STATEMENT OF DEPUTY INSPECTOR GENERAL DAVID CASE
OFFICE OF INSPECTOR GENERAL, DEPARTMENT OF VETERANS AFFAIRS
BEFORE THE
SUBCOMMITTEE ON MILITARY CONSTRUCTION, VETERANS AFFAIRS,
AND RELATED AGENCIES,
U.S. SENATE COMMITTEE ON APPROPRIATIONS
HEARING ON
VA'S ELECTRONIC HEALTH RECORD MODERNIZATION:
AN UPDATE ON ROLLOUT, COST, AND SCHEDULE
September 21, 2022

Chairman Heinrich, Ranking Member Boozman, and Subcommittee members, thank you for the opportunity to discuss the Office of Inspector General's (OIG) oversight of the Department of Veterans Affairs' electronic health record modernization (EHRM) program. The OIG recognizes the enormity and complexity of converting VA's electronic health record (EHR) system for millions of veterans receiving VA care and acknowledges the significant work and commitment of VA staff to accomplish this task. Over the more than two years that OIG staff have been engaging with employees at the first deployment site—the Mann-Grandstaff VA Medical Center (VAMC) in Spokane, Washington—and other VA locations using the new EHR, oversight teams have observed VA employees' unwavering commitment to this transition while prioritizing the care of patients during the COVID-19 pandemic. Facility staff challenges have been exacerbated, however, by the lack of prompt remediation of problems that the OIG and others have identified in numerous oversight reports published since April 2020.

The OIG has published 14 reports addressing the EHRM program and system implementation between April 2020 and this hearing with a total of 68 recommendations. Though this statement does not detail all of these reports and their findings, a comprehensive list of recommendations has been included in the appendixes. Each oversight report is meant to help VA improve the new system's implementation and support the provision of prompt, quality health care for veterans. Failure to satisfactorily complete the corrective actions associated with these recommendations can increase risks to patient safety and the ability to provide high-caliber care as the new EHR system rolls out nationwide. Fully addressing oversight recommendations can help minimize considerable cost escalations and delays in future site deployments as well. The OIG is therefore concerned about the five recommendations that have been open (not implemented or fully addressed) for longer than two years—with 21 total recommendations open for more than one year. While the OIG follows up with VA on open recommendations every 90

days, VA program officials can submit evidence of sustained progress or satisfaction of corrective actions at any time to facilitate closing recommendations.

As detailed in this statement, OIG staff have found VA did not complete timely critical infrastructure upgrades for the initial rollout and provided unreliable and incomplete estimates on infrastructure upgrade costs, has not adequately prepared for the rollouts (including realistic scheduling and effective user training), failed to be fully transparent, and stove-piped governance with decision-making that has not appropriately engaged Veterans Health Administration (VHA) end users of the new EHR system. Many of these issues are still of concern to the OIG, as evidenced by the number of open recommendations.

This testimony highlights those OIG reports with findings that illustrate three broad categories of concern: (1) IT and physical infrastructure deficiencies and unreliable cost estimates for addressing them, (2) readiness concerns that include the lack of a comprehensive master schedule and ineffective training that was not transparently reported, and (3) implementation issues that affect patient care and safety as well as concerns with remediation and mitigation strategies.

INFRASTRUCTURE DEFICIENCIES AND UNRELIABLE COST ESTIMATES

The OIG's oversight in April 2020 focused on VA's preparation for the system's initial deployment at the Mann-Grandstaff VAMC and the condition of VA's physical and information technology (IT) infrastructure prior to system deployment. Two 2021 reports (published in May and July) resulted from audits that examined cost estimates for needed physical and IT-related infrastructure upgrades nationwide. For the new EHR system to operate as intended, VHA facilities need these infrastructure upgrades, but they are generally funded from different sources. Because the life-cycle cost estimates for infrastructure upgrades did not account for costs from all VA components' budgets, some estimated costs were not included in mandated reports to Congress. Transparent and reliable cost estimates are critical for Congress to make informed budgeting decisions. VA senior leaders also depend on these cost estimates to plan program budgets, approve acquisitions, and monitor program execution. The OIG determined the existing physical and IT infrastructure was inadequate for the new system at initial deployment sites, and pertinent life-cycle cost estimates for infrastructure upgrades were unreliable and likely underreported by approximately $5 billion. These two reports recommended that VA obtain an independent cost estimate for the EHR program's life-cycle costs, which the VA is obtaining from the Institute for Defense Analyses. The OIG has been briefed on the draft and will review the final report's methodology, findings, and estimates before determining how they relate to outstanding recommendations.

The 2020 OIG report focused on the gaps in VA's efforts to update the Mann-Grandstaff VAMC's physical and information technology (IT) infrastructure to support the new system.[1] The OIG found that VA did not meet its own timelines to complete critical physical and IT infrastructure upgrades at the facility. The problems with planning identified in this report were shown in greater detail in the 2021 OIG reports that found deficient and unreliable physical and IT infrastructure cost estimates. Many of the recommendations to resolve these issues remain open.

Deficiencies in Infrastructure Readiness for Deploying VA's New Electronic Health Record System (April 2020)

To deliver patient care using the new EHR system, significant upgrades are needed to VA's physical and IT infrastructure.[2] The OIG audited VA's infrastructure readiness activities at the Mann-Grandstaff VAMC in anticipation of the initial March 2020 go-live date. In 2019, then Office of Electronic Health Record Modernization (OEHRM) leaders testified before the House of Representatives that having infrastructure in place six months before deploying the Cerner system was a program goal to help ensure smooth deployment, but the OIG found they had not been completed at the facility even five months prior to the March 2020 go-live.[3] In fact, the OIG found some infrastructure upgrades intended to mitigate diminished system performance were not projected to be completed until months after going live. In sum, VA committed to an aggressive, but apparently unrealistic, deployment date of March 2020 without having the necessary information about the facility's infrastructure.

The OIG made seven recommendations for corrective action to the then executive director of OEHRM, and an eighth recommendation to the Mann-Grandstaff VAMC director. These recommendations, of which two remain open as not implemented, can be found in appendix A of this statement. Given the time elapsed since this report's publication, it is concerning that one of the open recommendations calls on OEHRM to evaluate physical infrastructure for consistency with its program's requirements and monitor those evaluations.

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[1] "Physical infrastructure" refers to the underlying foundation that supports the system, such as electrical; cabling; and heating, ventilation, and air-conditioning. "IT infrastructure" includes network components such as wide and local area networks, end-user devices (e.g., desktop and laptop computers, and monitors), and medical devices.

[2] VA OIG, *Deficiencies in Infrastructure Readiness for Deploying VA's New Electronic Health Record System*, April 27, 2020.

[3] In 2021, VA transitioned EHRM program management from the Office of Electronic Health Record Modernization (OEHRM) to the EHRM Integration Office (EHRM IO). EHRM IO now has responsibility for all recommendations assigned to OEHRM. Cerner Corporation was acquired by Oracle Corporation on June 7, 2022; this statement will refer to the entity as "Cerner," as it was referred to at the time of the reviews discussed in this statement.

Deficiencies in Reporting Reliable Physical Infrastructure Cost Estimates for the EHRM Program (May 2021)

This audit was conducted to determine if VA developed and reported reliable physical infrastructure upgrade cost estimates for the new EHR system.[4] As discussed previously, VHA medical facilities need significant physical infrastructure upgrades, such as electrical work, cabling, heating, ventilation, and cooling to successfully deploy the new EHR system. The audit examined whether VHA's cost estimates met VA standards and were comprehensive, well documented, accurate, and credible. It also reviewed whether OEHRM reported these cost estimates to Congress in accordance with statutory mandates.

VHA and OEHRM shared responsibilities for estimating and reporting physical infrastructure upgrade costs. VHA developed the physical infrastructure upgrade cost estimates, while OEHRM was responsible for reporting all program life-cycle cost estimates to Congress in accordance with the Veterans Benefits and Transition Act of 2018.[5] In May 2021, the Act required quarterly reporting on the EHRM program's status, including annual and life-cycle cost estimates and defined the program as any activities to procure or implement the new EHR system. In early 2019, VA's Office of General Counsel determined that physical infrastructure upgrades must be funded from accounts specifically available for construction-type purposes, such as VHA's nonrecurring maintenance and minor construction funds.

VHA Cost Estimates for Physical Infrastructure Upgrades Needed in Support of the EHRM Program Were Not Reliable

The OIG found VHA's cost estimates were not reliable under VA standards and Government Accountability Office (GAO) guidance.[6] These standards and guidance state that cost estimates should be comprehensive, well documented, accurate, and credible. However, neither of VHA's formal cost estimates for physical infrastructure, dated June 2019 ($2.7 billion) and November 2019 ($1.1 billion), fully met these criteria, and thus could be significantly understated. In addition, VA lacked effective quality controls and procedures to evaluate the estimates and had conducted insufficient planning from the start.

1. Cost Estimates Were Not Comprehensive

Comprehensive cost estimates provide officials with reasonable assurance that all costs are included so they can make well-informed decisions. VHA's November 2019 estimate, totaling about $1.1 billion for physical infrastructure upgrades nationally, only reflected about 25 percent of nationwide cabling costs,

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[4] VA OIG, *Deficiencies in Reporting Reliable Physical Infrastructure Cost Estimates for the Electronic Health Record Modernization Program*, May 25, 2021.

[5] The law was signed on December 31, 2018, and it became Public Law 115-407.

[6] VA Cost Estimating Guide, ver. 2.2, August 17, 2016; GAO, Cost Estimating and Assessment Guide, GAO-20-195G, March 2020.

understating the costs by at least $481 million. Also, the June and November 2019 estimates omitted estimated costs of upgrades paid with minor construction funds.

2. *Cost Estimates Were Not Well Documented*

Sufficient documentation supports an estimate's validity and provides an audit trail allowing the estimate to be easily recreated and updated. Both June and November estimates lacked evidence they were approved by senior leaders, and they did not have enough detail to allow an independent party to trace the costs or determine if costs were double-counted.

3. *Cost Estimates Were Not Accurate*

Neither cost estimate met the standard for accuracy—that is, free of mathematical errors and not overly conservative or optimistic. The June 2019 estimate had errors omitting about $90 million of fiscal year (FY) 2021 construction design costs. The November 2019 estimate omitted escalation costs for upgrades expected to take place in future years and did not include the cost of completely upgrading the cabling required at VHA facilities nationwide.

4. *Cost Estimates Were Not Credible*

Credible cost estimates identify limitations of the data and assumptions and are to be measured against independent or third-party cost estimates. Both estimates lacked a risk and uncertainty analysis, which is used to disclose the likelihood actual costs may differ from estimated costs. VHA did not conduct this type of analysis because VA did not have accurate assessments of what infrastructure upgrades were needed at its facilities. Both estimates also lacked a sensitivity analysis, which is used to explain how much impact each cost factor has on the overall estimate. Both cost estimates were also not compared to a third-party cost estimate, a best practice in validating the reliability and reasonableness of cost estimates. Using the planned and obligated costs at VA's three planned initial operating capability sites, the OIG team statistically projected program-wide physical infrastructure costs to be between approximately $3.1 and $3.7 billion.[7] Notably, VHA's June 2020 estimate projects physical infrastructure upgrade costs to be about $3.1 billion, consistent with the OIG team's low-end projection.

5. *Lack of Effective Quality Controls and Procedures to Evaluate Estimates*

Deficient quality controls contributed to the unreliability of both cost estimates. Independent cost estimates—a control used to validate the data and determine the reasonableness of a VA estimate—are required by VA policy to be performed on all major IT programs, but an independent cost estimate was not performed on either estimate.

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[7] The three facilities were the Seattle, American Lake, and Mann-Grandstaff VAMCs, all located in Washington State.

6. Insufficient Planning at the Program's Start

Consistent with findings from the April 2020 OIG report, the audit team found neither OEHRM nor VHA knew the true state of infrastructure at facilities at the time the Cerner contract was signed, and, when this audit was completed in March 2021, VHA was still identifying necessary infrastructure upgrades. As of January 2021, infrastructure requirements continue to be defined, making it difficult for VHA to identify gaps in infrastructure and estimate related costs.

OEHRM Did Not Include Cost Estimates for Upgrading Physical Infrastructure in Reports to Congress

The OIG found that OEHRM did not include the cost of physical infrastructure upgrades in quarterly reports to Congress, which are intended to meet the program's requirements under the Veterans Benefits and Transition Act.[8] This is significant, as it understated the program's cost in reports submitted to Congress. The reports gave the impression that these costs were included because seven of the eight reports said that infrastructure costs include "physical infrastructure at VA medical centers and other sites." To the contrary, these reports did not include the $2.7 billion for physical infrastructure upgrades as identified in the June 2019 estimate OEHRM received from VHA. OEHRM said it did not disclose these estimates because the upgrades were outside its funding responsibility, but this is contrary to the explicit requirements of statute and to VA and GAO guidance that a life-cycle cost estimate include all costs, regardless of source.[9] The VA Electronic Health Record Transparency Act of 2021 modified VA's reporting requirement to mandate the inclusion of costs expended by any VA element.[10]

The OIG made five recommendations to VA, which can be found in appendix B. Three of the recommendations, which pertain to the need for an independent cost estimate of the program's life cycle and ensuring transparency in reporting costs to Congress, remain open. As previously mentioned, the OIG has been briefed by the Institute for Defense Analyses on their draft independent cost estimate and looks forward to receiving the final report for review.

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[8] OEHRM produced its ninth report after the OIG report was drafted and did not include physical infrastructure upgrade costs in that document.

[9] The Veterans Benefits and Transition Act of 2018 defines the EHRM program as "any activities … to procure or implement an electronic health or medical record system to replace" the existing electronic health record system and "any contracts or agreements entered into by [VA] to carry out, support, or analyze" these activities. Because physical infrastructure upgrades are necessary for system implementation, those costs should be included in life-cycle cost estimates under the statute's plain language.

[10] The law was signed on June 23, 2022 and became Public Law 117-154.

Unreliable IT Infrastructure Cost Estimates for the EHRM Program (July 2021)

Of EHRM's estimated $16.1 billion total program cost from 2021, VA estimated about $4.3 billion would be directed for IT infrastructure upgrades.[11] This audit examined whether OEHRM-developed cost estimates were well-documented, comprehensive, credible, and accurate, and whether OEHRM reported to Congress all IT infrastructure upgrade costs, including future technology updates.[12]

IT Infrastructure Upgrade Cost Estimates Were Not Reliable but Improvements Have Been Made

As discussed previously, reliable estimates should be well-documented, comprehensive, credible, and accurate. The audit team evaluated two estimates OEHRM provided to Congress dated December 2018 and August 2020—each estimating about $4.3 billion for the IT infrastructure upgrades. Neither met the reliability criteria, and the OIG could not evaluate their accuracy because they lacked documentation to support many of the calculations. Like the physical infrastructure cost audit, VA did not complete an independent cost estimate, which could have revealed the OIG-identified issues sooner.

In January 2021, in part due to discussions with the audit team, OEHRM began developing procedures that align with cost-estimating guidance and include controls to help address the issues identified in the OIG report. During the audit, the team noted that VA also began making improvements to the cost model used to develop the estimate, facilitating more detailed support.

IT Infrastructure Costs Were Omitted and Not Updated for Accuracy

The OIG found OEHRM did not include costs for critical program-related IT infrastructure upgrades in the estimates reported to Congress, effectively underreporting program cost estimates by nearly $2.5 billion. The $2.5 billion is for IT infrastructure upgrades that VA's Office of Information and Technology (OIT) and VHA are expected to fund.[13] Like the physical infrastructure costs, OEHRM officials stated they felt the omitted costs were outside their scope of responsibility, but neither OIT nor VHA reported these costs to Congress, despite VA and GAO guidance requiring life-cycle cost estimates to include all costs, regardless of source. The costs should have been disclosed by OEHRM. VA did make changes to projected costs starting in the November 2021 report to Congress, but because VA was still developing the independent cost estimate, there was no certainty the updates were reliable.

Without all critical IT infrastructure upgrade costs accurately presented, Congress lacks the comprehensive picture of total program costs needed to make informed oversight and investment

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[11] VA OIG, *Unreliable Information Technology Infrastructure Cost Estimates for the Electronic Health Record Modernization Program*, July 7, 2021.

[12] Technology refreshment is the process of replacing certain infrastructure on a regular schedule, instead of using the systems or devices until they can no longer function. For example, devices like laptops are replaced every four years.

[13] OIT is expected to fund some upgrades for the local area network, end-user devices, phones, and Wi-Fi, while VHA is expected to fund upgrades mostly for medical devices.

decisions. As mentioned previously, VA's reporting requirements have been updated by the VA Electronic Health Record Transparency Act of 2021.

All six recommendations to the executive director of OEHRM are listed in appendix C and remain open. The recommendations relate to obtaining independent cost estimates for IT infrastructure, ensuring the costs are estimated in line with VA policy, maintaining full and complete accounting for the costs, and ensuring complete and updated transparency of the costs with Congress.

LACK OF READINESS EXHIBITED BY NO INTEGRATED MASTER SCHEDULE AND INEFFECTIVE TRAINING

Exploring program costs and projections further, the OIG reported in April 2022 that VA had not executed a reliable, comprehensive schedule for system implementation. This could result in schedule delays and leave VA vulnerable to billions of dollars in cost overruns. Without that schedule, Congress and the public cannot rely on VA timeline projections for completing the work or be assured that the program will be completed within budget.

The OIG also examined the flawed implementation at Mann-Grandstaff VAMC that was brought on by inadequate planning. Deficiencies the OIG detected at Mann-Grandstaff VAMC in April 2020 revealed the need for prompt corrective measures as additional facilities were switching to the new EHR system. Yet many issues remained unresolved prior to deployment, particularly problems identified in the OIG's July 2021 report on the development, delivery, and assessment of staff training and proficiency.

The EHRM Program Did Not Fully Meet the Standards for a High-Quality, Reliable Schedule (April 2022 Report)

To implement the program successfully and within budget, it is imperative that VA develop a reliable integrated master schedule (IMS).[14] GAO guidance, which OEHRM adopted, states that a high-quality, reliable schedule should be comprehensive, credible, well-constructed, and controlled. The IMS is designed to cover the entire required scope of work—of both government staff and contractors—needed to complete the program. VA should use it as a road map to monitor progress, complete the work, identify potential problems and track their resolution, and promote accountability. While not every task for a 10-year project can be accounted for early on, strategies exist to create a tailorable, comprehensive schedule to minimize the risk of delays, dropped activities (some of which are prerequisites for others), and budget overruns. While VA may have received a draft independent cost estimate for the program since the OIG's two audits, without a reliable IMS, the developed cost estimates' accuracy are at risk because they are inextricably linked to the schedule of activities VA that needs to complete.

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[14] VA OIG, *The Electronic Health Record Modernization Program Did Not Fully Meet the Standards for a High-Quality, Reliable Schedule*, April 25, 2022.

VA Did Not Have a High-Quality, Reliable IMS

The OIG found that neither the overall IMS nor five of its underlying individual project schedules fully met GAO standards adopted by OEHRM for a high-quality, reliable schedule. VA failed to meet all aspects of the following scheduling standards:

- **Comprehensive.** The IMS should reflect the entire scope of program work in some level of detail. However, the OIG determined that the IMS did not capture all work for the program's duration and was missing VHA and OIT activities.

- **Credible.** A credible IMS should include a complete schedule risk analysis, which can give a level of confidence in meeting a program's completion date. However, OEHRM did not do this.

- **Well-constructed.** A "critical path" determines the earliest date a program can be completed to help managers examine the effects of activity slippages, but no overall IMS critical path was created.

- **Controlled.** A controlled IMS should include a baseline schedule, used for managing the program and conducting trend analyses over time to assess program performance. However, OEHRM's program baseline only covered events through April 2020.

The OIG identified several root causes for OEHRM's failures:

- **Did not adequately coordinate with various offices.** VHA and OIT leaders said OEHRM did not collaborate with them, so the schedules did not include all work to be performed by these entities.

- **Did not conduct a schedule risk analysis because it lacked procedures.** Despite the importance of completing this analysis, OEHRM did not have procedures in place on when and how to conduct it.

- **Focused on near-term deployment of the system at the initial operating sites.** OEHRM only required development of site-specific schedules after task orders for those sites were awarded. Applying that strategy, VA would not have a high-quality, reliable IMS until it starts deploying the system at the last sites, which are planned to go live in FY 2028.

- **Did not enforce its own scheduling standards or have tools in place to assess compliance.** While OEHRM's schedule management plan stresses compliance with GAO guidance, task orders to Cerner do not require the IMS to align with them. Additionally, OEHRM's schedule management plan requires staff to use specific software to assess whether EHRM project schedules comply with GAO standards. However, a tool was not available from March 2020 to June 2021.

- **Lacked consistent guidance on roles, resulting in confusion over the assignment of IMS development and documenting how work was broken down.** Internal planning and contract documents inconsistently assigned responsibilities for developing and maintaining the program's work breakdown structure (WBS) and the IMS. The WBS defines all work needed to complete the program. Guidance inconsistently assigned these responsibilities to VA or one of its contractors—

Booz Allen Hamilton, Inc., or Cerner, leading to confusion.[15] Cerner accepted responsibility for the WBS and, in July 2020, worked with VA to create it. While Cerner is responsible for developing the IMS, VA should ensure contract requirements are consistent with internal guidance.

- **Did not clearly define IMS contract requirements.** Cerner was contractually required to develop and maintain an IMS for the program under VA's task orders; however, the task orders did not clearly establish a timeline for when a complete IMS would be developed. Without a clear timeline, OEHRM required Cerner to develop site-specific project schedules as task orders were awarded. Following this process, future work not yet on task order would be unaccounted for in the IMS.

VA has a responsibility to ensure there is a complete IMS that meets scheduling standards. VA needs a high-quality, reliable IMS to strengthen the credibility of the program's timeline. Without one, VA can neither demonstrate how slippages will affect the overall timeline nor assure stakeholders that the reported timeline is realistic and achievable. Any schedule delays that extend the program beyond 10 years are also likely to result in billions of dollars in cost overruns. The OIG estimated the average cost per year of a schedule delay is potentially about $1.95 billion.

For this report, the OIG made six recommendations, found in appendix D, and all are open.

Training Deficiencies for VA's New EHR System at the Mann-Grandstaff VAMC (July 2021 Report)

The OIG reviewed the training given to Mann-Grandstaff VAMC staff.[16] Problems were identified similar to those found by Department of Defense (DoD) for training on the new EHR system. Even before deployment, the healthcare inspection team identified governance challenges as VHA did not have a defined role in decision-making or oversight related to training activities. In reviewing the training, the OIG found training content, delivery, and assessment failures.

The inspection team reviewed the training content on the software and the more than 900 new workflows. New workflows result in changes to how end users perform their jobs, such as scheduling consults (referrals) or how a provider performs an exam. The OIG found the classroom training and supplemental material were insufficient. Facility leaders and staff told the OIG that training did not prepare them for going live with the new system, teach them how to apply what they learned to their work, or explain the meaning behind the process of which buttons to push ("buttonology").

The OIG identified four aspects of training delivery that may have negatively affected the new EHR system's use: (1) insufficient time for training, (2) limitations with the training domain (a close facsimile for users' practice), (3) challenges with user role assignments (these dictate the capabilities on which an

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[15] Booz Allen Hamilton, Inc. staff support EHRM activities. Their work included gathering input from VA administrations or offices to develop schedules for VA activities.

[16] VA OIG, *Training Deficiencies with VA's New Electronic Health Record System at the Mann-Grandstaff VA Medical Center in Spokane, Washington*, July 8, 2021.

employee is trained), and (4) gaps in training support. Facility leaders and staff raised concerns with Cerner classroom trainers, including their lack of clinical knowledge, EHR expertise, and an inability to address questions.

Finally, the OIG found OEHRM failed to effectively evaluate the training. The OIG conducted a follow-up administrative investigation into the inaccurate and incomplete data OEHRM provided about trainees' post-training tests after OIG staff requested "any and all data" from the training evaluation plan that OEHRM's Change Management leaders submitted.[17] While the investigation did not find that the two Change Management leaders intentionally sought to mislead OIG healthcare inspectors, their lack of due care and diligence resulted in inaccurate information being submitted to OIG staff. Most concerning, the Change Management's then executive director and the director for training strategy did not disclose they removed some data from consideration or that they questioned data reliability. They delayed production of underlying proficiency check data and instead provided one slide with three summary statistics containing significant errors that resulted in doubling the reported trainee proficiency check pass rate from 44 to 89 percent. In addition, officials admitted the evaluation plan was actually "immature" and "in its infancy" and was not implemented, contrary to the evaluation plan submitted to the OIG that showed training was being assessed immediately after it was completed by employees.

Had the OIG relied on the information provided, Congress and the public would have been misled as to how trainees had performed in the tests. The culture of accountability the Secretary and Deputy Secretary are promoting by mandating training on engaging with the OIG and other measures is critical; however, this investigation underscores the need for leaders overseeing the EHRM program to reinforce those values and the requirement for timeliness, completeness, and accuracy in all responses to OIG requests for information. The OIG made four recommendations, found in appendix E, and one remains open.[18]

The OIG made 11 recommendations in the July 2021 report to improve the training program, which can be found in appendix F, and seven are still open.

New Patient Scheduling System Needs Improvement as VA Expands Its Implementation (November 2021 Report)

This report assessed the implementation of the EHR system's patient scheduling component at the Columbus clinic and Mann-Grandstaff VAMC.[19] The OIG found VHA and OEHRM did not fully resolve known significant limitations in the scheduling system, leading to reduced effectiveness and

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[17] VA OIG, *Senior Staff Gave Inaccurate Information to OIG Reviewers of Electronic Health Record Training*, July 14, 2022.

[18] Two of the recommendations ask VA to examine if administrative action should be taken concerning the conduct or performance of the senior leaders. As an independent oversight authority, the OIG cannot mandate administrative action or dictate a specific outcome.

[19] VA OIG, *New Patient Scheduling System Needs Improvement as VA Expands Its Implementation*, November 10, 2021.

increased risk of patient care delays. The problems identified in this report have persisted through the OIG's 2022 reports, such as schedulers developing work-arounds for unresolved issues and problematic data migrated from legacy systems. OEHRM leaders did not provide scheduling staff with adequate chances to identify limitations in the new scheduling system before implementation, nor did leaders assess Cerner's compliance with contract terms for handling trouble tickets submitted by users. OEHRM leaders were aware of the system's issues before and after Columbus's implementation, but the issues were not resolved even in late 2021. That said, VHA staff told the OIG that the new system should help greatly, and schedulers reported positive experiences. For example, schedulers said the new system was more user-friendly than the legacy system, making video visits easier to schedule, among other upgrades. The OIG made eight recommendations, found in appendix G, and all remain open.

IMPLEMENTATION DEFICIENCIES AND THE LACK OF REMEDIATION

The OIG has sustained a strong focus on the patient safety aspects of the EHRM program, starting with its April 2020 report that reviewed VA's readiness to "go live" at the initial site and the potential impact of the transition on patients' access to high-quality care. The findings include that the Mann-Grandstaff VAMC lacked adequate staffing and formal, written guidance to navigate the transition's strains. The OIG also found that the risk mitigations facility leaders would employ during the planned go-live period were inadequate to address the gaps in the new EHR system capabilities and presented a potential yet significant risk to patient safety.

In 2022, the OIG published a series of reports that examined a range of user and veteran concerns with inadequate planning and implementation, which if left unremedied could pose patient safety risks and additional instances of harm in future rollouts. Three OIG reports released in March 2022 identified EHRM issues connected to medication management, care coordination, and the ticketing process used by Mann-Grandstaff VAMC providers to request help and resolve problems.

Finally, in July 2022, the OIG determined that the new EHR system directed thousands of medical orders to an "unknown queue" that were not evident to the clinical and administrative staff required to address them. The OIG also found that VHA determined the unknown queue created significant risk and caused harm to multiple patients. As recently as June 2022, hundreds of orders remained in the unknown queue across VA sites implementing the new system.

Review of Access to Care and Capabilities during VA's Transition to a New Electronic Health Record at the Mann-Grandstaff VA Medical Center (April 2020)

VA expected a productivity drop associated with the facility's preparations for going live with the new EHR system.[20] Mann-Grandstaff VAMC leaders consulted with DoD staff, who transitioned to the Cerner system in 2017 and experienced a 30-percent decrease in productivity for the subsequent

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[20] 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*, April 27, 2020.

18 months. VA had plans to mitigate the impact on facility personnel for the March 2020 go-live event, including adding facility staff, enhancing clinical space, changing clinic processes, and a greater use of community care. At publication, however, the OIG did not find evidence of VA providing final guidance to Mann-Grandstaff VAMC leaders on carrying out these plans.

Some of the problems that emerged were foreseeable. OEHRM and Cerner determined in July 2019 that not all anticipated capabilities of the new EHR would be available for the March 2020 go-live date. Mann-Grandstaff VAMC leaders and staff told the OIG of concerns related to the deployment of limited capability sets that led to significant gaps in functionality. For example, the MyHealtheVet portal was the most frequently used method for patients to request prescription refills, but it would not be connected to the new EHR.[21] Facility leaders and staff told the OIG of safety concerns related to losing access to the MyHealtheVet electronic refill portal. The OIG was unable to determine all potential patient safety risks associated with the new EHR, but the work-around for the electronic prescription refill process alone presented significant concerns as it could have impacted a patient's ability to fill a life-sustaining medication after go-live. Follow-on work, discussed later in this statement, conducted by the OIG after Mann-Grandstaff VAMC began using the new EHR system, validated numerous of these medication management and prescription delivery services.

The OIG made eight recommendations, of which three remain open. The three that remain open call for VA to evaluate the impact of the new EHR implementation on productivity and provide operational guidance to facilities on mitigating the impact of the transition and any undeveloped aspects of the software on users and patients. The recommendations' text and status can be found in appendix H.

A trilogy of reports released in March 2022 responded to many complaints submitted to the OIG hotline and requests from congressional offices following the new EHR's deployment at the Mann-Grandstaff VAMC. OIG healthcare inspections staff began work on two efforts to address several priority concerns—medication management and patient care coordination. During this work, the OIG team identified further challenges with the trouble ticketing process for system users to submit concerns or requests for help, and the OIG team determined that some previously identified deficiencies were still unresolved. Consequently, the healthcare oversight team started a third effort to examine why problems were not addressed and to highlight the underlying causal factors. When VA responded to the three reports in early March 2022—nearly 18 months after going live in October 2020—VA actions to resolve

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[21] My HealtheVet, Get to Know Rx Refill Options, https://www.myhealth.va.gov/mhv-portal-web/ss20180423-prescription-refill-options-for-veterans. (The website was accessed on July 6, 2021.) MyHealtheVet is an online personal health portal patients can access to schedule appointments, view medical records, refill prescriptions, and send secure messages to their care providers.

issues were limited. The OIG identified 46 issues that were unresolved after the OIG completed its inspection in June 2021, but only seven were resolved as of March 2022. [22]

Medication Management Deficiencies after the New EHR Go-Live at the Mann-Grandstaff VAMC (March 2022 Report)

EHRs can improve clinical decision-making and minimize human error, but the risk of patient harm increases when systems have poor usability, workflows, or data inputs. The first in the trilogy of healthcare inspections focused on medication management for patients subject to the new EHR at Mann-Grandstaff VAMC.[23] This included tracking and managing lists of medication, ordering, and promptly getting them to patients. Ensuring patients receive the correct medication in a timely manner is critical, given many patients are older with numerous medical conditions treated with multiple medications.

The OIG grouped the various complaints regarding medication management into three categories: data migration, medication orders, and medication reconciliation.

Data Migration

For this report, data migration focused on the transfer of patient information from VA's legacy EHR to the new system. Deficiencies were found with patient contact information, patient medication lists, and formulary lists that included medications and supplies unavailable at the facility.

- **Patient Contact Information**: Prior to going live, VA migrated contact information and clinical data for approximately 88,000 veterans to the new EHR. The OIG found that outdated DoD data overwrote VHA's patient contact information, such as name, address, telephone number, and email address when data were migrated to the new EHR. Consequently, VA patients were delayed in receiving medications through the mail order pharmacy system.

- **Medication Lists**: The OIG substantiated that medication lists, migrated as "free text" per VHA's request, contained inaccuracies. Because medication lists did not import properly, care providers used work-arounds, including manual reentry to generate accurate medication lists. Staff described this process as "overwhelming" and time-consuming.

- **Medication Formulary**: The new EHR's formulary included many medications not available at Mann-Grandstaff or on VA's national formulary. Consequently, care providers unknowingly selected nonformulary or unavailable supplies. These selections increased risks for errors, potentially raised costs for VA, and added work for care providers and pharmacy staff.

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[22] The allegations substantiated but unresolved in the trilogy of reports date from March 2022. VA requested an extension until September 16, 2022 on providing its first update as to the status of its work to resolve these issues, so at this time, the OIG does not have an update on VA's progress.

[23] VA OIG, *Medication Management Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington*, March 17, 2022.

Medication Orders

The OIG substantiated 10 of 12 allegations related to the mismanagement of medication orders. The identified problems affect every aspect of the process from orders failing to process to patients' recurring future medication orders being automatically discontinued without notice to providers.

Summary of Medication Order Allegations and Findings

Medication Orders	Allegations	OIG Determination	Status
Future Order Discontinuance	The new EHR discontinued future medication orders written by providers.	Substantiated	Unresolved
	Discontinued future medication orders required providers to write "stat" or place immediate orders, causing medication delays for patients.	Substantiated	Unresolved
	Discontinued future medication orders led absent providers to arrange for colleagues to write orders for recurring medications, creating inefficiencies and increasing risks for orders being missed and possible patient safety issues.	Substantiated	Unresolved
Unauthorized Orders Placed	Registered nurses could order medications without provider approval.	Substantiated	Unresolved
Outpatient Orders Not Processed	Pharmacy staff did not process outpatient orders.	Not Substantiated	Not Applicable
	Some outpatient orders failed to process and appeared missing to nonpharmacy staff.	Substantiated	Unresolved
Lack of Notification	Notifications were not sent to prescribing providers and pharmacists about future recurring injectable medication orders that were discontinued or outpatient medication orders that did not process.	Substantiated	Unresolved
Confusing Alerts	Medication alerts were confusing, and providers did not receive training on interpreting them.	Substantiated	Unresolved
Prescription Status Unclear	Providers were unable to assess the status of a filled prescription order.	Substantiated	Unresolved
Lack of Tracking for Mailed Controlled Substances	Pharmacy staff were unable to consistently track mailed controlled substance prescriptions.	Not Substantiated	Not Applicable
	Nonpharmacy staff could not consistently track mailed controlled substance prescriptions.	Substantiated	Unresolved
Prescription Drug Monitoring Program	After completing a PDMP query, providers' notes were not automatically populated in alignment with VHA policy, requiring additional work for providers.	Substantiated	Unresolved

Medication Reconciliation

The OIG substantiated that inaccurate medication lists in the new EHR challenged staff conducting reconciliations. This critical process identifies and resolves any medication discrepancies found in an EHR with the information supplied by the patient or caregiver. Accurate medication lists guide providers' treatment decisions, and inaccuracies could have significant health consequences for a patient. The OIG observed that poor training led to a knowledge gap that contributed to errors and helped explain varying user experiences.

Summary of Medication Reconciliation Allegations and Findings

Medication Reconciliation	Allegations	OIG Determination	Status
Medication List Discontinuity	Staff had to update medication lists at every visit because prior medication information revisions did not carry over.	Substantiated	Unresolved
	Medications disappeared from reconciled medication lists, and lists were inaccurate after reconciliation.	Substantiated	Unresolved
	Staff manually entered medication lists post-reconciliation, which increased risk for error and safety concerns.	Substantiated	Unresolved
	Medication reconciliation required a significant amount of time to complete per patient.	Substantiated	Unresolved
Medication List Inaccuracies	Discontinued and expired medications were not viewable during reconciliation, creating a patient safety issue.	Substantiated	Unresolved
	Medications administered in a clinic did not appear on medication lists, creating a patient safety issue.	Substantiated	Unresolved
Medication Lists Unsuited for Patient Use	Medication lists were not patient-friendly.	Substantiated	Unresolved

The two report recommendations can be found in appendix I. VA concurred with the first recommendation, which requires extensive software updates that VA indicated may take over a year from publication to implement. The second recommendation called for VA to ensure medication management issues related to the new EHR identified after the inspection be reported to the OIG. VA did not concur with this recommendation, citing the difficulty of a continuous, open reporting requirement to the OIG. This is not an open-ended recommendation, however, and could be closed after VA demonstrates an effective and sustainable process to identify and address patient safety issues. VA already must provide this information to the OIG regardless of whether VA concurs with the recommendation, and the OIG will continue this oversight work.

Care Coordination Deficiencies after the New EHR Go-Live at the Mann-Grandstaff VAMC (March 2022 Report)

The second report in the trilogy addressed an expansive list of allegations categorized as care coordination concerns.[24] Care coordination involves numerous EHR functions that facilitate how care is synchronized both among healthcare providers and directly with the patient. As an example of these challenges, the VAMC's coordinator for the new EHR's patient portal reported a backlog after the go-live of over 300 voicemail messages from patients unable to access the portal. During the pandemic, the portal was a central means for patients to communicate with providers.

The OIG further sorted the allegations into eight categories. Each had multiple deficiencies:

1. **Patient Record Flags:** Patient record flags denoting patients at high risk for suicide and disruptive behavior in the legacy EHR failed to activate for some Mann-Grandstaff VAMC patients. Some identified concerns about patient record flag functionality in the new EHR stemmed from system design, while others related to deficits in training on the new EHR's workflow. The flags are not as obvious in the new system as they were in the legacy EHR. In some new EHR views, staff had to navigate multiple steps to find information about the flag and relevant precautions. Of the six substantiated allegations, only two remained unresolved: the visibility of the flag and national-level data sharing of active record flags for patients at high risk for suicide.

2. **Data Migration:** As previously discussed, deficiencies were found in the migration of patient information, such as incorrect patient names, genders, and contact information. Discussions continued between VA and DoD regarding business rule updates needed to improve interoperability and ensure accurate data migration in the face of policy differences between VA and DoD.

3. **Scheduling Process:** Initial allegations received by the OIG cited delays in scheduling and inadequate appointment information and reminders in the new EHR. Reminders to veterans and caregivers did not always specify if appointments were by telephone rather than in-person, resulting in some patients traveling to the facility for telephone appointments. The OIG was also alerted to problems with the new self-scheduling tool that resulted in Washington State patients inadvertently self-scheduling appointments at the Columbus clinic. Of the five related substantiated allegations, four remained unresolved, particularly related to delays in scheduling primary care appointments, the type of appointment, and the information contained on appointment reminders.

4. **VA Video Connect:** This VHA telehealth service technology enables veterans to meet virtually with VA healthcare providers from anywhere, using encrypted video. The OIG substantiated some allegations that appointments failed due to broken links, incorrect time zones, and links being sent to outdated email addresses. VA needed to completely resolve only the last allegation, as some veterans were still having to contact DoD to have their contact information updated.

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[24] VA OIG, *Care Coordination Deficiencies after the New Electronic Health Record Go-Live at the Mann-Grandstaff VA Medical Center in Spokane, Washington*, March 17, 2022.

5. **Referral Management:** Deficiencies in implementing the Ambulatory Referral Management function decreased care providers' ability to manage patients' referrals in the provider's own clinical service, particularly in the behavioral health department, and with other outpatient services in VHA. These breakdowns could lead to delays and affect patient experiences at VHA more generally. For example, providers had no easy way to determine if a referral had been acted on. Certain aspects of system configuration, workflow errors, interoperability deficits, and insufficient training contributed to staffs' difficulties with handling referrals. The three substantiated issues remained unresolved.

6. **Laboratory Orders:** The OIG was alerted to "disappearing" laboratory orders that never reached lab personnel. The system configurations and training deficits were factors in these failures. Ordering providers were shown a confusing array of options. Additionally, staff were challenged in tracking the orders, and many results were delayed in being returned. These issues created more opportunities for human error as staff used work-arounds to get results that informed care delivery. These three substantiated issues were unresolved.

7. **Patient Portal and Secure Messaging:** As mentioned above, when the new EHR went live, many patients could not access the portal, affecting access to tools that supported coordination of care, such as secure messaging and online prescription refills. VA staff reported that system changes completed by OIT resolved some causes of this disruption, while other resolutions were in progress.

8. **Documentation Processes:** While the OIG did not substantiate all allegations received related to documentation process problems, facility staff reported experiencing challenges in effectively navigating and using some of the new EHR capabilities. Insufficient end-user training and misperceptions about certain new EHR functionalities appeared to be the sources of the difficulties. VA started using a new method, the financial identification number (FIN), to document workload associated with between-visit care, which VHA did not historically record. This required numerous steps for providers, creating additional work and confusion. Another example is a configuration issue in which not all International Classification of Disease 10 diagnostic codes were available in the new EHR, affecting providers' ability to correctly code patient diagnoses. Of the three substantiated allegations, the FIN and diagnostic codes were unresolved at the time of publication.

For this report, the OIG made one recommendation, located in appendix J, and it remains open.

Ticket Process Concerns and Underlying Factors Contributing to Medication Management and Care Coordination Deficiencies (March 2022 Report)

The OIG issued this third report to provide an analysis of the persistent issues with the ticket process used for reporting problems and requesting assistance at Mann-Grandstaff VAMC, including identifying the underlying causal factors.[25] From the October 2020 go-live date through March 31, 2021, new EHR

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[25] VA OIG, *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*, March 17, 2022.

end users placed over 38,700 tickets. OIG staff analyzed the help ticket system for key terms for each allegation and checked 4,094 tickets related to the issues discussed in the two prior reports.

Ticket Process Challenges

The OIG team reviewed ticket comments to understand facility staffs' frustration with getting fixes and changes. Although VA initiated a strategic review to address these concerns, there were limited process changes. The ticket process challenges the OIG found include the following:

- **Cerner's service desk support staff were not able to view and replicate reported issues.** While Cerner had a mirror version of the DoD EHR, a mirror version of the Mann-Grandstaff VAMC's EHR was not built.[26] OEHRM staff were frustrated that when Cerner support staff could not reproduce a reported issue they closed the ticket, potentially delaying the problem's resolution.

- **The same Cerner staff closed tickets before resolving the issues.** Closing tickets without resolving the concerns could result in patient safety issues as well as the propagation of similar issues at future implementation sites. Facility staff also reported feeling a lack of support.

- **Ticket status was not communicated to end users.** As part of VA's agreement with Cerner, end users were to be notified and given the opportunity to review whether the proposed or implemented resolution addressed the reported issue before Cerner closed the ticket. Mann-Grandstaff VAMC staff reported during 2021 that Cerner's service desk staff were unhelpful or rude.

- **Mann-Grandstaff VAMC staff sometimes created work-arounds instead of placing tickets.** Due to the challenges, Mann-Grandstaff VAMC users began creating work-arounds to accomplish tasks, which can increase patient safety risks, create inefficiencies, and bypass safeguards.

This report validated deficient ticket processes identified earlier in VA's "Electronic Health Record Comprehensive Lessons Learned" report released in July 2021.[27] While VA had identified proposed measures to monitor these process changes, their July 2021 report said the measures had not been finalized and were under review.

Underlying Factors of Substantiated Allegations in Companion Inspections

To probe into the causes of the allegations in the two companion inspections regarding medication management and care coordination issues, the inspection team identified five underlying factors:

1. **EHR Usability Problems.** Poor usability has been linked to increased patient safety risks, inefficiencies, and care provider frustration and stress. Among other issues, the OIG found that the user interface was not optimized for workflows; inefficient navigation hampered staff; patient data

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[26] In the response VA gave to the OIG before publication, VA said Cerner service desk support staff had given access to the EHR's production version. The OIG will review VA's evidence during the follow-up process to determine if that is the case.

[27] VA, *Electronic Health Record Comprehensive Lessons Learned Report*, November 2021. The report was initially released in July 2021 and updated in November 2021.

were in different sections of the EHR; and restrictive definitions of user roles assignments, which defined employees' capabilities in the system, limited the information staff could see.

2. **Training Deficits.** The OIG found insufficient training content, support, and an approach to training that did not provide staff with the underlying reasons for the actions they should take.

3. **Interoperability Challenges.** Staff must have access to information needed to perform their work from within and across VHA. This was hampered by the data migration issues previously discussed, the failure of information to transfer to the Consolidated Mail Outpatient Pharmacy, and information not properly transferring to national-level VHA databases.

4. **Fixes and Refinement Needs.** The OIG identified that some substantiated allegations were unresolved and required fixes after going live, as well as refinements to address errors in system workflows and changes to components of the new EHR. For example, staff were initially unable to view patients' service-connected conditions noted by the Veterans Benefits Administration from the new EHR, which led to an inability to document these conditions for healthcare delivery purposes.

5. *Problem Resolution Process Challenges.* Successful EHR implementation requires effective pathways for resolving identified problems, and as discussed in this trilogy of reports, the ticket process for resolving questions and concerns had several deficiencies.

For this report, the OIG made three recommendations, found in appendix K, and all are open.

The New EHR's Unknown Queue Caused Multiple Patient Harm Events (July 2022 Report)

This review looked at one aspect of the question of whether the new EHR resulted in any patient harm.[28] In May 2021, after VHA identified several patient safety concerns, a VHA National Center for Patient Safety team went to Mann-Grandstaff VAMC with their work continuing through the year. In late 2021, the team drafted a report and held a Safety Summit where they ranked dozens of safety concerns based on severity, identifying the "unknown queue" as one of the most severe.

Information about patient harm due to the new EHR was presented to the VA Deputy Secretary in November 2021. In December 2021, the Deputy Secretary forwarded information about harms due to the unknown queue to the executive director of EHRM IO. From October 24, 2020, through May 8, 2022, VHA identified 1,134 patient safety events related to the new EHR. VHA's analysis identified one

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[28] VA OIG, *The New Electronic Health Record's Unknown Queue Caused Multiple Events of Patient Harm*, July 14, 2022.

catastrophic patient harm (death or major permanent loss of function) and two major patient harm cases (permanent lessening of bodily functioning), one of which was related to the unknown queue.[29]

The intent of the unknown queue was to capture orders entered by providers that the new EHR cannot deliver to the intended location. The new EHR's design allowed providers to select locations from a drop-down menu that, depending on the specific order, the system would not be recognize as a "match." This "mismatch" would send orders to the unknown queue and not to the requested service location to initiate the ordered care. Notably, the new EHR did not alert the healthcare providers that the order was not delivered to the intended location.

Orders from care providers began populating the unknown queue immediately after the facility went live. Staff had to re-input the orders after discovering the issue, expending many hours of labor then and during the clinical reviews that assessed the harm patients may have suffered. Cerner did take steps with VA to mitigate the problem at Mann-Grandstaff VAMC by removing unmapped locations in September 2021. As of February 2022, an alert was being sent if a provider created an order with an unmapped location. However, prior to March 2022, VHA could not generate a report of unknown queue orders itself. Cerner acknowledged that the unknown queue's ongoing risk would require mitigation at future go-live sites, noting the need to continuously reinforce the guidance on managing the queue.

The OIG found that Cerner did not inform VA end users of the unknown queue or provide guidance to address the unknown queue in advance of going live with the new EHR. A Cerner vice president, identified by the company's general counsel as an unknown queue subject matter expert, also reported having no knowledge that VA was told about it before going live. Following the OIG's transmittal of the draft report to VA in June 2022, Cerner provided EHRM IO with documentation that asserted a VA leader approved the use of the unknown queue in January 2020. However, that VA leader and their supervisor told OIG staff they had no awareness of the unknown queue prior to going live.

VHA itself assessed the risk as major severity, frequently occurring, and very difficult to detect and initiated a clinical review in June 2021 to ensure orders were acted on and to assess patients for harm. VHA's clinical reviewers conducted 1,286 assessments and identified 148 adverse events (with an additional one later found by VHA to be a major harm, bringing the total to 149) for patients:

- Major harm: 2
- Moderate harm: 52
- Minor harm: 95

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[29] VA defines "catastrophic harm" as "death or major permanent loss of function (sensory, motor, physiologic, or intellectual) **not related to the natural course of the patient's illness or underlying condition** (i.e., acts of commission or omission)." VA defines "major harm as "permanent lessening of bodily functioning (sensory, motor, physiologic, or intellectual) **not related to the natural course of the patient's illness or underlying condition** (i.e., acts of commission or omission)." [bolding not added by the OIG]

As an example of major harm, a provider entered a psychiatric care order for a patient experiencing homelessness and identified as at-risk for suicide. The new EHR sent the order to the unknown queue. The patient was not scheduled for follow-up care and later contacted the Veterans Crisis Line reporting a razor in hand and a plan to take their own life. The patient was hospitalized for psychiatric care.

The OIG has concerns with the effectiveness of the plan to mitigate the unknown queue's safety risk. Facility leaders reported using the mitigation process to monitor and manage the queue but shared that steps in the process could still lead to orders remaining in the queue. In June 2022, when the OIG met with VA leaders to discuss this report, VA said that work to address the unknown queue was considered complete and that, on average, there were 28 orders in the unknown queue report. However, on that day, the OIG generated a report showing 522 total orders across the six VA facilities using the new EHR. The OIG made two recommendations, found in appendix L, and both are open.[30]

CONCLUSION

This Subcommittee and VA have focused tremendous resources on the successful transition to the new EHR system. The OIG's work on the topic reveals there are still considerable challenges, particularly regarding the true costs and scope—especially given the lack of a reliable and comprehensive integrated master schedule. Additionally, physical and IT infrastructure upgrades at all VHA facilities remain, as does the need for effective training and practice before VA staff can properly use the new EHR.

The OIG is committed to providing impactful and practical recommendations that flow from its oversight work to help VA deploy the new EHR efficiently and in a manner that improves veterans' experiences. While each report has specific recommendations intended to improve the EHRM program, there are broader concerns that many of the recommendations reflect. A primary concern is governance: Are the right structures in place to identify potential issues to prevent their occurrence, to prioritize those issues that may affect prompt quality care to patients, and to resolve those issues before additional deployments? Another key concern is transparency: Is there transparency among EHRM IO, the facilities, VHA, OIT, and Oracle Cerner? Full and candid information sharing will help build confidence that issues are being identified, prioritized, and adequately addressed. As VA moves toward deployment in more complex facilities, proper governance and transparency will be necessary to get it right. Failures in these areas risk cascading problems that put the entire program in jeopardy. The OIG will continue to monitor EHRM efforts to help recommend improvements needed to fulfill its promise to the veteran community and make the most effective use of taxpayer dollars. Chairman Heinrich, this concludes my statement. I would be happy to answer any questions you or other members may have.

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[30] Appendices M and N are the recommendations flowing from two additional OIG reports on EHR implementation. The first relates to the availability and use of data in the new EHR, and the second is a joint report with the DoD Office of Inspector General on the progress of VA and DoD in their interoperability efforts.

APPENDIX A. VA RESPONSES TO RECOMMENDATIONS: *DEFICIENCIES IN INFRA-STRUCTURE READINESS FOR DEPLOYING VA'S NEW EHR SYSTEM*, APRIL 27, 2020

1. The executive director of OEHRM should establish an infrastructure-readiness schedule for future deployment sites that incorporates lessons learned from the DoD. Status: Closed October 1, 2020.

2. The executive director of OEHRM should reassess the enterprise-wide deployment schedule to ensure projected milestones are realistic and achievable, considering the time needed for facilities to complete infrastructure upgrades. Status: Closed October 1, 2020.

3. The executive director of OEHRM should implement tools to comprehensively monitor the status and progress of medical devices at the enterprise level. Status: Closed September 21, 2021.

4. The executive director of OEHRM should standardize infrastructure requirements in conjunction with the VHA and the OIT and ensure those requirements are disseminated to all necessary staff. Status: Closed July 16, 2021.

5. The executive director of OEHRM should evaluate physical infrastructure for consistency with OEHRM requirements and monitor completion of those evaluations. Status: Open. VA's targeted completion date: March 2021.

6. The executive director of OEHRM should fill infrastructure-readiness team vacancies until optimal staffing levels are attained. Status: Closed September 12, 2022.

7. The executive director of OEHRM should ensure physical security assessments are completed and addressed at future EHR deployment sites. Status: Open. VA's targeted completion date: None initially provided.

8. The Mann-Grandstaff VAMC director should ensure all access points to physical infrastructure are secured and inaccessible to unauthorized individuals. Status: Closed October 1, 2020.

APPENDIX B. VA RESPONSES TO RECOMMENDATIONS: *DEFICIENCIES IN REPORTING RELIABLE PHYSICAL INFRASTRUCTURE COST ESTIMATES FOR THE EHRM PROGRAM*, MAY 25, 2021

1. The executive director for OEHRM should ensure an independent cost estimate is performed for program life cycle cost estimates including related physical infrastructure costs funded by VHA. Status: Open. VA's targeted completion date: 9 – 12 months from contract start.

2. The VA assistant secretary for management and chief financial officer should ensure the Office of Programming, Analysis and Evaluation, or another office performing its duties, conducts independent cost estimates as required by VA financial policy, and performs an independent estimate of EHRM program life cycle cost estimates including physical infrastructure. Status: Open. VA's targeted completion date: 9 – 12 months from contract start.

3. The director of special engineering projects for VHA's Office of Healthcare Environment and Facilities Programs should develop a reliable cost estimate for EHRM program-related physical

infrastructure in accordance with VA cost-estimating standards and incorporate costs for upgrade needs identified in facility self-assessments and scoping sessions. Status: Closed July 26, 2022.

4. The director of special engineering projects should also continuously update physical infrastructure cost estimates based on emerging requirements and identified project needs. Status: Closed January 20, 2022.

5. The executive director for OEHRM should ensure costs for physical infrastructure upgrades funded by VHA or other sources needed to support the EHRM program are disclosed in program life cycle cost estimates presented to Congress. Status: Open. VA's targeted completion date: July 31, 2021.

APPENDIX C. VA RESPONSES TO RECOMMENDATIONS: *UNRELIABLE INFORMATION TECHNOLOGY INFRASTRUCTURE COST ESTIMATES FOR THE EHRM PROGRAM*, JULY 7, 2021

1. The executive director of OEHRM should ensure an independent cost estimate is performed for program life-cycle cost estimates related to IT infrastructure costs. Status: Open. VA's targeted completion date: This is part of the strategic review and will be provided as soon as information is available.

2. The executive director of OEHRM should reassess the cost estimate for EHRM program-related IT infrastructure and refine as needed to comply with VA's cost-estimating standards. Status: Open. VA's targeted completion date: Under active revision as part of the strategic review and will be provided as soon as information is available

3. The executive director of OEHRM should develop procedures for cost-estimating staff that align with VA cost-estimating guidance. Status: Open.VA's targeted completion date: Under active revision as part of the strategic review and will be provided as soon as information is available.

4. The executive director of OEHRM should ensure costs for all IT infrastructure upgrades funded by OIT and VHA or other sources needed to support the EHRM program are disclosed in program life-cycle cost estimates presented to Congress. Status: Open. VA's targeted completion date: This is part of the strategic review and will be provided as soon as information is available.

5. The executive director of OEHRM should formalize agreements with OIT and VHA identifying the expected contributions from each entity toward IT infrastructure upgrades in support of the EHRM program. Status: Open. VA's targeted completion date: This is part of the strategic review and will be provided as soon as information is available.

6. The executive director of OEHRM should establish procedures that identify when life-cycle cost estimates should be updated and ensure those updated estimates are disclosed in the program's congressionally mandated reports. Status: Open. VA's targeted completion date: This is part of the strategic review and will be provided as soon as information is available.

APPENDIX D. VA RESPONSES TO RECOMMENDATIONS: *THE EHRM PROGRAM DID NOT FULLY MEET THE STANDARDS FOR A HIGH QUALITY, RELIABLE SCHEDULE*, APRIL 25, 2022

1. The EHRM program management office executive director should comply with internal guidance and ensure the development of an IMS that complies with standards adopted from GAO for scheduling, Status: Open. VA's targeted completion date: December 2022.

2. The EHRM program management office executive director should take action to improve stakeholder coordination in the development of the program schedules to ensure activities from all relevant VA entities are included. Status: Open. VA's targeted completion date: August 2022.

3. The EHRM program management office executive director should develop procedures for when and how staff should perform an initial schedule risk analysis and conduct periodic updates as needed. Status: Open. VA's targeted completion date: December 2022.

4. The EHRM program management office executive director should ensure consistency between contract language and program office plans or other guidance identifying the entity or individuals responsible for developing and maintaining the program's WBS and IMS. Status: Open. VA's targeted completion date: November 2022.

5. The EHRM program management office executive director should evaluate the contract requirements for schedule management and modify as needed to ensure clear roles and expectations for further development and maintenance of the IMS. Status: Open. VA's targeted completion date: December 2022.

6. The EHRM program management office executive director should comply with the Federal Acquisition Regulation and issue guidance to accept deliverables not separately priced before invoice payment. Status: Open. VA's targeted completion date: May 2022.

APPENDIX E. VA RESPONSES TO RECOMMENDATIONS: *SENIOR STAFF GAVE INACCURATE INFORMATION TO OIG REVIEWERS OF EHR TRAINING*, JULY 14, 2022

1. Issue a clarifying communication to the office's personnel that all staff have a right to speak directly and openly with OIG staff without fear of retaliation, and that, irrespective of any processes established to facilitate the flow of information, EHRM IO personnel are encouraged to communicate directly with OIG staff when needed to proactively clarify requests and avoid confusion. Status: Closed September 7, 2022.

2. Provide clear guidance that the office's personnel must provide timely, complete, and accurate responses to requests for all data or information without alteration, unless other formats are requested, with full disclosure of the methodology, any data limitations, or other relevant context. This includes prompt OIG access to entire datasets consistent with the Inspector General Act of 1978, as amended. Status: Closed September 7, 2022.

3. Determine whether any administrative action should be taken with respect to the conduct or performance of the executive director of Change Management. Status: Open. VA's targeted completion date: July 2022.

4. Determine whether any administrative action should be taken with respect to the conduct or performance of Change Management's director for training strategy. Status: Closed August 15, 2022.

APPENDIX F. VA RESPONSES TO RECOMMENDATIONS: *TRAINING DEFICIENCIES WITH VA'S NEW EHR SYSTEM AT THE MANN-GRANDSTAFF VAMC IN SPOKANE, WASHINGTON*, JULY 8, 2021

1. The USH explores the establishment of a group of VHA staff composed of core user roles with expertise in VHA operations and Cerner EHR use with data architect level knowledge to lead the effort of generating optimized VHA clinical and administrative workflows. Status: Open. VA's targeted completion date: September 2021.

2. The deputy secretary establishes an EHR training domain that ensures close proximation to the production environment and is readily available to all end users during and following training. Status: Open. VA's targeted completion date: January 2022.

3. The deputy secretary ensures end users receive training time sufficient to impart the skills necessary to use the new EHR prior to implementation. Status: Open. VA's targeted completion date: January 2022.

4. The deputy secretary ensures the user role assignment process addresses identified facility leaders and staff concerns. Status: Open. VA's targeted completion date: January 2022.

5. The deputy secretary ensures Cerner trainers and adoption coaches have the capability to deliver end user training on Cerner and VHA EHR software workflows. Status: Open. VA's targeted completion date: January 2022.

6. The deputy secretary evaluates the process of super user selection and takes action as indicated. Status: Closed February 1, 2022.

7. The deputy secretary reviews OEHRM's performance-based service assessments for Cerner's execution of training to determine whether multiple, recurrent concerns are being accurately captured and addressed. Status: Open. VA's targeted completion date: January 2022.

8. The deputy secretary oversees the revision of an OEHRM training evaluation plan and ensures implementation of stated objectives. Status: Open. VA's targeted completion date: January 2022.

9. The deputy secretary reviews the EHRM governance structure and takes action as indicated to ensure the under secretary for health (USH) role in directing and prioritizing EHRM efforts is commensurate with VHA's role in providing safe patient care. Status: Closed February 1, 2022.

10. The USH establishes guidelines and training to capture new EHR-related patient complaints, including patient advocacy. Status: Closed August 5, 2022.

11. The USH ensures an assessment of employee morale following implementation of a new EHR and takes action as indicated. Status: Closed February 1, 2022.

APPENDIX G. VA RESPONSES TO RECOMMENDATIONS: *NEW PATIENT SCHEDULING SYSTEM NEEDS IMPROVEMENT AS VA EXPANDS ITS IMPLEMENTATION*, NOVEMBER 10, 2021

1. The USH coordinates with the OEHRM executive director to continue to make improvements to the scheduling training as needed to address feedback from schedulers. Status: Open. VA's targeted completion date: January 2022.

2. The USH coordinates with the OEHRM executive director to require that some schedulers from each clinic fully test the scheduling capabilities of their clinics, solicit feedback from the schedulers to identify system or process issues, and make improvements as needed. Status: Open. VA's targeted completion date: November 2021.

3. The USH coordinates with the OEHRM executive director to issue guidance to facility staff on which date fields in the new system schedulers should use to measure patient wait times. Status: Open. VA's targeted completion date: February 2022.

4. The USH coordinates with the OEHRM executive director to develop a mechanism to track and then monitor all tickets related to the new scheduling system, and then ensure OEHRM evaluates whether Cerner effectively resolved the tickets within the timeliness metrics established in the contract. Status: Open. VA's targeted completion date: December 2021.

5. The USH coordinates with the OEHRM executive director to develop a strategy to identify and resolve additional scheduling issues in a timely manner as OEHRM deploys the new EHR at future facilities. Status: Open. VA's targeted completion date: December 2021.

6. The USH coordinates with the OEHRM executive director to develop a mechanism to assess whether facility employees accurately scheduled patient appointments in the new scheduling system, and then ensure facility leaders conduct routine scheduling audits. Status: Open. VA's targeted completion date: July 2022.

7. The USH coordinates with the OEHRM executive director to evaluate whether patients received care within the time frames directed by VHA policy when scheduled through the new system. Status: Open. VA's targeted completion date: July 2022.

8. The OIG recommends that the VA OEHRM executive director provide guidance to schedulers to consistently address system limitations until problems are resolved. Status: Open. VA's targeted completion date: December 2021.

APPENDIX H. VA RESPONSES TO RECOMMENDATIONS: *REVIEW OF ACCESS TO CARE AND CAPABILITIES DURING VA'S TRANSITION TO A NEW EHR SYSTEM AT THE MANN-GRANDSTAFF VAMC*, APRIL 27, 2020

1. The USH, in conjunction with OEHRM evaluates the impact of the new EHR implementation on productivity and provides operational guidance and required resources to facilities prior to go-live. Status: Open. VA's targeted completion date: Initial response at Initial Operating Capability go-live; revised versions at subsequent go-live dates.

2. The USH, in conjunction with OEHRM, identifies the impact of the mitigation strategies on user and patient experience at go-live and takes action, as needed. Status: Open. VA's targeted completion date: Initial response at IOC go-live; revised versions at subsequent go-live dates.

3. The executive director, OEHRM, in conjunction with the USH, ensures that clear guidance is given to facility staff on what EHR capabilities will be available at go-live. Status: Closed January 13, 2021.

4. The USH, in conjunction with OEHRM, reevaluates the EHRM deployment timeline to minimize the number of required mitigation strategies at go-live. Status: Open. VA's targeted completion date: May 2020.

5. The veterans integrated service network (VISN) director collaborates with facility leaders to implement VA-provided operational guidance and supports required resources needed throughout the transition to the new EHR system. Status: Closed July 31, 2021.

6. The VISN director ensures that positions required for the transition to the new EHR system are staffed and trained prior to go-live. Status: Closed October 16, 2020.

7. The Mann-Grandstaff VAMC director ensures that community care consults are managed through go-live to ensure accuracy and completeness, and to avoid the need for manual reentry after go-live. Status: Closed September 22, 2021.

8. The Mann-Grandstaff VAMC director ensures that patients receive medication refills in a timely manner throughout the transition to the new EHR system. Status: Closed September 22, 2021.

APPENDIX I. VA RESPONSES TO RECOMMENDATIONS: *MEDICATION MANAGEMENT DEFICIENCIES AFTER THE NEW EHR GO-LIVE AT THE MANN-GRANDSTAFF VAMC*, MARCH 17, 2022

1. The deputy secretary ensures that substantiated and unresolved allegations discussed in this report are reviewed and addressed. Status: Open. VA's targeted completion date: May 2022.

2. The deputy secretary ensures medication management issues related to the new EHR that are identified subsequent to this inspection be reported to the OIG for further analysis. Status: Open. VA's targeted completion date: None as VA did not concur with the recommendation.

APPENDIX J. VA RESPONSES TO RECOMMENDATIONS: *CARE COORDINATION DEFICIENCIES AFTER THE NEW EHR GO-LIVE AT THE MANN-GRANDSTAFF VAMC*, MARCH 17, 2022

1. The deputy secretary ensures that substantiated and unresolved allegations noted in this report are reviewed and addressed. Status: Open. VA's targeted completion date: May 2022.

APPENDIX K. VA RESPONSES TO RECOMMENDATIONS: *TICKET PROCESS CONCERNS AND UNDERLYING FACTORS CONTRIBUTING TO DEFICIENCIES AFTER THE NEW EHR GO-LIVE AT THE MANN-GRANDSTAFF VAMC*, MARCH 17, 2022

1. The deputy secretary completes an evaluation of the new EHR problem resolution processes and takes action as warranted. Status: Open. VA's targeted completion date: March 2022.

2. The deputy secretary completes an evaluation of the underlying factors of substantiated allegations identified in this report and takes action as warranted. Status: Open. VA's targeted completion date: May 2022.

3. The deputy secretary ensures the EHRM deployment schedule reflects resolution of the allegations and concerns discussed in this report. Status: Open. VA's targeted completion date: March 2022.

APPENDIX L. VA RESPONSES TO RECOMMENDATIONS: *THE NEW EHR'S UNKNOWN QUEUE CAUSED MULTIPLE EVENTS OF PATIENT HARM*, JULY 14, 2022

1. The deputy secretary reviews the process that led to Cerner's failure to provide VA substantive information of the unknown queue and takes action as indicated. Status: Open. VA's targeted completion date: October 2022.

2. The deputy secretary evaluates the unknown queue technology and mitigation process and takes action as indicated. Status: Open. VA's targeted completion date: October 2022.

APPENDIX M. VA RESPONSES TO RECOMMENDATIONS: *DEFICITS WITH METRICS FOLLOWING IMPLEMENTATION OF THE NEW EHR AT THE MANN-GRANDSTAFF VAMC*, JUNE 1, 2022

1. The deputy secretary completes an evaluation of gaps in new EHR metrics and takes action as warranted. Status: Open. VA's targeted completion date: October 2022.

2. The deputy secretary completes an evaluation of factors affecting the availability of metrics and takes action as warranted. Status: Open. VA's targeted completion date: October 2022.

APPENDIX N. VA, DOD, AND FEHRM RESPONSES TO RECOMMENDATIONS: *JOINT AUDIT OF THE DOD AND THE VA EFFORTS TO ACHIEVE EHR SYSTEM INTEROPERABILITY*, MAY 5, 2022

1. We recommend that the deputy secretary of defense and deputy secretary of veterans affairs review the actions of the Federal Electronic Health Record Modernization Program Office (FEHRM) and direct the FEHRM to develop processes and procedures in accordance with the FEHRM charter and the National Defense Authorization Acts. Status: Open.

VA's targeted completion date: September 30, 2022. DoD's targeted completion date: None specified.

2. We recommend that the director of the FEHRM, in coordination with the director of the Defense Health Agency; program executive director for EHRMI; and program manager for DoD Healthcare Management System Modernization:

   a. Determine the type of patient health care information that constitutes a complete patient EHR. Status: Open. FEHRM's targeted completion date: August 31, 2022.

   b. Develop and implement a plan for migrating legacy patient health care information needed for a patient's complete EHR once the FEHRM determines the health care data domains of patient

health care information that constitutes a complete patient EHR. Status: Open. FEHRM's targeted completion date: August 31, 2022.

c. Develop and implement a plan for creating interfaces that would allow medical devices to connect and transfer patient health care information to Cerner Millennium. Status: Open. FEHRM's targeted completion date: One year after resources have been approved and allocated, the FEHRM will develop a plan to create interfaces between medical devices and the federal EHR.