects the time frame from late January through early June 2021.

Table D.2. Summary Table of Substantiated Care Coordination Inspection Allegations

Allegations	Status		Underlying Factors (X signifies an association of the substantiated allegations to the identified underlying factor; - signifies no association was identified)				
	OIG Determination	Status	EHR Usability Problems	Training Deficits	Interoperability Challenges	Post Go-Live Fix and Refinement Needs	Problem Resolution Process Deficiencies
Patient Record Flags							
Patient Record Flags used to alert staff to patients at high risk for suicide and disruptive behavior did not transfer to the new EHR system, placing patients and staff at increased risk.	Substantiated	Resolved	-	-	-	X	-
The way patient record flags displayed or failed to display in parts of the new EHR system raised safety concerns.	Substantiated	Unresolved	X	-	-	-	-
Staff had limited access to suicide prevention, risk assessment and reporting tools in the new EHR.	Substantiated	Resolved	X	-	-	X	-
Gaps existed in interoperability between the new EHR system and established VHA tools that facilitated tracking and monitoring of patients at high risk for suicide.	Substantiated	Resolved	X	-	X	X	-

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Allegations	Status		Underlying Factors (X signifies an association of the substantiated allegations to the identified underlying factor; - signifies no association was identified)				
	OIG Determination	Status	EHR Usability Problems	Training Deficits	Interoperability Challenges	Post Go-Live Fix and Refinement Needs	Problem Resolution Process Deficiencies
Deficits in interoperability with the new EHR system resulted in inaccurate patient record flag data displayed in the legacy EHR system still in use at other VHA sites.	Substantiated	Resolved	-	-	X	X	-
Facility data reported to the national high-risk dashboard for patients with active High Risk for Suicide patient record flags had been inconsistent since the facility transitioned to the new EHR system.	Substantiated	Unresolved	X	X	X	-	-
Data Migration							
Deficiencies in the data migration process caused incorrect names, genders, and contact information in the new EHR system for some patients.	Substantiated	Unresolved	-	-	X	-	X
Scheduling							
EHR issues caused delays in scheduling primary care appointments.	Substantiated	Unresolved	X	X	-	X	-

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Allegations	Status		Underlying Factors (X signifies an association of the substantiated allegations to the identified underlying factor; - signifies no association was identified)				
	OIG Determination	Status	EHR Usability Problems	Training Deficits	Interoperability Challenges	Post Go-Live Fix and Refinement Needs	Problem Resolution Process Deficiencies
Appointments for return to clinic visits showed as general clinic appointments and did not contain information to show which provider or specialty area within a service the patient was scheduled to see.	Substantiated	Unresolved	X	-	-	-	-
Appointment reminders were inadequate and did not provide locations for appointments.	Substantiated	Unresolved	X	-	-	-	-
Appointment reminders did not specify when appointments were telephone visits rather than in-person appointments, resulting in patients presenting in person for telephone appointments.	Substantiated	Unresolved	-	-	-	X	-
Problems with the configuration of the new self-scheduling tool, accessible in the patient portal, resulted in facility patients located in Washington state, inadvertently self-scheduling appointments at a VHA site in Ohio.	Substantiated	Resolved	X	-	-	-	-

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Allegations	Status		Underlying Factors (X signifies an association of the substantiated allegations to the identified underlying factor; - signifies no association was identified)				
	OIG Determination	Status	EHR Usability Problems	Training Deficits	Interoperability Challenges	Post Go-Live Fix and Refinement Needs	Problem Resolution Process Deficiencies
VA Video Connect							
Many VA Video Connect appointments did not work correctly following the new EHR implementation. VA Video Connect appointments were not getting completed because the links were not working.	Substantiated	Resolved	-	-	X	X	-
Incorrect personal contact information caused misdirection of links used to access VA Video Connect appointments. VA Video Connect appointment links were sent to incorrect, outdated email addresses without any follow-up notice to the provider to alert the provider that the email addresses were invalid.	Substantiated	Unresolved	-	-	X	-	X
Since implementing the new EHR system, VA Video Connect appointments were often scheduled in the wrong time zones.	Substantiated	Resolved	-	-	-	X	-

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Allegations	Status		Underlying Factors (X signifies an association of the substantiated allegations to the identified underlying factor; - signifies no association was identified)				
	OIG Determination	Status	EHR Usability Problems	Training Deficits	Interoperability Challenges	Post Go-Live Fix and Refinement Needs	Problem Resolution Process Deficiencies
Referral Management							
Referrals were being lost or not addressed because of difficulties in the referral management processes in the new EHR system.	Substantiated	Unresolved	X	X	X	X	-
Due to concerns about the referral process not working consistently and the inability to track referrals in the new EHR, staff sent messages through Message Center and encrypted emails after submitting referrals to ensure that referrals were seen by the receiving service.	Substantiated	Unresolved	X	X	-	-	-
Deficits in the new EHR resulted in difficulties placing referrals between different programs in the same service, which could affect care coordination and result in lapses in care.	Substantiated	Unresolved	X	-	-	-	X

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Allegations	Status		Underlying Factors (X signifies an association of the substantiated allegations to the identified underlying factor; - signifies no association was identified)				
	OIG Determination	Status	EHR Usability Problems	Training Deficits	Interoperability Challenges	Post Go-Live Fix and Refinement Needs	Problem Resolution Process Deficiencies
Laboratory Orders							
Some laboratory orders were “disappearing” and never reached the facility laboratory.	Substantiated	Unresolved	X	X	-	X	-
Laboratory orders were “disappearing” from the providers’ view at times, affecting coordination of care, as providers were unable to tell what had been ordered and if there was duplication in orders from other providers.	Substantiated	Unresolved	X	X	-	-	-
Receipt of lab results were delayed.	Substantiated	Undetermined	-	X	-	X	-
Patient Portal & Secure Messaging							
Veterans were unable to access the patient portal and use secure messaging to contact their care teams in the new EHR system.	Substantiated	Unresolved	X	-	X	X	-

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VAMC in Spokane, WA

Allegations	Status		Underlying Factors (X signifies an association of the substantiated allegations to the identified underlying factor; - signifies no association was identified)				
	OIG Determination	Status	EHR Usability Problems	Training Deficits	Interoperability Challenges	Post Go-Live Fix and Refinement Needs	Problem Resolution Process Deficiencies
Documentation Processes							
The process for using FINs in the new EHR for documentation occurring between visits created additional work for providers, reduced efficiency, and increased opportunities for documentation errors.	Substantiated	Unresolved	X	X	-	-	-
Many ICD-10 diagnostic codes were not available in the EHR, affecting providers' ability to correctly code patient diagnoses.	Substantiated	Unresolved	-	-	-	X	X
Staff were unable to view patients' service-connected conditions in the new EHR system, affecting providers' ability to document care as related to specific service-connected conditions.	Substantiated	Unresolved	X	-	-	X	-

Source: OIG analysis.

* Status of issue reflects the time frame from late January through early June 2021.

Appendix E: Deputy Secretary Memorandum

Department of Veterans Affairs Memorandum

Date: March 1, 2022

From: Deputy Secretary (001)

Subj: Healthcare Inspection—Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington (Project Number 21-00781-HI-1224) (VIEWS 6814551)

To: Assistant Inspector General for Healthcare Inspections (54)

1. Thank you for the opportunity to review the Department of Veterans Affairs (VA) Office of Inspector General (OIG) draft report “Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at Mann-Grandstaff VA Medical Center in Spokane, Washington.” The report contains three recommendations for the Deputy Secretary.
2. I concur with the recommendations in this report. I have included as an attachment to this memorandum a technical comment and an action plan jointly developed by the Electronic Health Record Modernization Integration Office (EHRM IO), the Veterans Health Administration and the Office of Information and Technology to address the recommendations.
3. Please contact the EHRM IO Program Executive Director with questions.

(Original signed by:)

Donald M. Remy

Attachment

OIG Response

During VA’s review of an OIG draft report, it is usual practice for VA to submit comments that may disclose information that could change OIG findings in the final report. The Deputy Secretary memo included a comment that Cerner service desk support staff have a version of the software that mirrored the facility’s end user version. The OIG considered the comment and determined no change in the report was warranted based on data and an interview with a senior VA leader during the review period that supported the challenges with replicating problems faced by end users. The OIG considers the concern unresolved pending VA’s provision of supporting evidence that Cerner service desk support staff have access to software that mirrors the facility end user version as well as the timing of the software availability.

Deputy Secretary Response

Department of Veterans Affairs
Deputy Secretary Response to VA OIG Draft Report,

Ticket Process Concerns and Underlying Factors Contributing to Deficiencies After the New Electronic Health Record Go-Live at Mann-Grandstaff VA Medical Center in Spokane, Washington

Project 21-00781-HI-1224

Recommendation 1

The Deputy Secretary completes an evaluation of the new electronic health record problem resolution processes and takes action as warranted.

VA Response: Concur.

Target Date for Completion: March 18, 2022.

Comments

The Department of Veterans Affairs (VA) will continue to evaluate the problem resolution processes cited in this report and address any issues. The Electronic Health Record Modernization Integration Office (EHRM IO), the Veterans Health Administration (VHA) and the Office of Information and Technology (OIT) are engaged in a “Get Well” plan to identify and evaluate issues with the problem resolution process and develop action plans to resolve them. Since the timeframe identified in the report (January 2021 to June 2021), EHRM IO, VHA and OIT have already coordinated to address communication deficits with the ticket process: bi-directional communication between the Cerner and VA ticketing systems has been expanded to include change requests to provide visibility throughout the process. In addition, a capability has been added that converts tickets reported as incidents into change requests to ensure they go through the correct resolution process.

Recommendation 2

The Deputy Secretary completes an evaluation of the underlying factors of substantiated allegations identified in this report and takes action as warranted.

VA Response: Concur.

Target Date for Completion: May 10, 2022.

Comments

VA will evaluate the underlying factors identified in this report and bring them to satisfactory resolution. EHRM-IO, VHA and OIT are engaged in a “Get Well” plan to evaluate these issues and develop action plans to resolve them. Since the timeframe identified in the report (January 2021 to June 2021), EHRM IO, VHA and OIT have already coordinated to address one of the five underlying factors cited in this report:

Factor: Interoperability Challenges.

Allegation: Interoperability between the new EHR and established reporting tools.

Resolution: Cerner's proprietary data model and health record data architecture is structured substantially different than VA's current model. VA's data analysis experts determined that they needed VA patient data generated after go-live of the new Electronic Health Record (EHR) to understand how to best incorporate it into VA's existing reports. Nightly syndication of EHR data to VA began 10 days after go-live and, as planned, VA's subject matter experts worked with the data to incorporate it into VA's reports. As of December 13, 2021, over 80% of the 1,206 reports identified by VHA have been completed. In addition, the following systems are using syndicated data:

- STORM—Improves opioid safety.
- ReachVet—Identifies elevated risk for suicide and other adverse outcomes.
- VSignals Outpatient Surveys—Provides feedback for process improvement.

Recommendation 3

The Deputy Secretary ensures the electronic health record modernization deployment schedule reflects resolution of the allegations and concerns discussed in this report.

VA Response: Concur.

Target Date for Completion: March 26, 2022.

Comments

VA will complete the evaluations of the allegations and concerns discussed in this report and will ensure that action plans to resolve any findings are incorporated in support of the deployment schedule.

Appendix F: Under Secretary for Health Memorandum

Department of Veterans Affairs Memorandum

Date: February 14, 2022

From: Deputy Under Secretary for Health (10), Performing the Delegable Duties of the Under Secretary for Health

Subj: OIG Draft Report, Healthcare Inspection – Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington (2021-00781-HI-1224) (VIEWS 6814551)

To: Office of the Assistant Inspector General for Healthcare Inspections (54)

1. Thank you for the opportunity to review and comment on the Office of Inspector General draft report Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at Mann-Grandstaff VA Medical Center in Spokane, Washington. The Veterans Health Administration concurs with the action plan developed by the Office of Electronic Health Record Modernization and is committed to supporting it.
2. Comments regarding the contents of this memorandum may be directed to the GAO OIG Accountability Liaison Office at VHA10BGOALACTION@va.gov.

(Original signed by:)

Steven L. Lieberman, M.D.

Appendix G: VISN Director Memorandum

Department of Veterans Affairs Memorandum

Date: February 1, 2022

From: Director, Northwest Network (10N20)

Subj: Healthcare Inspection— Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington

To: Under Secretary for Health (10)

1. VISN 20 acknowledges receipt of the report and appreciates the review completed by the VA Office of Inspector General.
2. In review of the report, we note that there were no recommendations for the Mann-Grandstaff VA Medical Center or VISN 20 Office. VISN 20 remains committed to a safe implementation of the new electronic health record (EHR) and will support actions to effectively address the recommendations.
3. VISN 20 appreciates the ongoing dedication of the Mann-Grandstaff VA Medical Center staff to Veterans throughout the activation of the new EHR.

(Original signed by:)

Teresa D. Boyd, DO

Appendix H: Facility Director Memorandum

Department of Veterans Affairs Memorandum

Date: February 1, 2022

From: Director, Mann-Grandstaff VAMC (668/00)

Subj: Healthcare Inspection— Ticket Process Concerns and Underlying Factors Contributing to Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington

To: Director, Northwest Network (10N20)

1. The Mann-Grandstaff VA Medical Center acknowledges receipt of the report and appreciates the review completed by the VA Office of Inspector General.
2. In review of the report, we note that there were no recommendations for the Mann-Grandstaff VA Medical Center.
3. Mann-Grandstaff VA Medical Center remains committed to a safe implementation of the new electronic health record (EHR) and will support actions to effectively address the recommendations.

(Original signed by:)

Robert J. Fischer, MD

OIG Contact and Staff Acknowledgments

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