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VETERANS HEALTH ADMINISTRATION

Delays and Deficiencies in
Management of Selected
Radiology and Nuclear
Medicine Outpatient Exams

AUDIT

REPORT #18-02300-236

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Executive Summary

The VA Office of the Inspector General (OIG) conducted this audit to determine if the Veterans Health Administration (VHA) completed radiology and nuclear medicine exam requests within the recommended time frames, along with requests for any recommended follow-up care based on exam results. The audit team also determined if VHA appropriately managed canceled requests. Past OIG facility and regional inspections and audits identified backlogs for radiology exams, untimely exams, and a lack of training and scheduling guidelines.

VHA provided outpatient radiology and nuclear medicine care to 2.6 million patients in fiscal year (FY) 2018 at a cost of \$2 billion. Overall use of the services has increased at an average rate of 2 percent per year from FY 2013 to FY 2018.

The OIG also reviewed two allegations related to inappropriate cancellations its hotline staff received while this nationwide audit was being completed.

What the Audit Found

Based on a sample, the OIG projected an estimated 660,000 outpatient exam requests were completed at VA medical facilities and found that 115,000 were not completed within the recommended time frames during the period from October 1 through December 31, 2017. In addition to the 660,000 exam requests completed at VA medical facilities, an additional 27,700 requests were completed through non-VA care, for a total of 687,000 completed exams during the review period. From the estimated 687,000 completed exams, the OIG generally found that facility staff confirmed veterans received the recommended follow-up care or attempted to complete the care with veterans. To evaluate the appropriateness of canceled requests, the OIG assessed an estimated 442,000 canceled outpatient requests. The OIG found that radiology and nuclear medicine staff did not follow radiology and nuclear medicine policy for an estimated 106,000 of 442,000 canceled outpatient requests, which led to delayed or incomplete exams.

Exam Requests Were Not Completed within Recommended Time Frames

VHA policy requires staff to complete routine exams within 30 days and urgent exams within 14 days of the earliest date the provider wants the patient to complete the exam, known as the clinically indicated date (CID). The audit team reviewed a sample of 396 routine and urgent requests from computed tomography (CT), ultrasound, magnetic resonance imaging (MRI), nuclear medicine, and mammography. The OIG found that although VHA radiology and nuclear medicine staff took a projected average of 15 days from the CID to complete 660,000 routine and urgent outpatient exam requests, staff did not complete an estimated 115,000 requests within the recommended time frames during the review period.

Exam request delays primarily occurred because facility directors did not make exam scheduling staff available when needed. Delays also occurred because of equipment shortages and insufficient request monitoring. About 44 percent of exam outcomes required additional follow-up care by a physician, so prompt completion of diagnostic services requests was necessary for ongoing treatment.

- **Staff Shortages:** Delays in exams occurred primarily because facility directors did not manage staff who performed scheduling tasks to meet workload demand. The failure to manage had two components: The existing staff were not properly allocated to meet schedule needs, and facilities without sufficient staff had trouble hiring more schedulers. According to facility managers, hiring and retaining scheduling staff is difficult because fewer promotion opportunities are available within radiology compared to other service areas. Staff also said it was difficult to find qualified technologists because of salary disparities offered in the private sector.
- **Equipment Shortages:** Facility staff cited equipment issues as a contributing factor to not completing exams within the recommended time frames. Staff at four medical facilities indicated either that they needed to replace an existing MRI unit or that the single MRI unit at their facility was insufficient to meet demand. Staff at another facility indicated the single CT unit in the facility was insufficient to meet demand.
- **Insufficient Monitoring:** Schedulers did not initiate scheduling attempts within the recommended VHA time frames, and radiology and nuclear medicine service chiefs did not oversee radiology and nuclear medicine staff to ensure open exam requests were reviewed and addressed promptly. Multiple facilities' radiology and nuclear medicine staff did not adequately check electronic reports to identify requests for scheduling.

Most Follow-Up Care Was Appropriately Completed

The audit team generally found that facility staff confirmed veterans received the recommended follow-up care or attempted to complete the care with veterans. Of the 687,000 completed exams at VA medical facilities and through non-VA care during the review period, an estimated 299,000 resulted in a recommendation for immediate follow-up care. Approximately 268,000 of those follow-up care recommendations were completed.

Facility Radiology and Nuclear Medicine Staff Inappropriately Canceled Some Exam Requests

The audit team reviewed a sample of 113 canceled requests, including 57 “obsolete” requests and 56 requests that were less than or equal to 60 days from the CID (not obsolete).¹ Based on the results of the review, the OIG found that facility radiology and nuclear medicine staff did not follow radiology and nuclear medicine policy when canceling an estimated 106,000 of 442,000 requests, which led to delayed or incomplete exams. Failure to follow national guidance for canceling requests occurred for several reasons. There were breakdowns at the national, Veterans Integrated Service Network (VISN), and facility level. National guidance did not clearly define monitoring roles and responsibilities when canceling obsolete requests. While Radiology Program Office leaders expected VISN leaders to help oversee implementation of the national policy and monitor compliance with the policy requirements, there was no clear direction that outlined these expectations. VISN responses to OIG inquiries indicated that their involvement in the monitoring and execution of the national policy was inconsistent.² Furthermore, the VA medical directors did not ensure radiology and nuclear medicine staff complied with policy requirements for having a clinical review process when canceling obsolete requests. In addition, radiology and nuclear medicine leaders did not put controls in place, such as audits and reviews, to ensure canceled obsolete requests received the appropriate clinical review.

The audit team further analyzed 177,000 obsolete requests, 49 percent of which were inappropriately canceled primarily because staff canceled requests without having a documented clinical review of these obsolete requests as policy required. The inappropriate cancellations could have come from leader encouragement to eliminate obsolete requests or due to a misunderstanding of system alerts. Of the 177,000 obsolete requests, 31,000 were referred to non-VA care (18 percent). The OIG found that frequent changes to guidance on how to manage non-VA care requests led to challenges in completing referrals and, consequently, a higher number of obsolete requests in a hold status. In addition, inconsistent processes for handling non-VA care records and requests made it difficult for staff to associate records with requests in the Veterans Health Information Systems and Technology Architecture (VistA) radiology package and identify the records in the electronic health record.

¹ After the review period, VHA updated the definition of obsolete and clarifies what is considered obsolete for requests referred to non-VA care through VHA Memo, “Radiology and Nuclear Medicine Orders Management (VIEWS 00200846),” May 1, 2019. This updated VHA memo defines obsolete as pending and hold requests 60 days past the CID for requests that are to be completed at VA medical facilities; hold requests that were referred to non-VA care do not become obsolete until 90 days past the CID. For the review period, the audit team used the prior VHA memo, VHA Memo, “Radiology and Nuclear Medicine Orders Management (VAIQ 7806589),” September 11, 2017, when defining what requests are considered obsolete.

² The audit team contacted 18 VISN directors for information, although some VISN staff and leaders also responded on behalf of the VISN.

- 1. Improperly Canceled Requests:** Facility radiology and nuclear medicine leaders did not correctly manage the cancellation process for obsolete exam requests. This failure resulted in obsolete exam request backlogs that facility staff later canceled, which created risk for potentially incorrect cancellations. When canceling obsolete requests, two steps must occur: First, staff must use a computerized view alert notification to notify the ordering provider that the request was canceled, and second, a licensed independent practitioner must conduct a clinical review of the obsolete request and confirm the requested exam is no longer needed. According to the director of the Radiology Program Office, the clinical review serves as an additional safeguard to reliably notify a licensed independent practitioner, preferably the ordering provider, of the obsolete request. Policy does not explicitly state whether this review should occur before or after canceling the request; however, the policy does provide an example of an acceptable clinical review that suggests the ordering provider would be prompted to review an obsolete request through a Computerized Patient Record System (CPRS) cancellation note. If the provider determines care is still needed, the provider can create a new request.

When canceling obsolete requests, facility leaders and radiology and nuclear service chiefs assumed that the clinical review was done when the ordering provider received the view alert notification of the canceled request, which was insufficient because the significant volume of alerts that providers reviewed could cause information to be missed. Without effective monitoring, veterans are at risk of requests being canceled when they are still needed.

- 2. Changing Guidance:** The national guidance for managing radiology requests was updated at least four times between February 2016 and September 2017. Although clinical review processes were suggested as examples, the September 2017 guidance update did not direct staff on when the clinical review must occur in the cancellation process, which staff can and cannot clinically review requests, or which staff can cancel obsolete requests. While official policy was released by the assistant deputy under secretary for health for clinical operations or deputy under secretary for health for operations and management in February 2016, August 2016, and September 2017, changes for managing non-VA care requests were not discussed in the updated official policies.³ Instead, national conference calls functioned as a primary tool for clarifying the non-VA care request process. The calls were not well attended by staff from all parent facilities. The lack of clear direction on clinical reviews and non-VA care requests, along with changes in national guidance, may have contributed to the inconsistent compliance. Without proper information on processes for canceling and clinically reviewing requests,

³ A frequently asked questions document introduced during an October 2016 national radiology conference call instructed staff on managing non-VA care requests. In February 2017, interim guidance was issued during a national conference to clarify the obsolete request process

requests could be canceled without the required clinical review or not canceled at all (pending or on hold), due to indecision.

Inconsistent policies for handling non-VA care records also negatively affected the management of non-VA care exam requests. Because of the inconsistency, facility staff in different departments did not always associate non-VA care records with requests that all providers could easily view. Ultimately, this resulted in a higher number of unfinished obsolete exam requests nationwide.

Effects of Mismanaged Exam Requests

Canceling exam requests without work process reviews in place can lead to errors. Facility staff indicated that when they canceled obsolete requests, they did not always check if the exams had been scheduled but were not updated in the VistA radiology package to reflect their scheduled status. As a result, staff canceled requests for exams that veterans planned to attend. To complete the exams, the requests must be appropriately set up in the system. Consequently, veterans had to wait while erroneously canceled requests were recreated.

As mentioned earlier, inadequate monitoring of obsolete exam requests meant radiology and nuclear staff spent additional time reviewing and canceling duplicate requests because staff failed to promptly act on the original request. The audit team identified an estimated 40,300 obsolete requests that were duplicate requests. Of those 40,300 requests, 37,200 original requests were still pending action from radiology or nuclear medicine staff when a duplicate request was created, adding to the request backlog. In addition, the wait times on some of the completed duplicate requests appeared shorter than what the veteran actually experienced.

What the OIG Recommended

The OIG made eight recommendations to the under secretary for health to address exam requests that did not meet VHA time frames, incomplete follow-up care, and inappropriately canceled requests. These recommendations included assessing medical support assistant staffing based on scheduling workload, establishing facility clinic management models to define adequate radiology resources, improving VISN oversight and facility monitoring of pending and canceled requests. VA concurred with the OIG's eight recommendations.

The OIG also substantiated allegations of inappropriate cancellations at the James A. Haley and Iowa City VA medical centers but did not make any specific recommendations for the facility directors because the issues were addressed in the general recommendations.

Management Comments

The executive in charge, Office of the Under Secretary for Health, concurred with Recommendations 1–8 and submitted acceptable corrective action plans for all recommendations. The OIG will monitor implementation of planned actions and will close the recommendations when VA provides sufficient evidence demonstrating progress in addressing the intent of the recommendations and the issues identified.

A handwritten signature in dark ink, reading "Larry M. Reinkemeyer". The signature is written in a cursive style with a large initial "L" and "M".

LARRY M. REINKEMEYER
Assistant Inspector General
for Audits and Evaluation

Contents

Executive Summary	i
Abbreviations	ix
Introduction	1
Results and Recommendations	5
Finding 1: VHA Radiology and Nuclear Medicine Staff Did Not Complete Exam	
Requests within the Recommended Time Frames	5
Recommendations 1–3	13
Management Comments	13
OIG Response	14
Finding 2: Most Follow-Up Care Was Completed Appropriately	15
Recommendation 4	15
Management Comments	15
OIG Response	16
Finding 3: Facility Radiology and Nuclear Medicine Staff Inappropriately Canceled Exam	
Requests	17
Recommendations 5–8	30
Management Comments	30
OIG Response	31
Appendix A: Allegations of Inappropriate Cancellations	32

Allegation 1: James A. Haley Veterans' Hospital	32
Allegation 2: Iowa City Veterans Affairs Medical Center.....	35
Appendix B: OHI Exam Request Summaries.....	39
Appendix C: Background	45
Appendix D: Scope and Methodology.....	47
Appendix E: Statistical Sampling Methodology.....	50
OIG Contact and Staff Acknowledgments	69
Report Distribution	70

Abbreviations

CID	clinically indicated date
CPRS	Computerized Patient Record System
CT	computed tomography
DUSHOM	deputy under secretary for health for operations and management
FY	fiscal year
MISSION Act	Maintaining Internal Systems and Strengthening Integrated Outside Networks Act of 2018
MRI	magnetic resonance imaging
OIG	Office of Inspector General
OHI	Office of Healthcare Inspections
SPECT	single photon emission computed tomography
VAMC	Veterans Affairs medical center
VISN	Veterans Integrated Service Network
VistA	Veterans Health Information Systems and Technology Architecture



Introduction

Overall use of the Veterans Health Administration's (VHA) outpatient radiology services increased between FY 2013 and FY 2018 at an average rate of 2 percent each year. According to VHA Support Service Center data, diagnostic imaging services provided outpatient care for 2.6 million unique patients in FY 2018 at a cost of \$2 billion. In addition, 42 percent of veterans who used outpatient care in FY 2018 used a diagnostic imaging service such as magnetic resonance imaging (MRI) or nuclear medicine. Past Office of Inspector General (OIG) inspections and audits identified radiology exam backlogs, exam delays, and a lack of training and scheduling guidelines. The OIG conducted this audit to determine if VHA completed requests within the recommended time frames and completed any recommended follow-up care based on exam results. The audit team also determined if VHA radiology and nuclear medicine staff appropriately managed canceled requests.

While completing this nationwide audit, the audit team received two hotline allegations related to inappropriate cancellations. Given the objective to assess canceled requests nationwide, the audit team reviewed these two allegations. Since any recommendations related to the facility-specific allegations were covered by the national program recommendations, the OIG made no facility-specific recommendations. For additional details, see Appendix A.

Diagnostic Imaging Services

VHA diagnostic services use multiple types of equipment, otherwise referred to as modalities, to capture images of the body for diagnosing and treating diseases and injuries. Diagnostic modalities include general radiology, fluoroscopy, computed tomography (CT), MRI, interventional radiology, ultrasound, mammography, and nuclear medicine.

Office of Healthcare Inspections

Given that radiology and nuclear medicine services function as critical diagnostic tools for other healthcare services, the audit team consulted with OIG's Office of Healthcare Inspections (OHI) to assess whether veterans with completed exam requests and canceled exam requests received acceptable care, incomplete care, or incurred clinically significant adverse outcomes. The audit team referred requests with delayed exams, potential incomplete exams, and possible unaddressed follow-up care recommendations to OHI. As a precaution, the audit team also referred requests to OHI where the veteran had died.

Radiology and Nuclear Medicine Request Process

VA medical facility providers request exams by placing an order (request) that includes the earliest date the provider wants the veteran to complete the exam, which is referred to as the

clinically indicated date (CID). VHA policy regarding exam completion time frames states that routine exams should be completed within 30 days of the CID, while urgent requests should be completed within 14 days of the CID.

Once a provider creates a request, it is placed in a “pending” status within the Veterans Health Information Systems and Technology Architecture (VistA) radiology software package. This pending request is then used to schedule an appointment in the VistA scheduling system. To assist with the process, exam schedulers attempt to contact the veteran and schedule the exam by telephone within seven days of the request creation. If the scheduler is unable to contact the veteran, they must email or mail a letter to the veteran requesting contact to schedule the exam. If no response is received within 14 days from the date the email or letter was sent, the scheduler should cancel the request.⁴

If schedulers contact the veteran and make an appointment within the VistA scheduling system, they must also enter the appointment date into the VistA radiology package for the status to change from “pending” to “scheduled.”

When the veteran checks in for their scheduled exam, the exam is registered in the VistA radiology package. According to the assistant director of the Radiology Program Office, the registered exam will usually remain in an “incomplete” status until a radiologist interprets and verifies the report. Once a report is interpreted and verified, the request status will be updated as “complete.” Results from the completed request may also require additional follow-up care, such as diagnostic testing and specialty care consultations.

In some instances, a pending request may also be placed in a “hold” status in the VistA radiology package if

- The request is referred to non-VA care,⁵
- The scheduler wants to document an unsuccessful scheduling attempt, or
- Staff members are collecting additional clinical information such as the MRI safety clearance.

⁴ VHA Memo, “Outpatient Radiology Scheduling Policy and Interim Guidance (VAIQ 7722255)”, August 16, 2016.

⁵ The term non-VA care is used to refer to all programs used to send patients through care in the community such as the Choice Program and traditional non-VA care.

Regardless of the status, a radiology and nuclear medicine request becomes “obsolete” when 60 days beyond the CID.⁶ Pending, hold, and scheduled requests are expected to be monitored every business day.⁷ Radiology and nuclear medicine staff can monitor all requests by generating lists indicating the volume of requests in various statuses in the VistA radiology package.

VHA Governance Structure for Diagnostic Imaging Services

The VHA Radiology Program Office is one of three programs that makes up diagnostic services.⁸ The Radiology Program Office provides advice and recommends courses of action to VHA Headquarters, 18 regional systems of care called Veterans Integrated Service Networks (VISNs), and facility staff. According to the 2017 VA Functional Organization Manual, the Radiology Program Office advises on matters of policy and recommends courses of action to all levels of VHA to provide high-quality diagnostic imaging exams that are safe, cost-effective, and completed in a timely manner. Starting in 2017, the Radiology Program Office leaders also provided some operational oversight through facility site visits. Site visits focused on improving access to MRI and ultrasound exams and addressing specific concerns, such as high numbers of open requests or unread exams. At the facility level, some radiology departments have the radiology and nuclear medicine services separate while others have them combined. According to the director of the Radiology Program Office, in radiology departments that include nuclear medicine imaging, all radiologists, imaging physicians, and medical physicians are typically supervised by either a section chief or the chief of service. In those departments with separate radiology and nuclear medicine departments, the nuclear medicine physicians typically report to the chief of nuclear medicine, who in turn reports to the chief of staff. Figure 1 provides an overview of the primary organizational structure from the national to the facility level.

⁶ VHA Memo, “Radiology and Nuclear Medicine Orders Management (VIEWS 00200846),” May 1, 2019, updated the definition of obsolete after the review to clarify what’s obsolete if a request is referred to non-VA care. This updated VHA memo defines obsolete as pending and hold requests 60 days past the CID for requests that are to be completed at VA medical facilities; hold requests that were referred to non-VA care do not become obsolete until 90 days past the CID. For the review period, the audit team used the prior VHA memo, VHA Memo, “Radiology and Nuclear Medicine Orders Management (VAIQ 7806589),” September 11, 2017, when defining which requests are considered obsolete.

⁷ VHA Memo VIEWS 00200846.

⁸ The other two are National Nuclear Medicine and Radiation Safety Services and the Pathology and Laboratory Medicine National Program Office.

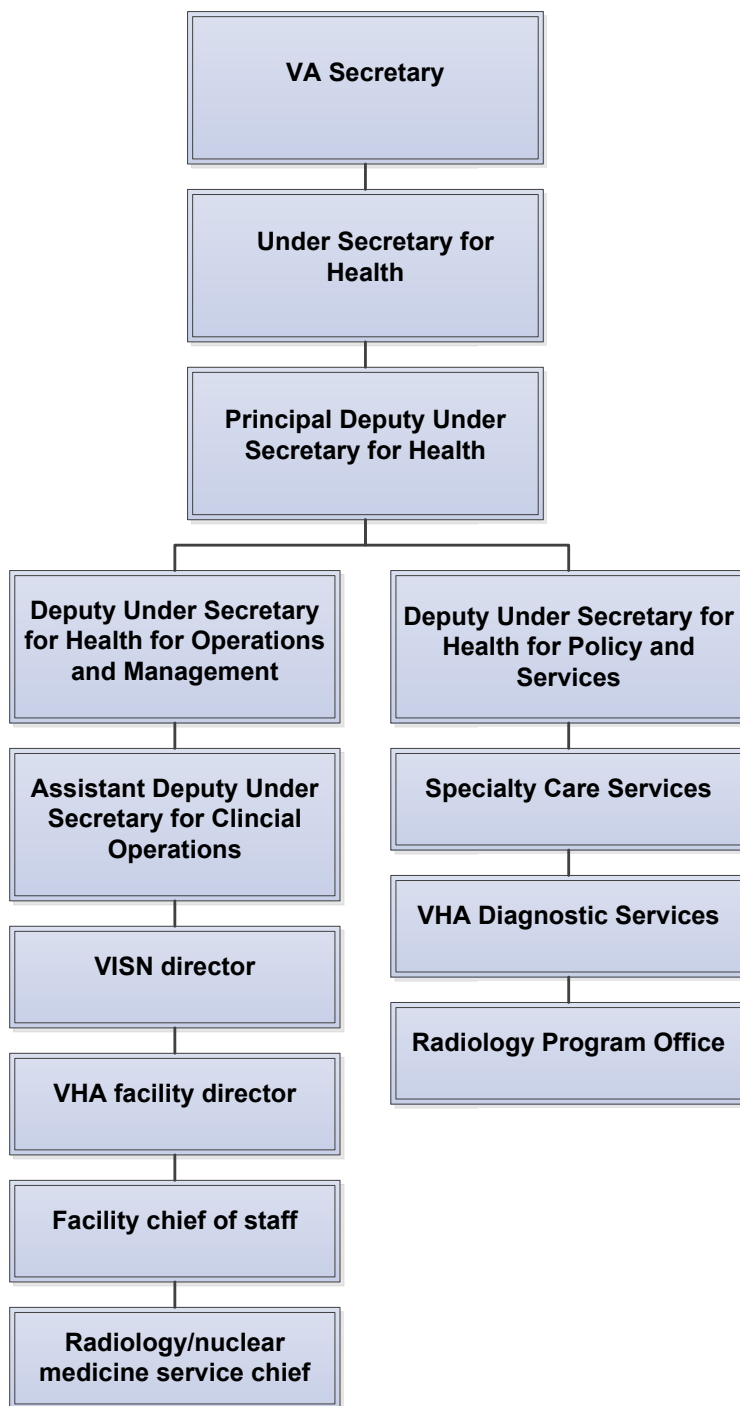


Figure 1. Radiology and nuclear medicine organizational structure
Source: VA OIG analysis of policies, guidance and available organizational charts

Results and Recommendations

Finding 1: VHA Radiology and Nuclear Medicine Staff Did Not Complete Exam Requests within the Recommended Time Frames

Although VHA radiology and nuclear medicine staff took a projected average of 15 days from the CID to complete 660,000 routine and urgent outpatient exam requests, the audit team estimated that the staff did not complete 115,000 requests within the recommended time frame. Providers rely on radiology exams to diagnose injuries and diseases, and delays in completing an exam or acting on the exam results create further delays in completing other healthcare appointments and treatment plans. For example, of the estimated 115,000 untimely exam requests, the outcome from 54,100 exams resulted in a recommendation for follow-up care by a physician, including additional diagnosis or a specialty care consultation. For an estimated 46,300 requests with completed follow-up care, it took an average of 40 days to complete the initial request and then an additional 45 days to complete the follow-up care.

Exam request delays primarily occurred because the facility directors did not manage scheduling staff resources to meet increased demand and schedule exams within the recommended time frames. Delays also occurred because of equipment shortages and insufficient request monitoring.

In addition to the estimated 660,000 requests completed at VHA facilities, 27,700 routine and urgent outpatient exams were completed through non-VA care. Facility staff indicated that non-VA care is used when VA facilities are unable to meet VHA wait time goals or when that exam is not offered at the VA; however, an estimated 12,000 of these were not completed within 30 days of the CID. Overall, completion of the 27,700 requests through non-VA care took a projected average of 34 days from the CID.

What the OIG Did

The team reviewed 396 routine and urgent requests for CT, ultrasound, MRI, nuclear medicine, and mammography. Of these requests, 329 were completed at VA facilities and 67 requests were completed through non-VA care.

The audit team assessed whether 59 of the 67 non-VA care requests were completed within recommended time frames. However, it did not assess the cause for the untimely non-VA care requests, due to the ongoing restructure of non-VA care programs under the MISSION Act.⁹ The audit team did not assess whether the remaining eight non-VA care requests met the recommended time frames due to the age of these exams—while the requests were closed during the first quarter of FY 2018, the exams were completed before FY 2017.

⁹ VA Maintaining Internal Systems and Strengthening Integrated Outside Networks Act (MISSION Act) of 2018, Pub. L. 115-182, 7 and 4 Stat. 2372 (2018).

The audit team assessed completed exam requests by reviewing electronic health records, including VistA, the Computerized Patient Record System (CPRS), and Choice contractor portals.¹⁰ The team discussed statistical review results with facility staff and contacted staff at 42 facilities to determine the reasons for exam delays.

The audit team also visited nine VA medical facilities to learn about current processes and procedures affecting access to exams and processes used for managing canceled requests.¹¹

This finding discusses

- Time standards for urgent and routine completed exam requests, and
- Reasons for untimely completion of exam requests.

Time Standards for Urgent and Routine Completed Exam Requests

VHA policy requires staff to complete routine exams within 30 days and urgent exams within 14 days of the CID.¹² VHA diagnostic services use multiple types of modalities to capture the exam results for diagnosing and treating diseases and injuries. Modalities include computed tomography (CT), MRI, interventional radiology, ultrasound, mammography, and nuclear medicine. The Radiology Program Office established performance metrics for tracking wait times in each of the radiology and nuclear medicine modalities the audit team reviewed. The program office metrics aim to meet the VHA 30-day policy standard for at least 90 percent of outpatient exams. Given this performance goal, the audit team considered an untimely error rate above 10 percent to be more significant than modalities that had 10 percent or fewer untimely exams.

While veterans had to wait an overall average of 15 days for exams associated with the estimated 660,000 urgent and routine requests, VHA did not meet its goal to complete 90 percent of routine exams within 30 days of the CID. Of the estimated 610,000 routine exam requests completed at VA facilities, 103,000 requests were not completed within 30 days of the CID (17 percent). Of the estimated 49,400 urgent requests completed at VA facilities, 12,100 requests were not completed within 14 days of the CID (25 percent). Table 1 summarizes the timeliness of requests completed at VA medical facilities during the review period by urgency status.

¹⁰ CPRS presents a comprehensive view of a patient's clinical information. The Choice contractor portals show viewers the actions the Choice contractors have taken on the authorizations VA staff submitted. For example, it includes scheduling attempts and records associated with the completed appointment.

¹¹ Two of nine sites were virtual site visits, but the document requests and key staff interviewed were the same.

¹² VHA Memo VAIQ 7722255.

Table 1. Estimated Timeliness of VHA Completed Exam Requests by Urgency

Exam request type	Estimated number of exam requests	Average overall exam wait time	Estimated number of untimely exam requests	Estimated untimely exam requests	Average wait time for exams exceeding time frame requirement
Routine	610,000	15 days	103,000	17 percent	43 days
Urgent	49,400	11 days	12,100	25 percent	34 days

Source: VA OIG analysis of selected requests completed in the first quarter of FY 2018

The audit team found radiology and nuclear medicine staff did not complete an estimated 115,000 routine and urgent requests within the recommended VHA time frames. Scheduling delays contributed to 44,300 of the 115,000 untimely exam requests. Radiology and nuclear medicine policy recommended schedulers initiate the first scheduling attempt within seven days of the request creation date for non-future requests, which is a request with a CID within 90 days of the request creation date. However, for future requests—those with a CID greater than 90 days from the request creation date—schedulers can wait until 45 days before the CID to initiate the first contact attempt.¹³ However, schedulers did not initiate scheduling attempts as recommended, which ultimately led to untimely exam completion.

Timeliness of Urgent Exam Requests

The audit team assessed whether urgent radiology exam requests from CT, ultrasound, MRI, nuclear medicine, and mammography met the recommended time frame. An estimated 25 percent of urgent requests were not completed within 14 days of the CID, as policy recommended. It took an average of 18 days before schedulers made the first scheduling attempt for the estimated 12,100 untimely urgent requests. It took an average of 34 days past the CID to conduct the exams. Example 1 details delays a veteran experienced during an urgent request.

Example 1

A veteran waited 42 days from the primary care physician request for an urgent brain MRI exam. The primary care physician placed the urgent brain MRI request in late 2017, with a CID of three days after the request. This request was to further diagnose a brain lesion identified during a CT scan that took place a day prior to the request. More than 30 days after the initial MRI request, the primary care physician followed up about the status of the request. There were no scheduling attempts made until 35 days after the physician requested the exam—when a radiology technician made the MRI appointment. The results

¹³ VHA Memo VAIQ 7722255.

identified a type of malformation that can cause brain hemorrhages, in some (or rare) instances.

Timeliness of Routine Exam Requests by Modality

The audit team assessed whether routine radiology exam requests from CT, ultrasound, MRI, nuclear medicine, and mammography were completed within 30 days of the CID, as policy recommended. Routine MRI failed to complete an estimated 28 percent of their requests within the recommended time frame. Routine ultrasound did not complete 19 percent of their requests within the recommended time frame, while CT scans did not meet the recommended time frames for 10 percent of their requests.¹⁴ The audit team did not report on similar estimates for nuclear medicine and mammography because the margin of error for each individual modality was too large for the audit team to accurately report on the results.

Reasons for Untimely Completion of Exam Requests

Delays in exams occurred for three main reasons:

- Facility directors and service chiefs did not make enough staff available to perform scheduling tasks and meet radiology workload demand in a timely manner.
- Facilities experienced equipment shortages due to a variety of reasons unique to each facility.
- Radiology and nuclear medicine staff did not consistently monitor their pending and hold exam request reports to identify requests that needed to be scheduled.

The audit team analyzed wait time data from VHA's corporate data warehouse for completed exam requests from the nine facilities visited. The data indicated that six of the nine facilities had a more significant number of untimely exam requests; these facilities had routine requests from three or more modalities that were more than 10 percent untimely. These same six facilities all had urgent requests that were more than 25 percent untimely.

When asked about exam delays identified during the audit team's sample review of completed exam requests, facility staff most frequently cited clinical and scheduling staff shortages as reasons for exam delays. The audit team identified 52 delayed exam requests associated with 42 VA medical facilities. Based on the responses provided, the audit team assigned categories to better identify delay trends. Table 3 highlights the notable trends identified from the 48 responses received.

¹⁴ There are no statistically significant differences between the estimated error rates for MRI, ultrasound and CT requests.

Table 2. Exam Delay Trends

Possible delay trends	Facility count	Facility percent	Sample count	Sample percent
Technologist shortage	10	24	11	23
Scheduling staff shortages	6	14	10	21
Radiologist shortage	3	7	3	6
Scheduling staff allocation	3	7	5	10
Equipment issues	5	12	6	13
Inefficiency in scheduling process	5	12	5	10

Source: VA OIG analysis of facility responses for reasons that exam delays occurred for selected requests completed in the first quarter of FY 2018

Note: Because these were the more prevalent trends, the totals do not sum to 48 samples or 42 parent facilities.

Staffing Shortages and Scheduling Staff Allocation Insufficient to Schedule and Complete Exam Requests

The audit team identified two types of staffing issues: shortages and insufficient allocation of scheduling staff. First, facilities reported having restricted exam access due to insufficient staffing levels for schedulers and technologists, primarily. Second, the audit team found that existing scheduling staff were not always allocated from other facility services or from other modalities to meet scheduling demands within the recommended time frames. Facility managers and staff identified explanations that possibly contributed to staff shortages:

- Hiring and retention issues with technologists due to salary disparities between VHA and the private sector
- Radiology service scheduling staff retention issues caused by the lower promotion pay grade available when compared to other service area schedulers

Radiology and nuclear medicine staff at 17 facilities indicated that staffing shortages were the primary reason for exam delays. More specifically, staff from 10 facilities cited technologist shortages, staff from six facilities cited scheduling staff shortages, and staff from three facilities

attributed radiologist shortages to the delays the audit team identified.¹⁵ Although facility staff indicated staff shortages resulted in delays, the audit team performed a staffing analysis and could not determine the extent to which the shortages affected exam access. This is in part because, according to the chief consultant of the Radiology Program Office, there was no national clinic practice management model to determine the number of clinical and administrative staff needed to manage workload demands. According to Radiology Program Office leaders, developing a standardized national model, while possible, is complicated by the need to incorporate the varying staffing needs. Complexity varies between facilities and different complexities require different staffing levels.

Facility leaders did not ensure existing scheduling staff were allocated to radiology services to meet scheduling request demands. For example, four of the six facilities visited with untimely exam requests did not have scheduling staff consistently distributed to modalities within the radiology service. Radiology and nuclear medicine managers at eight of nine facilities visited indicated they had filled at least 80 percent of their authorized number of scheduler positions for radiology services. However, this was not sufficient due to increased scheduler workload or inconsistently distributed scheduling workload. A comparative analysis of scheduler workload and staffing levels found six facilities with untimely exam requests had, at minimum, 16 percent greater workload volume per scheduler than two facilities that generally provided exams within the VHA recommended time frames. During the audit, Radiology Program Office leaders drafted a staffing guide that provides workload expectations for schedulers so that facility leaders can determine how many schedulers are needed for radiology and nuclear medicine services. The OIG will follow up with the Radiology Program Office once this draft has been issued. Recommendation 1 addresses the need to adequately distribute schedulers across all modalities to schedule requests within the recommended time frames.

Equipment Shortages

Responses from facility staff at five of 42 medical facilities with untimely exam requests cited equipment issues as a contributing factor to substandard performance. Four of the five responses indicated a need to either replace an existing MRI unit or that the single MRI unit the facility had was insufficient to meet demand. The remaining response indicated that the single CT unit the facility had was insufficient to meet demand.

Radiology staff at four of the six untimely facilities visited also identified some similarities in equipment issues:¹⁶

¹⁵ VA Office of Inspector General, *OIG Determination of Veterans Health Administration's Occupational Staffing Shortages FY 2018*, 18-01693-196, June 14, 2018. From the 141 facilities contacted, 39 facilities marked diagnostic radiologic technologists (occupational series 0647) as a staff shortage; numbers do not add to 17 because facilities cited more than one vacancy shortage.

¹⁶ One of these four facilities was also included in the sample responses from facility staff at five of 42 medical facilities for exam delays.

- CT and MRI units needed replacement because they were at the end of their life cycles and either not operational or down due to maintenance issues.
- An additional MRI unit was needed to meet increased service demand.
- CT units needed the vendor to address maintenance problems that were not immediately fixed.

Radiology staff at two facilities encountered delays in replacing their MRI units because of the requirements for constructing MRI space. For the other two facilities, one elected not to replace their MRI and CT units because the service was going to be moving to a newly constructed location. The other facility indicated it submitted a purchase request for an MRI unit in 2016 and resubmitted that same request in 2017, but it was not approved by the VISN until July 2018. During the audit, the Radiology Program Office developed a staffing and space planning guide to help radiology services ensure clinics are appropriately staffed with sufficient space to maximize efficiency. The OIG will follow up with the Radiology Program Office once this draft has been issued. Recommendation 2 addresses the need to follow up with the national radiology office to ensure the formalized guidance addresses staffing and equipment resources appropriately.

Insufficient Access Monitoring

Although staffing allocation was the primary cause of exam request delays, insufficient monitoring of radiology and nuclear medicine access presented additional challenges. The audit team identified breakdowns in monitoring access to radiology exams at the national and facility levels. Exam access monitoring allows VHA to identify trends on a national scale and use strategic planning to resolve any issues. The Radiology Program Office staff indicated they reviewed exam wait time lists each quarter. However, the wait times combined all statuses and measured them against the wait time goal for routine requests, rather than the appropriate urgency requirement. In doing so, this kept the Radiology Program Office from reliably communicating nationwide exam trends. During the audit, the Radiology Program Office developed a report to monitor routine and urgent requests separately by their applicable time frame requirements. Based on the actions taken during the audit, the OIG is not making a recommendation to monitor and track requests by the assigned urgency status.

Radiology and nuclear medicine staff are expected to monitor open requests like those in a scheduled, pending, or hold status. Radiology and nuclear medicine service chiefs did not sufficiently monitor radiology and nuclear medicine staff to ensure open exam requests were reviewed and addressed in a timely manner.¹⁷ Although radiology or nuclear medicine service chiefs indicated they routinely provided performance metrics on exam access to facility leaders, based on responses from radiology or nuclear medicine managers and staff, radiology and

¹⁷ VHA Memo VAIQ 7806589.

nuclear medicine staff did not consistently conduct independent audits or work process reviews to identify inefficiencies and compliance with policy. Outpatient appointments covered under another VHA directive require biannual scheduling audits of timeliness, appropriateness, and accuracy, but the radiology service exam appointments do not have any audit requirements.¹⁸ An effective internal control system should establish monitoring activities used to identify deficiencies and risk.¹⁹ Had facility radiology and nuclear medicine leaders adequately assessed and monitored the exam scheduling process, they could have mitigated exam delays for veterans.

Radiology and nuclear medicine service chiefs are responsible for developing local policies, which define the responsibilities for daily monitoring of exam requests and prompt access to exams.²⁰ Radiology or nuclear medicine staff at four of the six facilities the audit team visited with untimely exams did not monitor the electronic reports used to track pending and hold requests across all modalities daily. In addition, the service chiefs did not develop local policies to define the responsibilities for daily monitoring of the pending and hold request lists at these four facilities, as required by radiology and nuclear medicine policy.

In March 2016, during a national conference call, the Radiology Program Office staff provided all facilities with instructions on how to run a comprehensive FileMan report, which allowed facilities to more easily identify and monitor all open exam requests with a hold, pending, or scheduled status. The office provided instructions to facilities indicating how to run a FileMan report again in February and September 2017. However, the audit team identified deficiencies in report monitoring at seven of the nine the facilities visited based on the facility radiology and nuclear medicine responses. These deficiencies included facilities that did not use FileMan reports, facilities that did not start using FileMan reports until or after October 2017, and facilities that did not review reports daily. Recommendation 3 addresses the need for facility radiology and nuclear medicine service staff to monitor and address unscheduled requests within the recommended time frames.

Conclusion

Medical facility leaders did not manage existing staff to perform scheduling tasks and struggled to fill scheduling staff vacancies to meet demand. Scheduling staff did not initiate scheduling attempts within the recommended time frames, which contributed to untimely exams. Insufficient staffing levels and equipment issues resulted in additional delays in completing healthcare appointments and treatment plans. Another factor that contributed to delays was inadequate monitoring of exam requests. Inadequate monitoring meant that staff did not always identify all the requests that still needed to be scheduled. Due to the inadequate monitoring, VHA does not have reasonable assurance that veterans are receiving radiology exams at VA

¹⁸ VHA Directive 1230, *VHA Outpatient Scheduling Processes and Procedures*, July 15, 2016; VHA Memo VAIQ 7722255.

¹⁹ Government Accountability Office Standards for Internal Control in the Federal Government.

²⁰ VHA Memo VAIQ 7806589; VHA Memo VAIQ 7722255.

medical facilities nationwide within the recommended time frames. VHA also cannot accurately report on radiology and nuclear medicine service performance nationally or make informed program-level decisions based on current data reports.

Recommendations 1–3

The OIG made the following recommendations to the under secretary for health:²¹

1. Ensure facility staff evaluate scheduling workload and that medical support assistant staffing is adequately distributed for scheduling radiology exam requests in a timely manner.
2. Provide formal guidance to facilities for establishing clinic management models for adequate radiology resources, including staffing and equipment.
3. Ensure facility radiology and nuclear medicine services monitor exam requests pending greater than seven days and address them in a timely manner.

Management Comments

The executive in charge, Office of the Under Secretary for Health, concurred with Recommendations 1–3 and provided corrective action plans with completion dates targeted for no later than July 2020.

In response to Recommendation 1, the executive in charge stated the Office of the Deputy Under Secretary for Health for Operations and Management (DUSHOM) will coordinate with the National Radiology Program Office to direct the VISNs and VA medical facilities to evaluate the radiology and nuclear medicine scheduling workload. The office will also ensure that medical support assistant staffing is adequately distributed to meet the requirements within the Radiology and Nuclear Medicine Orders Management guidance in accordance with the May 1, 2019, Office of the DUSHOM memo. Each VISN director will issue an attestation to confirm VA medical facility compliance. If a VA medical facility is not compliant, then the facility will develop and submit an action plan to the VISN until the facility is compliant.

In response to Recommendation 2, the executive in charge stated the National Radiology Program Office will distribute a clinic management model that includes guidance on adequate radiology staffing and equipment.

In response to Recommendation 3, the executive in charge stated that VHA will issue a supplement to the Office of the DUSHOM memo from May 1, 2019, which will require sites to report to the facility leaders, VISN leaders, and the VISN lead radiologist that radiology and nuclear medicine services are monitoring the number of exam requests that require scheduling in the “pending” status greater than seven days. Each VISN director will issue an attestation to

²¹ Recommendations directed to the under secretary for health were submitted to the executive in charge who has the authority to perform the functions and duties of the under secretary of health.

confirm VA medical facility compliance. If a VA medical facility is not compliant, then the facility will develop and submit an action plan to the VISN until the facility is compliant.

OIG Response

The executive in charge, Office of the Under Secretary for Health, concurred with Recommendations 1–3, and submitted acceptable corrective action plans for all recommendations. The OIG will monitor implementation of planned actions and will close the recommendations when VA provides sufficient evidence demonstrating progress in addressing the intent of the recommendations and the issues identified.

Finding 2: Most Follow-Up Care Was Completed Appropriately

The audit team generally found that facility staff confirmed veterans received the recommended follow-up care or attempted to complete the care with veterans. An estimated 299,000 of the 687,000 exam requests completed at VA medical facilities or through non-VA care during the review period resulted in a recommendation for immediate follow-up care.²² An estimated 268,000 of the 299,000 follow-up care recommendations were completed.²³ The audit team consulted with OHI where follow-up care appeared to be unaddressed at the time of review to assess whether these veterans received acceptable care or incomplete care, or experienced any adverse clinical outcome. The audit team also referred other completed requests in instances where there were delayed exams or if the veteran was deceased. A total of 58 completed requests were referred to OHI for clinical review.

Clinical Effect of Delays

While OHI found that all 58 requests had acceptable care, three veterans required additional follow-up for exam recommendations or incidental findings. OHI has provided informal facility-specific recommendations to address the outstanding care issues and contacted each facility chief of staff to notify them of any additional follow-up care needs. See Appendix B for additional details on these cases. Recommendation 4 addresses the need for the facility director to review and take appropriate action for the follow-up care associated with these three completed requests.

Recommendation 4

The OIG recommended the under secretary for health

4. Confirm with each facility director that they reviewed each record and took appropriate action as they deemed necessary for the three completed requests with additional follow-up care needs.

Management Comments

The executive in charge, Office of the Under Secretary for Health, concurred with Recommendation 4 and provided a corrective action plan to be completed by October 2019.

In response to Recommendation 4, the executive in charge stated the Office of the DUSHOM will direct each VISN director to address each identified patient that was in need of follow-up care. The VISN will confirm that all outstanding care has been reviewed and addressed, as appropriate.

²² Routine diagnostic exams were excluded from this definition.

²³ Due to a large margin of error, the audit team did not project the instances where follow-up care was incomplete because the facility staff had not made scheduling attempts.

OIG Response

The executive in charge, Office of the Under Secretary for Health, concurred with Recommendation 4 and submitted an acceptable corrective action plan for the recommendation. In November 2019, the OIG received the completed corrective action plan for Recommendation 4. Based on the actions taken, the OIG considers this recommendation closed.

Finding 3: Facility Radiology and Nuclear Medicine Staff Inappropriately Canceled Exam Requests

Facility radiology and nuclear medicine staff did not follow radiology and nuclear medicine policy when canceling an estimated 106,000 of 442,000 outpatient exam requests from September 1 through December 31, 2017, which led to delayed or incomplete exams. The audit team found these cancellations were inappropriate primarily because obsolete requests—requests that are 60 days past the CID—were canceled without a documented clinical review. There were several reasons why inappropriate cancellations occurred, including breakdowns at the national, VISN, and facility level. First, national guidance failed to clearly define monitoring roles and responsibilities. Second, Radiology Program Office leaders expected VISN leaders to help oversee implementation of the national guidance and monitor compliance with the policy requirements. However, there was no clear written direction that outlined these expectations and VISN responses indicated their involvement in the monitoring and execution of the policy was inconsistent.²⁴ Third, VA medical directors did not ensure radiology and nuclear medicine staff complied with a clinical review process when canceling exam requests.

A radiology or nuclear medicine exam request that has not been completed within 60 days of the CID is considered an obsolete request; all other cancellations are referred to as non-obsolete. An estimated 49 percent of obsolete requests were inappropriately canceled, while only 7 percent of non-obsolete requests were inappropriately canceled. Therefore, the audit team focused its cause analysis on obsolete cancellations.

Figure 2 provides additional information on the identified cancellation errors.

²⁴ The audit team contacted 18 VISN directors. Although the audit team contacted VISN directors, VISN staff and leaders also responded on behalf of the VISN.

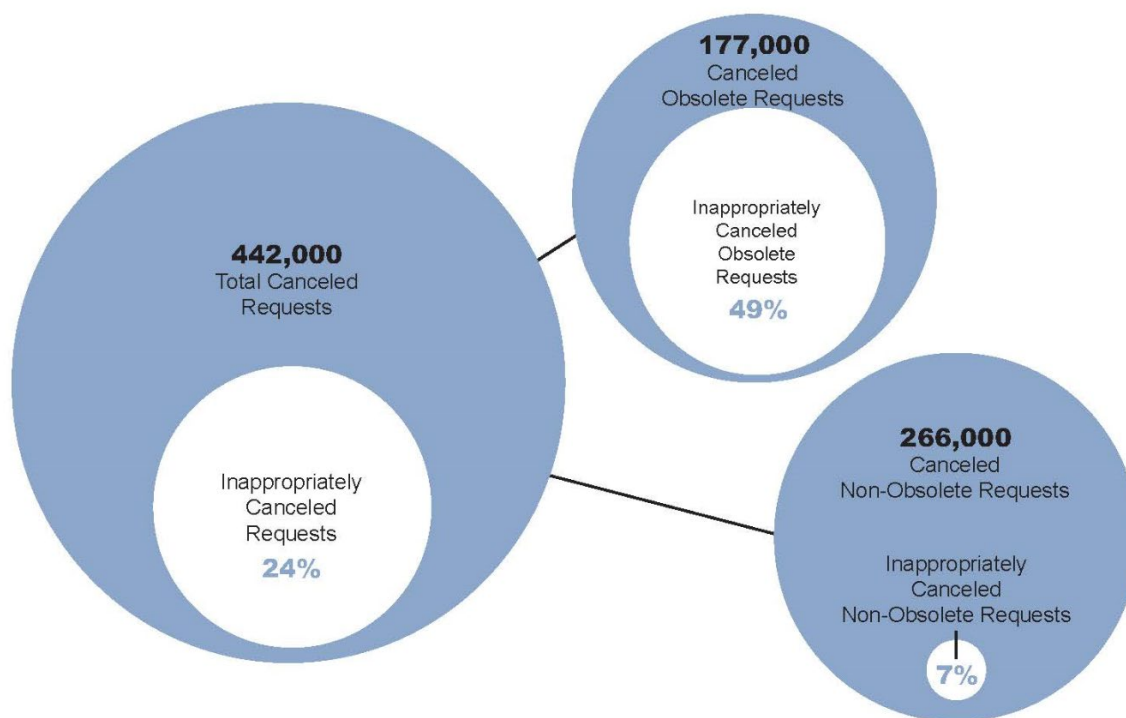


Figure 2. Estimated appropriateness of canceled exam requests by age of request²⁵

Source: OIG analysis of selected exam requests canceled September 2017 through December 2017

When cancelling obsolete requests, facility radiology and nuclear medicine leaders did not conduct work process reviews or audits, which put the facilities at risk for errors. For example, facility radiology staff indicated that when they canceled obsolete requests, they erroneously canceled requests for exams that veterans planned to attend. These errors likely occurred because before canceling, staff did not check whether the exam had been scheduled but not updated in the VistA radiology package to reflect its scheduled status. To complete exams, requests must be appropriately set up in the system. Consequently, veterans had to wait for the erroneously canceled requests to be recreated. Inadequate monitoring of obsolete exam requests also meant radiology and nuclear medicine staff spent additional time reviewing and canceling duplicate requests because radiology and nuclear medicine staff failed to promptly act on the original request. The audit team projected 40,300 obsolete requests were canceled because the exam was completed on a duplicate request. Of those 40,300 requests, 37,200 original requests were still pending action from radiology or nuclear medicine staff when a duplicate request was created, adding to the number of open requests staff needed to manage. The wait times for some of these completed duplicate requests showed the veteran waited less time than actually experienced.

²⁵ Due to rounding, the total number of non-obsolete and obsolete requests do not equal the total number of requests. See Table E.18, Statistical Projections of Canceled Requests Assessed, and Table E.19, Statistical Projections of Inappropriately Canceled Requests, in Appendix E.

More specifically, an estimated 4,400 duplicate requests had different CIDs that were on average 41 days later than the original obsolete request.²⁶

In addition to inadequate monitoring of exam requests, the audit team identified a secondary issue contributing to a larger number of open obsolete requests that staff needed to review and assess: of the 177,000 obsolete requests, 31,000 were referred to non-VA care (18 percent). However, frequent guidance changes on how radiology and nuclear medicine services manage non-VA care requests led to challenges in completing the non-VA care referrals. These challenges meant a higher number of open obsolete requests because some facility staff left requests on hold until they received the non-VA care records. Having to resolve a larger number of open obsolete requests puts the facilities at a higher risk for cancellation errors. Inconsistent processes for handling non-VA care records and requests also made it difficult for staff to associate (index) records with requests in the VistA radiology package and for staff to identify the records in the electronic health record. Disorganized medical records increase the potential risk of clinicians missing results and not addressing subsequent follow-up care needs.

What the OIG Did

The audit team visited nine main facilities to identify processes and procedures affecting access to exams and exam request management.²⁷ The team reviewed a sample of 113 canceled requests from MRI, ultrasound, CT, mammography, and nuclear medicine with an urgent or routine status, including 57 obsolete requests and 56 requests that were less than or equal to 60 days from the CID.

The team reviewed electronic health records, including VistA, CPRS, and Choice contractor portals, to assess if the requests were canceled in accordance with policy. The team reviewed obsolete requests to determine what type of clinical triage (review) process staff performed. For sample cancellations with potential issues, the team discussed statistical sample review results with the medical facility staff to clarify questions and potential issues.

This finding discusses

- Obsolete exam requests identified as a patient concern,
- Cancellation of obsolete exam requests,
- Guidance that failed to define monitoring roles and responsibilities, and
- Management of non-VA care exam requests.

²⁶ Due to a high coefficient of variance, the lower confidence interval limit was used for the estimated number of duplicate requests with different CIDs and the average difference between CIDs.

²⁷ Two of nine sites were virtual site visits but the document requests and key staff interviewed were the same.

Obsolete Exam Requests Were Identified as a Patient Safety Concern

As of February 25, 2016, VHA had about 2.6 million obsolete radiology and nuclear medicine exam requests in an open status, including pending and hold statuses.²⁸

By February 25, 2018, the open obsolete requests had decreased by about 66 percent to approximately 872,000 obsolete radiology and nuclear medicine exam requests. The decrease aligned with when the Radiology Program Office leaders encouraged facility staff to “clean up” open obsolete exam requests starting on February 26, 2016. The chief consultant of radiology services told the audit team he first became aware of an obsolete request backlog shortly after he started his role in November 2015. He said that pending obsolete requests were a patient safety concern because providers may not be aware that the requested exam had not been completed.

Figure 3 shows the number of cancellations from October 2015 through April 2018.

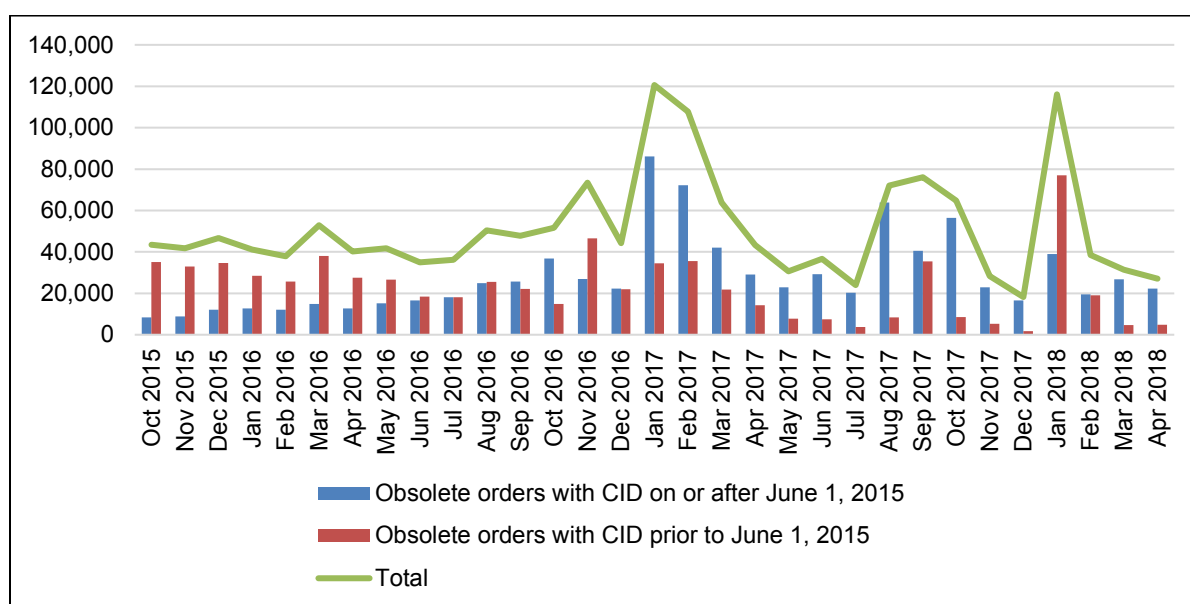


Figure 3. Nationwide count of canceled obsolete exam requests

Source: VA OIG analysis of corporate data warehouse data for selected radiology modalities. This included nationwide trends of obsolete exam requests canceled from October 1, 2015 to April 30, 2018.

Note: In April 2018, Radiology Program Office leaders sent all VA medical facilities a system patch to automatically cancel exam requests with a CID before June 1, 2015.

Between February 2016 and September 2017, the Radiology Program Office issued or updated guidance at least four times that includes instruction on management of obsolete exam requests and non-VA care referrals for radiology services. See Appendix C for additional details on the obsolete exam request guidance timeline. Non-VA care referrals contributed to the issue of a backlog of open obsolete requests because non-VA care requests stay on hold while awaiting

²⁸ Of the approximately 2.6 million open obsolete requests, about 1.7 million had a clinically indicated date that was prior to February 25, 2014. About 535,000 requests of the 2.6 million requests had a clinically indicated date of February 25, 2015 or later.

records from the non-VA care provider. These requests become obsolete after 60 days. An estimated 18 percent of the obsolete requests within the statistical sample were for non-VA care exams.

Cancellation of Obsolete Exam Requests

Of the estimated 442,000 canceled outpatient exam requests in the population, the audit team identified 177,000 obsolete requests. Of the estimated 177,000 obsolete requests, the audit team determined 86,700 were inappropriately canceled. When facility staff cancel an obsolete request in a pending or hold status with a CID of June 1, 2015, or later, VHA policy requires two steps: First, an electronic system notification called a view alert is sent to the ordering provider of the canceled request. Second, the request must receive clinical review by medically qualified staff. Policy suggests that the ordering provider complete the clinical review.²⁹ However, the team found that an estimated 96 percent of the 86,700 inappropriately canceled obsolete requests did not receive the appropriate clinical review; the remaining percent of errors were administrative, such as deleting an earlier duplicate request.

View Alerts

When facility staff cancel an obsolete request, CPRS sends a view alert to notify the ordering provider of the canceled request. The intent of a view alert is to confirm the ordering provider agrees with the cancellation of the radiology or nuclear medicine request. View alerts are also used for other purposes, including notifying clinicians of test results, referral-related information, medication refills, and other messages.³⁰ VA providers nationwide receive an average of 116 view alerts per day, and 70 percent of primary care practitioners reported in a research study that their view alerts are at an unmanageable volume.³¹ Providers may miss view alerts related to canceled requests because there are too many notifications or, as two staff members indicated during interviews, because the view alerts could be sent to providers who are no longer treating patients at the facility.

Clinical Review

In addition to the view alerts, the director of the Radiology Program Office indicated the office expected radiology and nuclear medicine staff to implement an additional safeguard that reliably notifies a licensed independent practitioner, preferably the ordering provider, to review the obsolete request. Radiology and nuclear medicine policy requires a clinical review of obsolete requests in a pending or hold status when canceling the request. This clinical review includes a

²⁹ VHA Memo VAIQ 7806589.

³⁰ VHA Memo, "View Alerts Optimization Program," March 8, 2017.

³¹ Tina Shah, Shilpa. Patel-Teague, Laura Kroupa, Ashley Meyer, and Hardeep Singh, "Impact of a national QI programme on reducing electronic health record notifications to clinicians," *BMJ Quality & Safety Online*, Doi:10.1136/bmjqs-2017-007447 (March 5, 2018).

review to confirm the requested exam is no longer needed, conducted by medically qualified staff such as the ordering provider, radiologist, or another provider with an independent medical practitioner license. Current policy for canceling obsolete requests does not explicitly state whether this review should occur before or after canceling the request; however, the policy does provide an example of an acceptable clinical review that suggests the ordering provider would be prompted to review an obsolete request through a CPRS cancellation note. Although current policy also does not explicitly define which staff can clinically review requests, the radiology online guide indicates that technologists are not qualified to independently determine medical need. In general, licensed independent medical practitioners such as physicians, physician assistants, and nurse practitioners are the only staff who can independently determine if a request for an exam is clinically needed.³² As mentioned earlier, current policy examples suggest that the ordering provider should be part of the clinical review process.³³

Policy empowered local facility leaders to determine how best to manage those requests. Each facility could determine how to cancel obsolete requests and determine their local clinical review process. However, facility leaders incorrectly executed the review process. Specifically, facility radiology and nuclear medicine service chiefs did not always use the right staff to clinically review the obsolete requests and confirm the requested exam was no longer needed. Radiology service chiefs failed to consistently develop and execute local policies for handling their exam requests.

Facility leaders and radiology and nuclear service chiefs at the nine facilities visited did not consistently implement a clinical review process for managing obsolete requests as policy requires. Specifically, leaders from three facilities primarily relied on view alerts as their clinical review method. Leaders at one of the three facilities relied on view alerts in the radiology department but not the nuclear medicine department. Leaders at another one of the three facilities developed an internal website where ordering providers could review the obsolete requests the radiology service canceled. However, facility staff did not continue to update the site, and after several months approximately 1,400 requests had not been clinically reviewed.

Staff from two facilities and one facility's nuclear medicine department told the audit team that they notified the ordering provider via instant message, phone, or email before they canceled a request, but these methods were not documented in the patient's electronic health record.

Overall, the audit team found an estimated 139,000 of 177,000 canceled obsolete requests required a clinical review, but about 83,600 did not have one documented.³⁴ Errors fell into two categories: In the first category, staff canceled an estimated 46,500 exam requests that would not

³² VHA Directive 1350, Advanced Practice Registered Nurse Full Practice Authority, September 13, 2017; VHA Directive 1063, Utilization of Physician Assistants, December 24, 2013.

³³ VHA Memo VAIQ 7806589.

³⁴ The remaining estimated 37,200 canceled obsolete requests did not require a clinical review because these requests had a CID before June 1, 2015.

have required a clinical review if they had been promptly canceled before they became obsolete. Reasons for cancellation included

- Veterans declining the exam,
- Veterans failing to attend the appointment,
- Duplicate exam requests,
- Providers determining exam requests were no longer needed, or
- Veterans not responding to scheduling attempts.

The second category included an estimated 37,200 obsolete requests that did not have an otherwise valid reason for cancellation.

Guidance Failed to Define Monitoring Roles and Responsibilities

The Radiology Program Office updated its radiology and nuclear medicine guidance for managing obsolete exam requests on September 11, 2017.³⁵ The previous process recommended the radiologist or ordering provider clinically review any pending obsolete requests with a CID of January 1, 2016, or later for MRI, CT, ultrasound, and mammography before canceling it. The process changed to require a clinical review for all obsolete requests except x-ray in a pending or hold status with a CID of June 1, 2015, or later to confirm that clinically indicated care was completed. The September 2017 policy does give examples suggesting that the ordering provider should be part of the review process and, according to the director of the Radiology Program Office, the Radiology Program Office expected that the ordering provider be involved in the clinical review process. However, the policy does not specify who should complete the review, which staff can clinically review requests, or when the clinical review must occur in the process.³⁶ The policy also does not state which staff can determine whether an obsolete request can be canceled if it appears to be a duplicate request. Because of the unclear policy, non-clinical support staff might review obsolete requests and leave them open (pending or on hold) out of indecision or cancel them inappropriately. Non-clinical support staff lack the specialized training to decide whether a radiology exam request is clinically necessary or duplicative, and are not allowed to make independent clinical decisions.³⁷ Facility radiology staff expressed concerns about which staff should be allowed to cancel requests.

Radiology Program Office leaders also expected VISN leaders to help oversee implementation and monitor compliance with the national obsolete request policy. The audit team did not identify policy that outlined these expectations, and VISN responses indicated their involvement

³⁵ The deputy under secretary for health for operations and management published policy on behalf of the Radiology Program Office but the Radiology Program Office drafts the policy.

³⁶ VHA Memo VAIQ 7806589.

³⁷ VHA Directive 1350 and VHA Directive 1063.

in the monitoring and execution of the obsolete request process was inconsistent. Of the 18 VISN responses, four VISN responses indicated they took an active role in implementing and monitoring the national obsolete exam request policy, including monitoring the backlog of pending obsolete requests within their VISN. The remaining 14 VISN responses indicated that they either expected each facility to self-report their policy compliance to the VISN or that they sent the national policy to facilities and expected them to oversee their own policy compliance. Outlining VISN roles and expectations could address the gap between what policy outlines and what the Radiology Program Office expects to ensure future engagement at the VISN level. Recommendation 5 addresses the need to better define VISN-level oversight for radiology and nuclear medicine services.

In addition, radiology and nuclear medicine services are expected to manage requests daily for access to exams within the VHA recommended time frames. The radiology and nuclear medicine service chiefs are responsible for developing local policies that define the responsibilities for daily monitoring of the pending and hold status lists, and ensuring that the lists are reviewed and addressed. However, none of the nine facilities visited had developed local policies to define the responsibilities for daily monitoring and managing of open requests.³⁸ An effective internal control system should clearly define roles and responsibilities in the radiology and nuclear service and clearly define procedures to accomplish the intended objective. During the audit, the Radiology Program Office drafted policy that the acting DUSHOM issued in May 2019. The policy clarifies when a clinical review should take place if canceling an obsolete request and who can complete that review, which the audit team believes will resolve the identified issue.³⁹ Based on the actions taken during the audit, the OIG is not making a recommendation to establish procedures clarifying when a clinical review should occur and who can complete the review when canceling and obsolete exam request.

Inadequate Monitoring of Exam Requests

VA medical directors provided inadequate oversight to ensure radiology and nuclear medicine service leaders were monitoring exam requests in accordance with VHA policy. Per radiology and nuclear medicine policy, once pending or hold requests become obsolete at 60 days after the CID, they should be canceled or completed. The audit team found that an estimated 139,000 of 177,000 obsolete requests should have been reviewed when they became obsolete. Instead, the requests became obsolete and then remained in an open status for an average of 200 days before they were reviewed and canceled by staff.

There is currently no requirement to conduct audits or reviews of canceled requests. Consult requests have quarterly audits to trend delays and accuracy, and outpatient appointments covered

³⁸ Following the audit team site visits, some facilities later developed local policies to define roles and responsibilities.

³⁹ VHA Memo VIEWS 00200846.

under VHA Directive 1230 require biannual scheduling audits of timeliness, appropriateness, and accuracy.⁴⁰ Radiology and nuclear medicine staff from the facilities did not conduct audits when canceling obsolete requests and no radiology and nuclear medicine staff audit canceled requests. Monitoring canceled requests through audits and work process reviews could mitigate inaccuracies and inconsistent implementation of VHA policy.

During the audit, the Radiology Program Office drafted policy that was issued by the acting DUSHOM in May 2019 that adds a requirement to audit canceled obsolete requests.⁴¹ Based on the actions taken during the audit, the OIG is not making a recommendation to establish audit requirements. Radiology Program Office leaders indicated that some facilities have implemented the auditing mechanisms to routinely audit canceled exam requests. Recommendation 6 addresses the need to follow up on mechanism implementation to ensure action has been taken at all facilities—specifically, ensuring requests are in accordance with VHA radiology and nuclear medicine policy and procedures and taking corrective actions based on audit results.

Management of Non-VA Care Exam Requests

Management and processing of non-VA care radiology exam requests varied across the nine facilities the audit team visited. The changing guidance from the Radiology Program Office further contributed to challenges in appropriately managing the open and obsolete requests specific to non-VA care providers. Inconsistent processes kept facility staff from properly linking non-VA care records with requests and restricted their ability to identify when other departments added non-VA care records in a different part of the electronic health record.

Radiology staff may place a request in a hold status when attempting to contact the veteran or when they determine the request requires referral to non-VA care. Once it is determined that the request needs to be sent through non-VA care, the ordering provider is supposed to place a non-VA care consult request. According to the assistant director of radiology, tracking non-VA care is a combined responsibility of Office of Community Care, radiology and nuclear medicine staff, and the ordering provider. Radiology staff should be communicating with Office of Community Care to ensure it received the request and a non-VA consult was created. The ordering provider is responsible for creating and tracking the status of the request through the consult once it is placed. Radiology and nuclear medicine staff are not expected to track whether the non-VA care exam is scheduled. While radiology and nuclear medicine staff are not responsible for tracking the scheduling of requests referred to non-VA care, once the non-VA exam is completed the record must be associated with a request within the VistA radiology package. According to the assistant director of the Radiology Program Office, access to the VistA radiology package is decided at the facility level and some facilities restrict access to the radiology and nuclear medicine staff.

⁴⁰ VHA Directive 1230; VHA Memo VAIQ 7722255; and VHA Directive 1232(1) *Consult Processes and Procedures*, August 24, 2016.

⁴¹ VHA Memo VIEWS 00200846.

Radiology and nuclear medicine staff were not always clear on how to manage their non-VA care requests and whether to keep the requests in a hold status even if they became obsolete:

- Two facilities placed requests on hold until non-VA care records were received.
- One facility placed requests on hold when referred through non-VA care. A sample review shows the radiology staff at the facility left the requests pending and canceled them when they became obsolete.
- Three facilities canceled requests once a non-VA care consult was created.
- Two facilities canceled obsolete requests if no non-VA care record had been received within the 60 days.
- One facility did not create requests for non-VA care exams—instead, ordering providers would create a non-VA care consult.

Guidance Changes for Managing Non-VA Care Exam Requests

The process each facility used for managing exam requests referred for non-VA care exams varied due to national guidance, which changed multiple times from February 2016 to April 2018. The February 2016 policy directed schedulers to cancel the requests and associated VA appointments after the veteran decided to be seen by a non-VA care provider.⁴² When the February 2016 guidance was updated in August 2016, the cancellation instruction was removed.⁴³ A frequently asked questions document introduced during an October 2016 national radiology conference call instructed staff to place requests referred to non-VA care on hold until the records were received. Once radiology staff received the records, they were to associate them with a request in the VistA radiology package. The instruction to place non-VA requests on hold was reinforced by guidance issued in February 2017.

The September 2017 policy for managing obsolete exam requests did not address how to handle obsolete requests that were placed on hold while facilities waited for the non-VA care record.⁴⁴ Guidance from April 2018 instructed radiology and nuclear medicine staff to cancel any open obsolete requests for non-VA care, including those on hold, if they were unable to find the exam record within the patient's electronic health record; if that record became available later, staff should create a new request to associate it with the record. If staff found the record, it should have been associated with the request to put the request into a completed status. Figure 4 summarizes the key guidance changes.

⁴² VHA Memo, "Outpatient Radiology Scheduling Policy and Procedures and Interim Guidance," February 25, 2016.

⁴³ VHA Memo VAIQ 7722255.

⁴⁴ VHA Memo VAIQ 7806589.

Requests referred to non-VA care should be canceled after referral is made.	Non-VA care requests are placed on hold; a new request is created for the record.	Radiology obsolete request policy did not clarify guidance on non-VA care request management.	Requests are to be canceled at CID+60 if no records returned. If records are available a new request is created.
February 2016	August 2016	September 2017	April 2018

Figure 4. Guidance changes in management of non-VA care radiology and nuclear medicine exam requests since the initial policy was issued in February 2016.

Source: VA OIG analysis of national non-VA care guidance from February 25, 2016 through April 2018

According to the assistant director of the Radiology Program Office, the office experienced challenges in coordinating its obsolete and non-VA guidance with guidance from the Office of Community Care. For example, non-VA care consult guidance from September 2017 allowed staff managing the consult to cancel the consult within 90 days of the scheduled appointment, provided that staff made three documented attempts to acquire the documentation from the non-VA care provider and a clinical review had been performed.⁴⁵ In contrast, radiology and nuclear medicine staff needed to decide whether to cancel their non-VA request at 60 days from the CID. During the audit, the Radiology Program Office drafted policy, which the acting DUSHOM issued in May 2019. The policy clarifies the process for managing non-VA care, which the OIG believes will resolve the identified issue.⁴⁶ Based on these actions taken during the audit, the OIG is not making a recommendation to issue policy for managing exam requests referred to non-VA care.

Processing Non-VA Care Exam Requests and Records Created Inefficiencies

Waiting to associate records from non-VA care providers with exam requests worsened the management of open obsolete requests. Adding to the confusion, current policies and guidance for processing radiology and nuclear medicine records from non-VA care are inconsistent, and implementation varies among the responsible departments—Health Information Management, Office of Community Care, and Radiology. The responsibility of each department is as follows:

- **Health Information Management:** The record is scanned or imported into VistA imaging and attached to a progress note for the visit or the appropriate non-VA care

⁴⁵ Health Information Management Fact Sheet, *Office of Community Care – consult closure*, September 2017.

⁴⁶ VHA Memo VIEWS 00200846.

titled note.⁴⁷ The scanning clerk may also attach the record to the non-VA care consult.

- **Office of Community Care or consult-receiving service:** Records received are attached to the appropriate non-VA care consult.⁴⁸
- **Radiology and Nuclear Medicine service:** Records received are attached to an associated request to be uploaded in VistA Imaging and the Picture Archiving and Communications Systems, which is the system used for display and interpretation of radiologic images.⁴⁹

There is currently no process outlining how the Office of Community Care and the Health Information Management Office will notify the radiology and nuclear medicine staff when their departments add non-VA care records to a different location within the patient's electronic health record. Without notification, radiology and nuclear medicine service staff would have to search the patient's electronic health record to then finalize the process by associating it with a request in VistA radiology. The process inconsistencies resulted in open requests becoming obsolete when they had completed non-VA care records or obsolete requests that had an existing completed non-VA care record being canceled. For example, for an estimated 57 percent of obsolete requests for non-VA care that were canceled, the audit team found a non-VA care record attached to clinical documents and consult notes. However, the records were not associated with a request within the VistA radiology package to properly complete the indexing process.

During the audit, the Radiology Program Office provided documentation of contract requirements to facilitate tracking non-VA radiology and nuclear medicine records and to standardize the index process for managing non-VA care radiology and nuclear medicine records. Based on these actions taken during the audit, the OIG is not making a recommendation to research a plan to track non-VA radiology and nuclear medicine records and standardize the index process for managing non-VA care radiology and nuclear medicine records.

Low Conference Call Attendance Rate

While official policy was released by the DUSHOM or assistant deputy under secretary for health for clinical operations, the Radiology Program Office leaders relied on national conference calls to emphasize and clarify guidance. The guidance changes for managing non-VA care requests were not discussed in the updated official policy issued by the DUSHOM or assistant deputy under secretary for health for clinical operations. Instead, national conference calls functioned as a primary tool for disseminating instruction and clarifying the non-VA care

⁴⁷ VHA Handbook 1907.01, Health Information Management and Health Records, March 19, 2015.

⁴⁸ VHA Directive 1232(1).

⁴⁹ VHA Directive 1104, Radiology Picture Archiving and Communication Systems, September 1, 2017.

request process. The national conference calls to discuss the obsolete exam request and non-VA care guidance changes were not well attended by staff from all parent facilities. An effective internal control structure includes communicating necessary information to help key personnel meet the program's objectives. Table 4 shows the attendance rate by the 141 main facilities for conference calls that discussed the key guidance changes.

Table 3. Facility Attendance Rate for Nationwide Calls

Conference call date	Medical facility attendance
January 11, 2017	67%
February 8, 2017	59%
April 4, 2018	61%

Source: VA OIG analysis of attendance lists from the assistant director of radiology and the national program office website. Attendance information only includes facility staff who included their name in the Skype chat.

**Attendance was not taken for meetings in 2016*

Recommendation 7 addresses the need to ensure radiology and nuclear medicine leaders at all facilities understand and are informed when guidance is released.

Clinical Effect of Delayed or Incomplete Exams

The audit team consulted with OHI to assess whether veterans with canceled exam requests received acceptable care or incomplete care, or incurred an adverse clinical outcome. The audit team referred to OHI requests with delayed exams or potential incomplete exams and requests associated with deceased veterans. A total of 26 canceled exam requests were referred. Of these 26 requests, OHI identified veterans from six requests who still required exams. For two of these six veterans, OHI identified an increased risk of an adverse clinical outcome. For these two veterans, one veteran had the radiological studies completed. For the other veteran, OHI was unable to conclude whether the increased risk resulted in significant clinical impact. See Appendix B for additional details.

OHI contacted the facility chiefs of staff for the five of six requests to notify them of outstanding exam needs and informally sent facility-specific recommendations. Recommendation 8 addresses the need for the facility director to review and take appropriate action related to the outstanding exams associated with five of the six canceled requests.

Conclusion

Facility radiology and nuclear medicine leaders did not correctly manage the cancellation process for obsolete exam requests. Incorrect management of obsolete requests created backlogs that facility radiology and nuclear medicine staff later canceled, which created the risk of incorrect cancellations. In addition, facility leaders and radiology and nuclear medicine managers did not consistently implement a review process to confirm that an obsolete request was no longer clinically necessary. Audits or work process reviews were not consistently completed to check for mistaken cancellations. Backlogs in open requests could also lead to duplicate requests and result in longer wait times for the veteran. Without effective monitoring, veterans are at risk of having requests canceled when they are still needed.

Frequent guidance changes for management of non-VA care exam request processes, combined with inadequate communication of these changes, could also have led to confusion and inconsistent compliance by facility staff. Inconsistent management of non-VA care exam requests that remained on hold or pending while awaiting medical records resulted in a higher number of open obsolete exam requests nationwide.

Inconsistent policies for handling non-VA care records among different departments meant that facility staff did not always associate the non-VA care record with requests so all providers could easily view the record.

Recommendations 5–8

The OIG made the following recommendations to the under secretary for health:

5. Develop and implement a plan for improved radiology and nuclear medicine oversight at the Veterans Integrated Service Network level.
6. Implement a mechanism to routinely audit canceled exam requests, ensuring the requests are in accordance with VA radiology and nuclear medicine policies and procedures for canceling exam requests, and taking corrective actions as needed based on audit results.
7. Create a method to notify radiology and nuclear medicine leaders at all VA medical facilities when guidance is released. The method should be streamlined with maximum distribution and ensure receipt and acknowledgment by affected radiology and nuclear medicine leaders.
8. Confirm with each facility director that they review each record and take appropriate action for five of the six canceled requests with outstanding exam needs.

Management Comments

The executive in charge, Office of the Under Secretary for Health, concurred with Recommendations 5–8. The executive in charge provided action plans for each recommendation, with completion dates targeted for no later than July 2020.

In response to Recommendation 5, the executive in charge stated the Office of the DUSHOM will coordinate with the National Radiology Program Office to develop and implement a plan requiring VISN directors to establish a lead radiologist for each VISN, which would include appropriate administrative support. This plan will include delineation of responsibilities for monitoring and compliance on access, scheduling, and orders management.

In response to Recommendation 6, the executive in charge stated the Office of the DUSHOM will coordinate with the National Radiology Program Office to develop a memorandum outlining audit mechanisms and requirements for the VISN lead radiologists. Each VISN lead radiologist will monitor and ensure compliance with policies and procedures for canceling exam requests and that corrective actions were taken as needed based on audit results. Each VISN director will issue an attestation to confirm VA medical facility compliance. If a VA medical facility is not compliant, then the facility will develop and submit an action plan to the VISN for follow-up.

In response to Recommendation 7, the executive in charge stated the Office of the DUSHOM will coordinate with the National Radiology Program Office to develop a memo assigning each VISN lead radiologist the responsibility for acknowledging and documenting VISN-wide communication and verifying that VA medical facilities within their VISN have implemented the new radiology/nuclear medicine guidance.

In response to Recommendation 8, the executive in charge stated the Office of the DUSHOM will coordinate with the National Radiology Program Office to direct each applicable VISN director to address the canceled requests and confirm that all outstanding exam needs are completed for each identified patient.

OIG Response

The executive in charge, Office of the Under Secretary for Health, concurred with Recommendations 5–8 and submitted acceptable corrective action plans for all recommendations. In November 2019, the OIG received the completed corrective action plan for Recommendation 8. Based on the actions taken, the OIG considers this recommendation closed. The OIG will monitor implementation of planned actions for the remaining recommendations and will close the recommendations when VA provides sufficient evidence demonstrating progress in addressing the intent of the recommendations and the issues identified.

Appendix A: Allegations of Inappropriate Cancellations

While this nationwide audit was being completed, the hotline staff received two allegations related to inappropriate cancellations. Since the audit objectives included evaluating the appropriateness of canceled exam requests nationwide, the audit team reviewed these two allegations.

Allegation 1: James A. Haley Veterans' Hospital

During a site visit to James A. Haley Veterans' Hospital in Tampa, Florida, during the week of April 9, 2018, the audit team received an allegation that radiology exam request cancellation management practices were not managed in accordance with policy. After this site visit, two other allegations were submitted to the hotline staff alleging that the facility had experienced improper mass cancellations of pending radiology requests. More specifically, there were concerns that obsolete requests did not receive a clinical review when canceled.

It was also alleged that schedulers changed request CIDs when making appointments in VistA Scheduling.

What the OIG Did

Complainants provided the audit team several lists in April 2018 and March 2019. In April 2018, the audit team received a list of 224 requests in a pending status. As of February 25, 2019, these request statuses changed to either a complete or canceled status, including

- 154 requests in a canceled status, and
- 70 requests in a complete status.

In March 2019, the audit team received 22 additional requests. As of April 3, 2019, these requests were in a canceled or complete status, including

- 20 requests in a canceled status,
- Two requests in a complete status.

In March 2019, the audit team also received a list of 123 scheduled radiology appointments that were past due as of November 23, 2018. Most of these appointments (121) were scheduled to occur from January through November 2018, while the remaining two appointments were scheduled for December 2016 and November 2017.

From the information received in April 2018 and March 2019, the audit team reviewed 82 canceled requests—80 requests were canceled from January 2018 through March 2019 and the

remaining two requests were canceled in 2017. Of the 82 canceled exam requests reviewed, 72 were obsolete requests (88 percent). For the 82 canceled requests, the audit team selected requests associated with deceased veterans or requests where the technologist notes indicated that the requests did not have scheduling attempts. Given that this was a non-statistical sample, the error rates identified could not be used to project the error rates that occurred facility-wide during this time frame.

In addition to a sample review, the audit team analyzed data from the corporate data warehouse from February 8, 2017, through March 31, 2018, to determine the number and type of exam requests that were canceled, who canceled exam requests, and when cancellations occurred.

A review of electronic health records, including VistA and CPRS, was used to assess exam requests and appointments. The audit team also interviewed key staff about the cancellation processes used.

The audit team did not address the allegation related to improper use of the CID when scheduling appointments because radiology leaders use the CID from the VistA radiology package to measure wait times, which cannot be altered by staff when scheduling appointments.

What the Review Found

The audit team substantiated that staff inappropriately canceled exam requests, which mostly included inappropriate cancellation of obsolete requests. Radiology staff were slow to follow national policy, which includes a clinical review for obsolete requests. Staff did not use a clinical review process until April 2018, and radiology staff did not consistently use this clinical review process for obsolete exam requests canceled after April 2018. The audit team found that staff did not promptly cancel pending requests when they became obsolete.

Staff Inappropriately Canceled Exam Requests

Of the 82 canceled exam requests reviewed, 12 requests were inappropriately canceled. About 92 percent of these inappropriate cancellations were obsolete requests:

- 11 obsolete requests were canceled without a clinical review.
- One non-obsolete request did not have the required minimum number of scheduling attempts before cancellation.

When assessing the 11 inappropriately canceled obsolete requests, the audit team found that 10 of the inappropriately canceled obsolete requests would not have required a clinical review if they had been promptly canceled before they became obsolete. Prompt cancellation reasons included the following:

- Veterans declined the exam.
- Veterans failed to attend the appointment.

- Duplicate exam requests were created.
- Veterans did not respond to scheduling attempts.

The audit team reviewed the 12 inappropriate cancellations to determine whether any had outstanding exams. From the 12 inappropriate cancellations, 11 inappropriately canceled requests did not have outstanding exams:

- Three veterans no longer required an exam when the exam request was canceled.
- Four veterans received exams later through another exam request, with an average wait of 338 days from the original CID.
- Four veterans did not receive an exam because they had declined the exam, canceled an appointment, or failed to show for a scheduled appointment.

The audit team reached out to the facility to assess and evaluate whether follow-up care is still required for the remaining request.

OHI Facility Exam Request Review

OHI reviewed electronic health records associated with 15 exam requests from the facility. The audit team referred these exam requests for clinical review to determine if the exam request was completed and to assess for clinically significant adverse outcome due to a delay or incomplete exam request. From the 15 requests, OHI identified that

- Seven veterans had incomplete exams with one patient who still clinically required an exam,
- Seven veterans had delayed care, and
- One veteran had acceptable care.

For the seven requests with delayed care, OHI's electronic health record review found no causality between a delay in completion and a clinically significant adverse outcome for any of the patients. For the seven requests with incomplete care, OHI's electronic health record review found no causality between an incomplete radiological study and a clinically significant adverse outcome for two of the patients, and was unable to determine whether a clinically significant adverse outcome was related to the incomplete radiological study for five of the patients.

However, for the patient with outstanding incomplete care clinically requiring an exam, OHI contacted the VA facility chief of staff and provided an informal recommendation to address the outstanding care issue. The audit team completed an electronic health care record review and confirmed facility staff had acted on the outstanding care issue for this patient.

Staff Were Slow to Follow National Policy

Staff did not follow national guidance issued February 8, 2017, to include a radiologist or ordering provider review of the pending exam request for MRI, CT, ultrasound, nuclear medicine, and mammography before canceling the obsolete exam request. Staff also did not implement the clinical review process required by the September 11, 2017, guidance update; according to the radiology administrator, staff at the facility did not adopt a separate clinical review process for obsolete requests until April 1, 2018. Administrative staff and technologists canceled about 5,000 obsolete requests using only a view alert from February 8, 2017, to April 1, 2018, without having a separate clinical review.

Staff Did Not Consistently Use a Clinical Review Process

Although the radiology administrator indicated that facility staff started to use a clinical review process in April 2018, the sample review shows that this process was not consistently implemented. For example, out of the 72 obsolete requests reviewed, 11 requests were canceled without a clinical review and all of these requests were canceled after April 1, 2018.

Staff Did Not Promptly Cancel Exam Requests

Per radiology and nuclear medicine policy, requests should be canceled or reordered once they become obsolete at 60 days after the CID. Staff failed to promptly review and resolve pending requests when they became obsolete. The 72 obsolete requests reviewed remained in an obsolete status for an average of 331 days before staff canceled them.

Since the current practices for obsolete requests are compliant with national policy and the updated national policy has been issued to address who can and cannot review and cancel duplicate requests, the OIG has no additional recommendations for the facility.

Allegation 2: Iowa City Veterans Affairs Medical Center

The hotline staff received a complaint on June 16, 2017, related to staff inappropriately mass canceling radiology exam requests at the Iowa City VAMC. The allegation was initially closed in March 2018, but was added to this nationwide audit in August 2018 based on additional documentation submitted in June 2018.

In June 2017, the complainant alleged CT requests were canceled by unqualified individuals without notifying providers and requests were canceled to cover up exam wait times for veterans.⁵⁰ In June 2018, the hotline staff received additional documentation and additional allegations that all canceled requests were canceled by unqualified individuals. The hotline staff

⁵⁰ Other healthcare allegations were made that fell outside the scope of the audit objectives. These allegations were reviewed by the facility during an internal investigation in response to OIG's request to the facility.

also received allegations that a facility staff member misused a directive for consults to cancel requests and that the staff member admitted to canceling up to 15,000 requests.

What the OIG Did

OHI referred the allegation to the facility in July 2017 for review and to address allegations. Facility staff conducted interviews with radiology leaders and staff and compared these interviews to VHA policy and guidance. Facility staff provided a response to the OIG in September 2017, which was reviewed and accepted. Facility staff did not substantiate that CT requests were being canceled by unqualified individuals without notifying providers and did not substantiate that requests were canceled to cover up exam wait times for veterans per the allegation on June 16, 2017.

OIG received 78 unique radiology exam requests—71 requests in June 2018 and seven requests in March 2019—alleging that delays in exams occurred or requests were inappropriately canceled. Of these 78 requests, nine were not reviewed because they were either included in the scope of the audit team’s statistical sample or were not associated with a canceled request. The audit team reviewed the remaining 69 canceled requests:

- 63 requests were canceled from January through July 2017.
- Six requests were canceled from January through August 2018.

Thirteen of the 69 canceled requests were obsolete. Given that this was a non-statistical sample, the error rates identified could not be used to project the error rates that occurred facility-wide during this time frame. The team reviewed electronic health records, including VistA and CPRS, to assess these exam requests. The audit team also interviewed key staff about cancellation processes.

In addition, the team analyzed data from the corporate data warehouse from February 8, 2017, through October 31, 2017, to determine the number and type of exam requests that were canceled, who canceled requests, and when this occurred.

What the Review Found

The audit team substantiated that exam requests at the Iowa City VAMC were canceled inappropriately. Radiology staff were slow to follow national guidance and policy, which included a clinical review for obsolete requests. Staff did not use a clinical review process until November 2017. The audit team did not substantiate that unqualified radiology staff canceled requests or that radiology staff misused a consult directive.

Staff Inappropriately Canceled Exam Requests

Iowa City VAMC radiology service staff inappropriately canceled 16 of 69 radiology exam requests (23 percent):

- Four obsolete requests were canceled without a clinical review.
- Three requests were canceled before attempting the minimum number of scheduling attempts.
- Three requests were canceled when there was an appointment scheduled.
- Two requests were canceled when staff did not wait the required 14 days after the second scheduling attempt before canceling the request.
- Three follow-up requests were canceled as duplicate requests that were not duplicates.
- One exam was left in a scheduled status without enough documentation to support that the veteran did not show up to the scheduled appointment.

None of the 16 inappropriately canceled requests had outstanding exams:

- One veteran received an exam on another request before the request was canceled.
- 11 veterans received exams later through another request, with an average wait of 63 days from the original CID.
- Four veterans never responded to the second scheduling attempt.

If they had been promptly canceled before they became obsolete, the four obsolete requests would not have required a clinical review. Prompt cancellation reasons included the following:

- The veterans declined the exam.
- There were duplicate exam requests.
- The veteran did not respond to scheduling attempts.

Staff Were Slow to Follow National Guidance

Staff did not follow national guidance from February 8, 2017, to include a radiologist or ordering provider review of the pending exam request for MRI, CT, ultrasound, nuclear medicine, and mammography before canceling the obsolete exam request. Staff also did not implement the clinical review process required by the September 11, 2017, policy update until November 2017. Administrative staff and technologists inappropriately canceled about 2,000 outpatient requests using only a view alert from February 8, 2017, to October 31, 2017, before the facility adopted a new review process for obsolete requests that included the use of a CPRS note to notify the ordering provider.

Since the current practices for obsolete requests are compliant with national policy and the updated national policy has been issued to address who can and cannot review and cancel duplicate requests, the OIG has no additional recommendations for the facility.

Unsubstantiated Allegations

The audit team did not substantiate that requests were being canceled by unqualified individuals, as there is no policy that outlines who can and cannot cancel requests.

Although data analysis did show that the facility canceled about 14,800 obsolete requests in January and February 2017, the audit team did not substantiate that a facility staff member misused a consult directive when canceling 15,000 exam requests, since consult policy does not apply to obsolete requests.

Radiology and nuclear medicine exam requests were canceled as part of the nationwide initiative to resolve outstanding obsolete requests. According to facility staff interviews, a small group of staff had received verbal guidance from the radiology service chief to clean up more than 12,000 pending requests in January 2017. The facility staff said they were given about two weeks to complete this task. Of the approximately 14,800 obsolete requests canceled in January and February 2017, two administrative staff canceled about 12,800 requests (87 percent). The large backlog of pending requests occurred because radiology staff did not start reviewing their electronic pending request reports until April 2017.

Appendix B: OHI Exam Request Summaries

OHI reviewed electronic health records associated with 58 completed exam requests and 26 canceled exam requests. The audit team referred these sample exam requests for clinical assessment of potential adverse clinical outcome for veterans with delayed exams, unaddressed follow-up care, or who had died. Health system specialists reviewed the clinical care of the veterans to render an opinion of clinical impact to the veteran. Of the 84 cases reviewed, 27 were reviewed by the physician consultant in OHI for quality assurance.

OHI found that all 58 completed exam requests had acceptable care. However, three veterans required additional follow-up for recommendations or incidental findings.

Completed Exam Request 1

An MRI of the brain was completed [late] 2017, for clinical evaluation of this patient's [veteran's] complaints of headaches with a finding of a cavernous malformation.⁵¹ The patient [veteran] was referred to the neurosurgery service and was evaluated [in spring] 2018. After evaluation, neurosurgery providers believed the cavernous malformation was not the cause of the patient's [veteran's] headaches but felt the malformation required monitoring. The patient [veteran] requested follow-up through non-VA care, to which the neurosurgery providers agreed. As of [late] 2018, the referral for non-VA care neurosurgery to monitor the cavernous malformation was not ordered but was still required.

Completed Exam Request 2

The MRI of the lumbar spine was completed [in fall] 2017, and the radiologist recommended a referral to pain and neurosurgery clinics for "suspect instability of the L5-S1 level" and anterior subluxation L5 on S1 of 11.9 millimeters.⁵² There is no documentation in the electronic health record of notification to the patient [veteran] of the MRI result. [In summer] 2018, at a follow-up visit with the primary care provider, the patient [veteran] continued to complain of low back pain and stated he/she was receiving non-VA massage and chiropractor services. There is no electronic health record documentation that reflected the MRI findings were discussed at this visit or that any plans or referrals were made for further treatment of the patient's [veteran's] low back pain. A referral to neurosurgery service was still indicated for this patient [veteran] with suspected instability at the L5-S1 vertebral level and low back pain. Receiving chiropractic

⁵¹ According OHI, a cavernous malformation is a group of abnormal blood vessels in the brain or spinal cord.

⁵² L5 is the fifth lumbar vertebrae, and S1 is the first sacral vertebrae in the spinal column.

services could put this patient [veteran] at risk for potential injury until the possible instability is evaluated by a neurosurgery provider.

Completed Exam Request 3

A CT scan of the lungs was completed [in late] 2017, for follow-up of a known stable lung nodule. The patient [veteran] was seen in primary care in fall 2018. At the time of the late 2017 CT, a plan was already in place for a follow-up lung CT to be obtained in early 2019 to reevaluate the lung nodule. There was no electronic health record documentation that the results of the late 2017 CT were communicated to the patient [veteran]. In addition, the CT scan had an incidental finding of a right renal cyst with the radiologist's recommendation to consider further evaluation with a contrast CT or ultrasound if no previous evaluation had been completed. There was no evidence in the electronic health record of prior evaluation of the renal cyst or requests for further evaluation of the renal cyst. The electronic health record contained no documentation of a discussion with the patient [veteran] regarding risks and benefits for follow-up of this renal cyst. OHI determined that the CT scan results were not reviewed with the patient [veteran] and the recommendation for follow-up of the renal cyst was still outstanding as of [late] 2018 and should be discussed with the patient [veteran].

Of the 26 canceled exam requests, OHI identified veterans from six requests that still required imaging studies, and two of the six veterans identified had an increased risk of an adverse clinical outcome. For these two veterans, OHI was unable to conclude whether the increased risk resulted in significant clinical impact.

Canceled Exam Request 1

The patient [veteran] was seen by gastroenterology service for rectal bleeding [in summer] 2016. The gastroenterologist noted elevated liver enzymes (increased from [spring] 2015 to [summer] 2016—see Table B.1) during the visit. An evaluation of the elevated liver enzymes was instituted that included a liver ultrasound request [in summer] 2016. The patient [veteran] did not complete the ultrasound test, and it was not rescheduled. The patient [veteran] has not had laboratory tests or imaging studies since [summer] 2016. A follow-up visit with gastroenterology service was scheduled for [late] 2016, but the patient [veteran] was documented as a “no-show.” Another follow-up appointment was not scheduled after the no-show appointment.

Table B.1 Timeline of Liver Enzyme Test Results

Test	[Spring] 2015	[Spring] 2016	[Summer] 2016
AST* (units/liter) (Normal reference range = 5–40)	30	49	41
ALT** (units/Liter) (Normal reference range = 10–60)	72	146	112

Source: VA OIG analysis

* AST = Aspartate transaminase

** ALT = Alanine aminotransferase

The veteran was prescribed Concerta® for attention deficit hyperactivity disorder through VA. One of the documented potential adverse reactions for Concerta® is effects on the liver through increased serum alanine aminotransferase (liver enzyme). The veteran's last monitoring laboratory tests were done [summer] 2016, despite regular visits with a mental health provider for medication follow-up. The last mental health follow-up visit was [late] 2018. The patient [veteran] has not had regular monitoring of liver enzyme tests as would be expected in an individual taking the medication Concerta® and with a known history of elevated liver enzymes, indicating increased risk of an adverse clinical outcome.

Canceled Exam Request 2

The patient [veteran] had a history of elevated aldosterone levels and removal of a left adrenal mass in 2006.⁵³ The patient [veteran] had undergone regular monitoring of aldosterone levels and renal ultrasounds since 2006. In 2017, when the patient's [veteran's] non-VA renal physician ordered an aldosterone level and renal ultrasound, the patient [veteran] requested to have these tests done at VA through the primary care team. The primary care nurse obtained documentation of the requested examinations [in fall] 2017, and placed the renal ultrasound order [request]. There was no documentation in the electronic health record that the renal ultrasound was scheduled or completed. At a [late] 2017 visit with primary care, the patient's [veteran's] blood pressure was slightly elevated. The primary care provider noted the history of elevated aldosterone levels and stated "optimize [blood pressure] control" but made no changes to the patient's

⁵³ Aldosterone is a hormone produced by the adrenal glands to help regulate blood pressure by controlling the amount of sodium and potassium in the blood stream. Too much aldosterone, elevated or hyper- aldosteronism, can cause high blood pressure and is often caused by non-cancerous (benign) tumors on the adrenal glands.

[veteran's] medical regimen. OHI found that the patient [veteran] had a history of an elevated aldosterone level and required regular follow-up for this condition. Although the blood pressure was elevated in [late] 2017, the patient's [veteran's] medical regimen was not changed nor was the patient [veteran] asked to follow up with the non-VA renal physician. The renal ultrasound was outstanding as of [late] 2018, and should be completed if it has not already been completed by the non-VA renal physician.

Canceled Exam Request 3

An aortic ultrasound for an abdominal aortic aneurysm screening was ordered [in early] 2015, but not completed. The patient [veteran] last saw [the] primary care provider at VA [in summer] 2017, and it was noted the patient [veteran] also had a non-VA primary care provider. The patient [veteran] has not returned outreach contact attempts from VA since [fall] 2017. As of [late] 2018, there has not been a screening abdominal aortic aneurysm ultrasound done. OHI reviewed the patient's [veteran's] risk factors requiring the screening study and determined the study is still indicated.

Canceled Exam Request 4

[A] myocardial perfusion Single Photon Emission Computed Tomography (SPECT) was initially ordered [in fall] 2017, scheduled, but not completed as of [late] 2018. Subsequently, the order [request] was discontinued [canceled] and then re-ordered twice. The most recent order [request] was not completed because the patient [veteran] was admitted to a non-VA hospital on the day the SPECT was scheduled. As of [late] 2018, the SPECT testing has not been rescheduled nor completed. OHI noted the SPECT testing had been reordered [in summer] 2018, for "occasional chest pains." The testing should still be completed unless it was done at the Non-VA hospital.

Canceled Exam Request 5

[An] initial shoulder MRI order [request] placed [in summer] 2017, was discontinued [canceled] by the ordering provider.⁵⁴ Another shoulder MRI order [request] was entered [in fall] 2017, but was canceled [in early] 2018, with a note that an anesthesia consult was needed. OHI's review found no outstanding MRI order [request] to date. However, a recent primary care provider note

⁵⁴ The primary care physician ordered a radiograph of the left shoulder for left shoulder pain along with a recommendation for follow-up with an orthopedic provider once the left shoulder radiograph was completed. Additionally, the physician ordered an MRI of the left shoulder at the veteran's request on the same day.

indicated the need for an x-ray and orthopedic consultation. OHI could not locate an active orthopedic consult for this patient [veteran].

Canceled Exam Request 6

[In spring] 2016, the patient [veteran] presented to his primary care appointment. The primary care provider documented the patient's [veteran's] creatinine, a measure of kidney function, was abnormally high. The laboratory test was rechecked in [summer] 2016 showing similar results. The primary care provider recommended an ultrasound of the kidneys and bladder to evaluate the impaired kidney function with diagnosis of acute kidney injury from nonsteroidal anti-inflammatory drug (NSAID) use.⁵⁵ The primary care provider also recommended hydration and avoiding NSAIDs. The nurse noted the primary care provider ordered the ultrasound [in summer] 2016, and the next available date for a kidney and bladder ultrasound was [fall] 2016. This imaging study was not completed.

[In late] 2016, repeat laboratory tests showed improved renal function with a normal creatinine level. At a follow-up visit in [spring] 2017, the renal function had worsened with a higher creatinine level of 1.53 milligram/deciliter (mg/dL). Three months later, the patient [veteran] experienced worsening kidney function with the creatinine increasing from 1.53 mg/dL to 1.66 mg/dL. The primary care provider placed another order [request] for an ultrasound of the kidneys and bladder [in summer] 2017, to evaluate the impaired kidney function. This ultrasound was not completed. A subsequent laboratory test showed slight improvement in the kidney function.

The patient's [veteran's] ultrasound test ordered [in summer] 2016, was canceled [in fall] 2017, as an "obsolete order," and electronic health record documentation reflects the ordering provider was not notified. The ultrasound ordered [in summer] 2017, was also discontinued [canceled] as an obsolete order [request], and again, electronic health record documentation reflects the ordering provider was not notified and no follow-up ultrasound was ordered as of [late] 2018.

Given the patient's [veteran's] increased creatinine level with assessment of acute kidney injury, the lack of a completed ultrasound presented some risk to the patient [veteran]. The patient [veteran] had one kidney function assessment (creatinine level) that was normal [in late] 2016, showing the lack of completion of ordered ultrasounds likely did not have an adverse clinical outcome for the

⁵⁵ NSAID is a nonsteroidal anti-inflammatory drug (examples are naproxen, aspirin, and ibuprofen).

patient [veteran]. The patient's [veteran's] last documented creatinine level in [spring] 2018 was still slightly above normal range, indicating increased risk of an adverse clinical outcome, and denotes the continuing need for follow-up with this patient [veteran].

OHI completed a follow-up electronic health record review [in spring] 2019, which revealed that the patient [veteran] completed a renal and urinary bladder ultrasound [in early] 2019, and additional follow-up radiological studies subsequently. Results of all studies were communicated with the veteran by facility staff.

Appendix C: Background

The obsolete request management guidance changed several times between February 2016 and September 2017.

- **February 25, 2016:** The initial information on obsolete request management was included as an attachment to an order management policy issued by the assistant deputy under secretary for health for clinical operations.⁵⁶ This attachment, Attachment B, included procedures for handling obsolete exam requests. The procedures for obsolete requests instructed staff to review their obsolete requests daily and either schedule them or cancel them; if the request was canceled, staff was required to send a view alert to the ordering provider.
- **August 12, 2016:** Additional radiology and nuclear medicine policy issued by assistant deputy under secretary for health for clinical operations did not include Attachment B.⁵⁷ Without Attachment B or replacement guidance, this updated policy did not include instructions for handling obsolete requests and did not clearly state whether the obsolete procedures outlined in Attachment B were still in effect.
- **January 11, 2017:** The chief consultant of diagnostic services conducted a national radiology conference call emphasizing the need to address more than 300,000 obsolete pending requests nationwide. Specifically, the call addressed that all scheduled and unscheduled obsolete studies should be canceled in accordance with the February 2016 guidance, so long as two unsuccessful contact attempts had been completed.
- **February 8, 2017:** The obsolete request process changed during another national conference call. Instead of using a view alert to notify the ordering provider of the canceled request, the new interim guidance recommended a radiologist or ordering provider review the pending request for MRI, CT, ultrasound, nuclear medicine, and mammography before canceling the request. According to the Radiology Program Office leaders, during this national conference call, VHA facilities were alerted that the guidance was being refined after field input and that an updated Office of Clinical Operations memo was to follow.
- **September 11, 2017:** The cancellation process was updated again through national policy issued by the DUSHOM.⁵⁸ The process changed from recommending the radiologist or ordering provider review the pending request for MRI, CT, ultrasound, nuclear medicine, and mammography before canceling the request, to requiring a review to confirm that

⁵⁶ VHA Memo, Outpatient Radiology Scheduling Policy and Procedures Interim Guidance.

⁵⁷ VHA Memo, VAIQ 7722255.

⁵⁸ VHA Memo, VAIQ 7806589.

clinically indicated care was completed. The September 2017 policy provided examples that suggested the ordering provider should be part of this review process but did not specify who should complete the review.

Appendix D: Scope and Methodology

Scope

The audit team conducted its work from February 2018 through August 2019 to assess the management of radiology and nuclear medicine exam requests and whether requests met the recommended time frames. The audit team reviewed selected radiology and nuclear medicine ordering activities at VA medical facilities from September 2017 through December 2017. The audit covered a population of approximately 691,000 completed outpatient radiology exam requests from October 1 through December 31, 2017, and approximately 442,000 outpatient exam requests canceled from September 1, 2017, through December 31, 2017. Appendix E provides details on the specific scope for each statistical sampling population.

During its audit, the audit team conducted site visits at VA medical facilities from April 2018 through August 2018.

Table D.1 VA Medical Facilities Selected for Site Visits

VA Medical Facility	Location
James A. Haley Veterans' Hospital	Tampa, FL
Bay Pines VA Health Care System	Bay Pines, FL
Louis Stokes Cleveland VAMC	Cleveland, OH
Southern Nevada Health Care System	Las Vegas, NV
Greater Los Angeles Healthcare System	Los Angeles, CA
W.G. (Bill) Hefner Salisbury VAMC	Salisbury, NC
Iowa City VAMC	Iowa City, IA
Dallas VAMC*	Dallas, TX
VA Eastern Colorado Health Care System*	Aurora, CO

Source: VA OIG summary of facilities selected

** Audit work conducted remotely*

Methodology

To accomplish the objectives, the audit team identified and reviewed applicable laws, regulations, VA policies, operating procedures, and training guidelines related to VHA's exam request process:

- The audit team interviewed more than 120 VA medical facility staff with direct knowledge and responsibility for patient scheduling and exam request management at nine facilities. This included scheduling staff, supervisors, service chiefs, clinicians, chiefs of staff, and VAMC leaders. The audit team also conducted interviews with VHA officials and more than 15 VISN staff.
- The audit team conducted observations of scheduling and protocoling activities.
- The audit team reviewed prior reports relevant to the audit objectives.
- The audit team referred 84 unique veteran cases from the sample requests to OHI for review. These cases were referred because of a potential negative outcome due to delayed exams, potential incomplete exams, and possible unaddressed follow-up care recommendations. As a precaution, the audit team also referred requests where the veteran had died.

In coordination with VA OIG statisticians, the audit team reviewed a random stratified statistical sample of 396 completed exam requests from routine CT, ultrasound, MRI, nuclear medicine, and mammography exam requests, as well as urgent exam requests. In addition, the audit team reviewed a random stratified statistical sample of 113 canceled exam requests from MRI, ultrasound, CT, mammography, and nuclear medicine that were identified as either routine or urgent exam requests. Appendix E provides more information on the audit team's statistical sampling methodology and results. For potential issues, the audit team discussed sample review results with staff assigned from each of the respective facilities to provide clarification on questions and the identified potential issues.

The audit team used VHA's electronic record systems, including the VistA radiology package, to review the sample exam requests and relevant required documentation to assess whether exam requests were processed appropriately. The team projected and reported the sample results based on the results of its review. The team discussed the findings with VHA officials and included their comments where appropriate.

Fraud Assessment

The audit team assessed the risk that fraud, violations of legal and regulatory requirements, and abuse could occur during this audit. The audit team exercised due diligence in staying alert to any fraud indicators:

- The audit team reviewed OIG hotline complaints.
- The audit team interviewed facility staff.

The OIG did not identify any instances of fraud or potential fraud during this audit.

Data Reliability

The audit team relied on computer-processed data from VHA's corporate data warehouse:

- The audit team compared details of the completed exam request data reported in VHA's CPRS and VistA to assess the reliability of the corporate data warehouse.
- The audit team conducted testing of the total number of records found within three sites' local VistA data to the overall data found within the corporate data warehouse to assess the completeness of the corporate data warehouse data.

The audit team concluded that the data obtained and relied upon were sufficiently reliable for the purposes of this audit.

Government Standards

The OIG's assessment of internal controls focused on those controls relating to the audit objectives. The OIG conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that the OIG plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for its findings and conclusions based on the audit objectives. The OIG believes that the evidence obtained provides a reasonable basis for its findings and conclusions based on the audit objectives.

Appendix E: Statistical Sampling Methodology

To assess the audit objectives, the OIG evaluated random stratified statistical samples of completed and canceled outpatient requests for radiology and nuclear medicine, including completed requests from October 1, 2017, through December 31, 2017, and canceled requests from September 1, 2017, through December 31, 2017.

Population

Data from the corporate data warehouse identified 738,267 completed outpatient requests for the selected modalities between October 1 and December 31, 2017. This population was identified after the audit team excluded requests determined to be outside of the scope of this audit, including inpatient requests, requests for ancillary services, requests with incorrect modalities, requests created to import external records, requests created for compensation and pension evaluation, and incomplete requests.

Data from the corporate data warehouse identified 447,237 canceled outpatient requests for the selected modalities between September 1 and December 31, 2017. This population was identified after the audit team excluded requests determined to be outside the scope of this audit, including inpatient requests and requests created by an information systems error.

Sampling Design

The audit team divided the population of completed requests into six strata, and the population of canceled requests into two strata. Tables E.1 and E.2 describe the strata and show how many samples were reviewed within each stratum. These samples represented requests from 141 main VA facilities. Of the 396 completed requests, 329 requests were completed at 112 main VA facilities and 67 requests were completed through non-VA care. The audit team did not review requests from every main VA facility due to the random selection applied in the stratified random statistical sample.

Table E.1 Completed Request Stratum

Stratum no.	Imaging type	Urgency	Sample size
1	Computed Tomography	Routine	59
2	Ultrasound	Routine	57
3	Magnetic Resonance Imaging	Routine	52
4	Nuclear medicine	Routine	68
5	Mammography	Routine	107
6	All radiology (includes 1–5)	Urgent	53
Total			396

Source: OIG sampling. Data used for sampling was obtained from the VA's Corporate Data Warehouse.

Table E.2 Canceled Request Stratum

Stratum no.	Canceled requests	Sample size
1	All other canceled requests	56
2	Obsolete requests (greater than 60 days from the CID as of canceled date)	57
Total		113

Source: OIG sampling. Data used for sampling was obtained from the VA's Corporate Data Warehouse.

Weights

The audit team calculated estimates in this report using weighted sample data. Sampling weights are computed by taking the product of the inverse of the probabilities of selection at each stage of sampling. The audit team used these weights to compute universe estimates from the sample findings.

Projections and Margins of Error

The audit team employed WesVar software to calculate the weighted population estimates and associated sampling errors. WesVar uses a replication methodology to calculate margins of error and confidence intervals that correctly account for the complexity of the sample design.

The margins of error and confidence intervals are indicators of the precision of the estimates. If the audit team repeated this audit with multiple samples, the confidence intervals would differ for each sample but would include the true population value 90 percent of the time.

Tables E.3 through E.14 include various projections related to the audit team's timeliness assessment of completed exam requests by VA medical facilities and by non-VA care requests.

Table E.3 Statistical Projections of Completed Requests Included in Timeliness Assessment

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Requests completed at VA medical facilities and non-VA care	388	396	687,488 (100%)	17,900 (0%)	669,588 (99%)	705,387 (100%)
Requests completed at VA medical facilities	329	388	659,754 (96%)	19,221 (1%)	640,533 (95%)	678,974 (97%)
Requests completed by non-VA care	59	388	27,734 (4%)	7,646 (1%)	20,088 (3%)	35,379 (5%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.4 Statistical Projections of Completed Requests at VA Medical Facilities by Urgency Status

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Routine requests	276	329	610,308	19,159	591,149	629,468
Urgent requests	53	329	49,445	1,538	47,907	50,983

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.5 Statistical Projections of Untimely Requests at VA Medical Facilities

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Total untimely requests	52	329	114,905 (17%)	27,012 (4%)	87,893 (13%)	141,917 (21%)
Untimely routine requests	39	276	102,777 (17%)	26,568 (4%)	76,209 (13%)	129,345 (21%)
Untimely urgent requests	13	53	12,128 (25%)	4,877 (10%)	7,251 (15%)	17,005 (34%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.6 Statistical Projections of Untimely Requests Completed by Non-VA care

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Untimely non-VA care requests	25	59	11,973 (43%)	5,540 (16%)	6,434 (27%)	17,513 (60%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.7 Statistical Projections of Average Time to Complete Requests at VA Medical Facilities

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Total requests	329	329	15.0 days	2.0	13.0	16.0
Total routine requests	276	276	15.0 days	2.0	13.0	17.0
Total urgent requests	53	53	11.0 days	4.0	8.0	15.0
Untimely routine requests	39	39	43.0 days	3.0	40.0	46.0
Untimely urgent requests	13	13	34.0 days	11.0	23.0	45.0

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.8 Statistical Projections of Average Time to Complete Requests through Non-VA Care

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Non-VA care requests	59	59	34.0 days	10.0	25.0	44.0

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.9 Statistical Projections of Untimely Scheduling for Untimely Requests at VA Medical Facilities

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Untimely scheduled requests	24	52	44,322 (39%)	16,772 (13%)	27,550 (26%)	61,094 (51%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.10 Statistical Projections of Average Days to Initiate Scheduling for Untimely Urgent Requests at VA Medical Facilities

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Untimely scheduled urgent requests	13	13	18.0 days	8.0	10.0	26.0

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.11 Statistical Projections of Untimely Routine Requests Completed at VA Medical Facilities by Modality

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
CT	6	59	21,504 (10%)	13,913 (7%)	7,591 (4%)	35,417 (17%)
MRI	14	50	41,002 (28%)	15,694 (11%)	25,309 (17%)	56,696 (39%)
Ultrasound	11	57	35,674 (19%)	16,070 (9%)	19,604 (11%)	51,745 (28%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.12 Statistical Projections of Completed Requests that Recommended Follow-up Care

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Total requests from VA medical facilities and non-VA care	143	388	299,480 (44%)	36,321 (5%)	263,159 (38%)	335,801 (49%)
Untimely VA medical facility requests	26	52	54,069 (47%)	19,174 (13%)	34,895 (34%)	73,242 (60%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.13 Statistical Projections of Completed Requests with Completed Follow-Up Care

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Total requests from VA medical facilities and non-VA care	128	143	268,017 (89%)	35,821 (5%)	232,196 (84%)	303,839 (95%)
Untimely VA medical facility requests	22	26	46,345 (86%)	18,135 (13%)	28,210 (73%)	64,480 (99%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.14 Statistical Projections of Average Wait Times for Untimely VA Medical Facility Requests with Completed Follow-Up Care

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Days to complete sample exam	22	22	40.0 days	4.0	36.0	45.0
Days from sample exam to complete follow-up care	22	22	45.0 days	17.0	28.0	62.0

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Tables E.15 through E.25 include various projections related to the audit team's assessment of canceled exam requests.

Table E.15 Statistical Projections of Canceled Requests Assessed

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Total requests	113	113	442,488	7,876	434,612	450,364
Non-obsolete requests	56	113	265,923 (60%)	7,876 (1%)	258,047 (59%)	273,799 (61%)
Obsolete requests	57	113	176,565 (40%)	27,547 (8%)	149,018 (32%)	204,112 (47%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.16 Statistical Projections of Inappropriately Canceled Requests

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Total inappropriate requests	32	113	105,728 (24%)	24,851 (6%)	80,877 (18%)	130,579 (30%)
Inappropriate non-obsolete requests	4	56	18,995 (7%)	15,324 (6%)	3,670 (1%)	34,319 (13%)
Inappropriate obsolete requests	28	57	86,734 (49%)	19,564 (11%)	67,170 (38%)	106,297 (60%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.17 Statistical Projections of Reasons for Inappropriately Canceled Obsolete Requests

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Requests inappropriate because they lacked clinical review	27	28	83,636 (96%)	19,539 (6%)	64,097 (90%)	103,176 (100%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.18 Statistical Projections of Obsolete Requests Requiring Clinical Review

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Requests requiring clinical review	45	57	139,393 (79%)	15,954 (9%)	123,440 (70%)	155,347 (88%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.19 Statistical Projections of Types of Inappropriately Canceled Obsolete Requests Lacking a Clinical Review

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Total requests that did not have a clinical review	27	45	83,636 (60%)	19,539 (12%)	64,097 (48%)	103,176 (72%)
Requests that would not have required a clinical review had they been promptly canceled	15	45	46,464 (33%)	17,232 (12%)	29,232 (22%)	63,697 (45%)
Requests that used only a view alert and did not have a valid reason for canceling	12	45	37,172 (27%)	15,954 (11%)	21,218 (16%)	53,125 (38%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.20 Statistical Projections of Obsolete Requests that Should Have Been Reviewed Sooner

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Requests requiring a sooner staff review	45	57	139,393 (79%)	15,954 (9%)	123,440 (70%)	155,347 (88%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.21 Statistical Projections of Average Time to Cancel Obsolete Requests Requiring Clinical Review

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Days from when request became obsolete to when it was canceled	45	45	205.0 days	48.0	157.0	252.0

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.22 Statistical Projections of Canceled Obsolete Requests Referred to Non-VA Care

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Obsolete requests referred to non-VA care	10	57	30,976 (18%)	14,884 (8%)	16,092 (9%)	45,860 (26%)
Obsolete requests referred to non-VA care that were not properly indexed when records received	8	10	24,781 (80%)	13,593 (23%)	11,188 (57%)	38,374 (100%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.23 Statistical Projections of Obsolete Requests with a Duplicate Request

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Obsolete requests with a duplicate request	13	57	40,269 (23%)	16,420 (9%)	23,849 (14%)	56,689 (32%)
Obsolete requests that were pending action when a duplicate request was created	12	13	37,172 (92%)	15,954 (13%)	21,218 (79%)	53,125 (100%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.24 Statistical Projections of Duplicate Requests with Different Clinically Indicated Dates than the Obsolete Requests

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Duplicate requests with a different CID	5	13	15,488 (38%)	11,070 (24%)	4,418 (14%)	26,558 (62%)

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Table E.25 Statistical Projections of Average Exam Wait Difference between Duplicate Requests and Obsolete Requests

Result	Count from sample	Total sample size	Projection	Margin of error	Confidence level lower 90%	Confidence level upper 90%
Days later than obsolete request	5	5	89.0 days	48.0	41.0	138.0

Source: VA OIG analysis of statistically sampled results projected over the sample population. Data used for analysis and projections was obtained from the VA's Corporate Data Warehouse.

Appendix F: Management Comments

Department of Veterans Affairs Memorandum

Date: October 11, 2019

From: Executive In Charge, Office of the Under Secretary for Health (10)

Subj: Office of Inspector General (OIG) Draft Report, Veterans Health Administration: Delays and Deficiencies in Management of Selected Radiology and Nuclear Medicine Outpatient Exams (VIEWS 01475075)

To: Assistant Inspector General for Audits and Evaluations (52)

1. Thank you for the opportunity to review and comment on the OIG draft report, Delays and Deficiencies in Management of Selected Radiology and Nuclear Medicine Outpatient Exams.
2. I concur with OIG's recommendations 1 through 8. The attachments provide a response to the recommendations and general comments pertaining to OIG's report.
3. If you have any questions, please email Karen Rasmussen, M.D., Director, Government Accountability Office OIG Accountability Liaison Office at VHA10EGGOALAction@va.gov.

(original signed by)

Richard A. Stone, M.D.

Attachments

Attachment

**VETERANS HEALTH ADMINISTRATION (VHA)
Action Plan**

Office of Inspector General (OIG) Draft Report, VHA: Delays and Deficiencies in Management of Selected Radiology and Nuclear Medicine Outpatient Exams

Date of Draft Report: August 29, 2019

Recommendations/ Actions	Status	Target Completion Date
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The OIG recommends the Under Secretary for Health:

Recommendation 1. Ensure facility staff evaluate scheduling workload and that medical support assistant staffing is adequately distributed for scheduling radiology exam requests in a timely manner.

VHA Comments: Concur

The Office of the Deputy Under Secretary for Health for Operations and Management (DUSHOM), in coordination with the National Radiology Program Office, will direct the Veterans Integrated Service Networks (VISN) and the Department of Veterans Affairs (VA) medical facilities to evaluate radiology and nuclear medicine scheduling workload and ensure that medical support assistant staffing is adequately distributed to meet the procedures outlined in the Radiology and Nuclear Medicine Orders Management guidance in accordance with the May 1, 2019, Office of the DUSHOM memorandum. An attestation from the VISN Director will provide confirmation that each VA medical facility is compliant. For those VA medical facilities not demonstrating compliance, an action plan will be developed and submitted to the VISN until completion.

Status: **Target Completion Date:**

In Progress July 2020

Recommendation 2. Provide formal guidance to facilities for establishing clinic management models for adequate radiology resources, including staffing and equipment.

VHA Comments: Concur

VHA's National Radiology Program Office will distribute through the Office of the DUSHOM a clinic management model that includes guidance for facilities to provide adequate radiology resources, including staffing and equipment.

Status: **Target Completion Date:**

In Progress April 2020

Recommendation 3. Ensure facility radiology and nuclear medicine services monitor exam requests pending greater than seven days and address them in a timely manner.

VHA Comments: Concur

On May 1, 2019, the Office of the DUSHOM issued a memorandum on behalf of the VHA National Radiology Program Office. Per guidance outlined in this memorandum, VA medical facilities are required to run lists to manage radiology orders each business day. A supplement to the memorandum will require sites to report to the facility leadership, VISN leadership, and VISN Lead Radiologist that radiology and nuclear medicine services are monitoring the number of exam requests that require scheduling in the “pending” status greater than 7 days. An attestation from the facility to the VISN Director will provide confirmation that the medical facility is compliant and if found not-compliant, an action plan will be developed and submitted to the VISN.

Status: **Target Completion Date:**

In Progress July 2020

Recommendation 4. Confirm with each facility director that they reviewed each record and took appropriate action as they deemed necessary for the three completed requests with additional follow-up care needs.

VHA Comments: Concur

The Office of the DUSHOM will direct each VISN Director to address each identified patient that was in need for follow-up care and provide confirmation through the VISN that all outstanding care has been reviewed and addressed, as appropriate.

Status: **Target Completion Date:**

In Progress October 2019

Recommendation 5. Develop and implement a plan for improved radiology and nuclear medicine oversight at the VISN level.

VHA Comments: Concur

The Office of the DUSHOM, in coordination with the National Radiology Program Office, will develop and implement a plan requiring VISN Directors to establish a VISN Lead Radiologist within each VISN to include appropriate administrative support. This plan will include delineation of responsibilities for monitoring and compliance on access, scheduling, and orders management.

Status: **Target Completion Date:**

In Progress July 2020

Recommendation 6. Implement a mechanism to routinely audit canceled exam requests, ensuring the requests are in accordance with VA radiology and nuclear medicine policies and procedures for canceling exam requests, and taking corrective actions as needed based on audit results.

VHA Comments: Concur

The Office of the DUSHOM, in coordination with the National Radiology Program Office, will develop a memorandum that outlines the audit mechanisms and requirements for the VISN Lead Radiologists. Specifically, each VISN Lead Radiologist will monitor and ensure compliance with policies and procedures for canceling exam requests and that corrective actions were taken as needed based on audit results. Compliance will be accomplished through an attestation from the VISN Director and if the medical

facility has demonstrated non-compliance, a corrective action plan will be developed and submitted to the VISN for follow-up.

Status: **Target Completion Date:**

In Progress July 2020

Recommendation 7. Create a method to notify radiology and nuclear medicine leaders at all VA medical facilities when guidance is released. The method should be streamlined with maximum distribution and ensure receipt and acknowledgment by affected radiology and nuclear medicine leaders.

VHA Comments: Concur

The Office of the DUSHOM, in coordination with the National Radiology Program Office, will develop a memorandum assigning each VISN Lead Radiologist the responsibility for acknowledging and documenting VISN-wide communication and verifying implementation of new radiology/nuclear medicine guidance.

Status: **Target Completion Date:**

In Progress July 2020

Recommendation 8. Confirm with each facility director that they review each record and take appropriate action for five of the six canceled requests with outstanding exam needs.

VHA Comments: Concur

The Office of the DUSHOM, in coordination with the National Radiology Program Office, will direct each applicable VISN Director to address the canceled requests and confirm that all outstanding exam needs are completed for each identified patient and provide confirmation through the VISN that all outstanding exam needs have been addressed.

Status: **Target Completion Date:**

In Progress October 2019

VHA General Comments

Office of Inspector General (OIG) Draft Report, Veterans Health Administration (VHA): Delays and Deficiencies in Management of Selected Radiology and Nuclear Medicine Outpatient Exams

The National Radiology Program Office (NRPO) welcomed OIG's review and opportunity to identify areas for improvement and concurs with the report and recommendations. Our office has expended considerable resources and time to develop solutions to the concerns raised by OIG during their review.

NRPO responded by revising the September 11, 2017, Orders Management guidance to improve the clarity and specificity of the orders management processes. NRPO engaged a team of field subject-matter experts to revise the document, which was approved by the Deputy Under Secretary for Health for Operations and Management and distributed to all Veterans Integrated Service Network (VISN) Directors on May 1, 2019. To supplement the guidance, NRPO created and posted a Toolbox on their SharePoint to provide facilities with additional resources to promote compliance; for example, responses to frequently asked questions, sample electronic health record scheduling and cancellation notes, and an auditing tool.

The VHA National Radiology Program Office initiated a system of active monitoring and communication of orders management data with weekly reports to VISN Chief Medical Officers and VISN Lead Radiologists to encourage timely disposition of imaging orders and exams.

The program office is highly involved with the VHA's modernization initiative that establishes an integrated clinical service line which will create common structures, roles, and responsibilities within Radiology and Nuclear Medicine Services, VISNs, and the VHA Central Office. This will improve communication and implementation of policy and guidance.

NRPO is actively working to configure and optimize the new electronic health record that will create efficiencies for scheduling imaging exams.

In September 2018, a national conference was convened by the Program Office. Approximately 250 Radiology service leaders came together to learn and share best practices for orders management and scheduling, quality and safety, as well as other topics promoting high-quality imaging services.

<p><i>For accessibility, the original format of this appendix has been modified to comply with Section 508 of the Rehabilitation Act of 1973, as amended.</i></p>

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