Department of Veterans Affairs
Office of Inspector General

Office of Healthcare Inspections

Report No. 15-01900-142

Healthcare Inspection

Echocardiography Scheduling and Quality of Care Concerns Edward Hines, Jr. VA Hospital Hines, Illinois

February 2, 2017

Washington, DC 20420

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Executive Summary

The VA Office of Inspector General conducted a healthcare inspection in response to an allegation to assess echocardiography scheduling and quality of care concerns at the Edward Hines, Jr. VA Hospital (facility) in Hines, IL. Specifically, the concerns were related to:

- Delays in scheduling echocardiography studies.
- Quality of echocardiography imaging acquisition.
- Echocardiography technicians' performance improvement activities.

We substantiated the allegation of scheduling delays in 2014 for 1,226 echocardiography studies. We found that 1,176 imaging studies were performed between 31–120 days and 50 imaging studies were performed greater than 121 days from request dates. For one of the patients whose imaging study was performed greater than 121 days, the scheduling delay resulted in a delay in diagnosing a condition requiring surgery. This scheduling delay had the potential to cause harm, but no apparent adverse effects occurred.

To assess the quality of the echocardiography images, we reviewed 50 routine echocardiography studies randomly selected from 1,122 studies completed July 1, 2014 through January 12, 2015. In all 50 studies, our findings were consistent with or had only minor deviations from the final written reports documented in each patient's electronic health record and none of the deviations were clinically significant. All of the studies were sufficient for clinical decision making. However, we found the quality of the majority of the images reviewed was poor and may have been due to the technicians' competency.

We found no documented evidence of performance improvement activities for the echocardiography technicians. The Chief of Cardiology informed us that a formal performance improvement process was not in place for the echocardiography technicians.

We recommended that the Facility Director:

- Ensure routine, outpatient echocardiography studies are scheduled in accordance with Veterans Health Administration policy.
- Confer with the Office of Chief Counsel (formerly known as Regional Counsel) for possible disclosure to the patient with delayed echocardiography described in this report and take appropriate action, if any.
- Ensure that echocardiography technicians are offered opportunities for re-training and continuing education to improve the quality of the echocardiography image acquisition.

- Ensure that managers establish performance improvement activities for echocardiography technicians in accordance with facility policy.

Comments

The Veterans Integrated Service Network and Facility Directors concurred with our recommendations and provided an acceptable action plan. (See Appendixes A and B, pages 7–10 for the Directors' comments.) **OIG November 2016 Update**: We considered Recommendation 2 and 3 closed after receiving the Director's comments; we then reviewed additional information and determined that planned actions have been completed and consider all recommendations closed.

JOHN D. DAIGH, JR., M.D.
Assistant Inspector General for
Healthcare Inspections

Purpose

The VA Office of Inspector General (OIG) conducted a healthcare inspection in response to an allegation to assess echocardiography scheduling and quality of care concerns at the Edward Hines, Jr. VA Hospital (facility) in Hines.

Background

Facility Profile. The facility is part of Veterans Integrated Service Network (VISN) 12 and serves over 56,000 veterans, providing inpatient medical, surgical, mental health, and rehabilitation services. The facility also provides outpatient primary care at its main campus and at six community based outpatient clinics. Specialized clinical programs include blind rehabilitation, spinal cord injury, neurosurgery, radiation therapy, and cardiothoracic surgery. The facility is affiliated with the adjacent Loyola University Stritch School of Medicine.

Echocardiography. Echocardiography is a diagnostic test that uses sound waves to produce images of the heart. The images can identify various abnormalities in the heart muscle and valves, providing crucial information for use in medical decision making. Transthoracic echocardiography is generally performed by a technician, and the imaging results are interpreted by a cardiologist.

Intersocietal Accreditation Commission. The Intersocietal Accreditation Commission (IAC) accredits imaging facilities specific to echocardiography. IAC accreditation is a means by which facilities can evaluate and demonstrate the level of patient care they provide.[1]

American Society of Echocardiography Recommendations for Quality Echocardiography Laboratory Operations. The American Society of Echocardiography (ASE), founded in 1975, is a professional organization of physicians, cardiovascular sonographers, nurses, and scientists involved in the use of ultrasound to image the heart and cardiovascular system.[2] In 2011, the ASE published guidelines that provide a framework promoting quality in echocardiographic imaging services.[3]

Echocardiography Scheduling and Timeliness Standards. At the facility, a provider submits an echocardiography consult to the cardiology service to request an echocardiogram for a specific patient. The receiving service is expected to take action on the consult as soon as possible, but no later than 7 calendar days from the date of

[1] IAC accredits imaging facilities specific to echocardiography.
[2] About ASE, retrieved on March 28, 2016, from http://asecho.org/about-ase/
[3] Picard, JH, Adams, D, Bierig, SH, Dent, JM, Douglas, PS, Gillam, LD, Keller, AM, Malenka, DJ, Masoudi, FA, McCullock, M, Pellikka, PA, Peters, PJ, Stainback, RF, Strachan, GM, Zoghbi, WA. American Society of Echocardiography Recommendations for Quality Echocardiography Laboratory Operations. Copyright 2011 by the *American Society of Echocardiography*. doi:10.1016/j.echo.2010.11.006.

the request.[4] When the action involves the scheduling of an appointment for an echocardiogram, the appointment should be scheduled within 30 days for a routine study in order to be consistent with Veterans Health Administration (VHA) and facility scheduling policies.[5]

In a prior OIG inspection report published April 8, 2014, facility managers acknowledged delays in obtaining echocardiography studies for patients in 2011.[6] At the time of that report, the delays that had occurred in 2011 had been resolved and non-specific allegations regarding the quality of echocardiography were not pursued. In the 2014 report, we evaluated the scheduling of echocardiograms from January 1, 2012 through April 30, 2013 and found no substantial backlog.[7]

Allegations. In January 2015, the OIG received an allegation regarding scheduling echocardiography studies in calendar year 2014. We also reviewed other quality of care concerns. Specifically, the allegation and concerns were related to:

- Delays in scheduling echocardiography studies.
- Quality of echocardiography imaging acquisition.
- Echocardiography technicians' performance improvement activities.

Scope and Methodology

We conducted our review from January 2015 through February 2016. We conducted a site visit April 29, 2015, to May 1, 2015. We interviewed the complainant to clarify allegations and to gain additional support information. We interviewed the Chief of Cardiology Service, who was also the Director of the Echocardiography Section. We interviewed a echocardiography laboratory manager, two echocardiography technicians, cardiology fellows, Patient Administration Services section chief and scheduling staff,

[4] Hines VA Hospital Policy Memorandum 578-09-136-183, *Outpatient Scheduling Processes and Procedures*, September 14, 2009. Hines VA Hospital Policy Memorandum 578-09-136-183 (R-1), *Outpatient Scheduling Processes and Procedures*, August 13, 2014. Both the 2009 and the 2014 policies contain the 7 calendar-day requirement for taking action on consult requests.

[5] Hines VA Hospital Policy Memorandum 578-09-136-183, *Outpatient Scheduling Processes and Procedures*, September 14, 2009. The 2009 facility policy required staff to place a patient on the wait list if an appointment could not be scheduled within 30 days. The 2009 policy was rescinded and replaced by Hines VA Hospital Policy Memorandum 578-09-136-183 (R-1), *Outpatient Scheduling Processes and Procedures*, August 13, 2014, that required staff to place a patient on the wait list if an appointment could not be scheduled within 90 days. The 30 day requirement, however, was articulated in the VHA Choice Act enacted August 7, 2014 that defined VHA wait-time goals as "…not more than 30 days from the date on which a Veteran requests an appointment for hospital care or medical services from the Department." www.govtrack.us/congress/bills/113/hr3230. Accessed June 20, 2016. This definition was further refined by VA in its October 2014 proposed interim rule that states wait-time goals of the Veterans Health Administration would mean "…not more than 30 days from either the date that an appointment is deemed clinically appropriate by a VA health care provider, or if no such clinical determination has been made, the date a Veteran prefers to be seen for hospital care or medical services…" http://www.va.gov/HEALTH/docs/VA_Report_Section101-PL_113-146-Final.pdf. Accessed June 20, 2016

[6] OIG report *Questionable Cardiac Interventions and Poor Management of Cardiovascular Care*, Edward Hines, Jr. VA Hospital, Hines, Illinois, (Report No. 13-02053-119, April 8, 2014).

and administrative staff. We reviewed echocardiography procedures and protocols, quality review processes, and facility policies regarding scheduling of procedures. In addition, we reviewed the IAC Standard Guidelines for Adult Echocardiography Accreditation and the ASE Recommendations for Quality Echocardiography Laboratory Operations.

We reviewed a list provided by the facility of 1,986 requested and completed routine echocardiography studies from January 1, 2014, through January 8, 2015, to determine the number of days from request to study completion. We determined that 7 of the 1,986 studies were performed prior to the request date; therefore, we excluded them from our list. The remaining total of 1,979 requests was reviewed. From the list of 1,979 studies, we categorized the number of days from request date to the date the study was performed (0 days mean that the study was performed same day as requested). We found that 753 studies were performed between 0–30 days. A total of 1,226 studies were performed between 31–221 days. To conduct a sampling review, we reviewed the electronic health records (EHR) of all 50 patients with delays greater than or equal to 121 days from request date to the date the study was performed. Our scope was limited to all routine outpatient transthoracic echocardiography studies. For this report, routine is considered within 30 days of the request

To determine the quality of the echocardiography images we reviewed a list provided by the facility of 1,122 echocardiography studies completed July 1, 2014 through January 12, 2015. To capture a representative sampling of studies performed by all of the echocardiography technicians, we selected 50 studies from the 1,122 studies and reviewed the digital image recordings provided by the facility and the final reports of the studies in the EHRs.

In the absence of current VA/VHA policy, we considered previous guidance to be in effect until superseded by an updated or re-certified Directive, Handbook, or other policy document on the same or similar issue(s).

We **substantiate** allegations when the facts and findings support that the alleged events or actions took place. We **do not substantiate** allegations when the facts show the allegations were unfounded. We **cannot substantiate** allegations when there is no conclusive evidence to either sustain or refute the allegation.

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

Inspection Results

Issue 1: Delays in Scheduling Echocardiography

We substantiated the allegation of scheduling delays for echocardiography studies during 2014. In particular, we found that 1,226 of 1,979 studies were not completed within 30 days of the request.[8,9,10]

From the list of 1,979 routine studies we reviewed, we categorized the number of days from the date of the request to the date of the study, which ranged from 0 through 221 days. The table below shows the number of days from request to performed and the average number of days from request to performed for each category.

Table 1. Echocardiography Requests Performed between January 1, 2014, through January 8, 2015

Number of Requests	Number of Days from Request to Performed	Average Days from Request to Performed
753	0–30 days	12
670	31–60 days	46
422	61–90 days	69
84	91–120 days	103
50	121–221 days	140

Source: Echocardiography requests and performed data provided by facility

We reviewed the EHRs of all 50 patients with delays greater than or equal to 121 days from request to performed. For one of the 50 patients, we found the delay in performing the echocardiogram resulted in a delay in diagnosing a condition requiring surgery. See patient case review below.

Patient Case Review

A man in his sixties, with a previously diagnosed moderate aortic stenosis, was referred for follow-up echocardiography in early 2014. An attempt to schedule echocardiography occurred 15 weeks (105 days) after the request, and an appointment was made for 10 weeks (70 days) later for a total of 204 days from request to performed. When completed, echocardiography revealed progression of his valvular disease and the patient was referred for valve replacement. The patient initially deferred surgery and

[8] Hines VA Hospital Policy Memorandum 578-09-136-183, *Outpatient Scheduling Processes and Procedures*, September 14, 2009. This policy was replaced in August 2014.
[9] Veterans Access, Choice, and Accountability Act of 2014, Pub. L. 113-146. www.govtrack.us/congress/bills/113/hr3230. Accessed June 20, 2016.
[10] Proposed Interim Rule, http://www.va.gov/HEALTH/docs/VA_Report_Section101-PL_113-146-Final.pdf. Accessed June 20, 2016.

remained in stable condition. The patient underwent surgery 15 months after the request for echocardiography and had substantial clinical improvement.

This echocardiography procedure scheduling delay had the potential to cause harm, but no apparent adverse effects occurred. According to VHA policy, a disclosure is warranted for harmful or potentially-harmful adverse events.[11] We did not find documented evidence of a disclosure.

Issue 2: Other Quality of Care Concerns

Quality of Echocardiography Images

According to the ASE Recommendations for Quality Echocardiography Laboratory Operations, adequate echocardiogram image acquisition is dependent on several components including the patient's body habitus, the competency of the technician, the ultrasound equipment, and consistent methods or protocols of acquisition.

We reviewed 50 routine echocardiography studies randomly selected from a list of 1,122 studies completed July 1, 2014 through January 12, 2015. We compared our findings with the final written reports documented in each patient's EHR. In all 50 studies, our findings were consistent with or had only minor deviations from the final written reports and none of the deviations were clinically significant. All of the studies were sufficient for clinical decision making.

However, we found that the quality of the images reviewed was poor and may have been due to the technicians' competency or skills rather than patient or equipment issues. Indicators of decreased technician skills we noted included failure to keep the image steady, failure to keep the image on axis, and suboptimal alignment of the Doppler imaging.[12]

Performance Improvement

We found no documented evidence of performance improvement activities for the echocardiography technicians. Facility policy states that service chiefs are to ensure that important service processes and activities are continuously and systematically assessed and improved.[13] The Chief of Cardiology informed us that a formal performance improvement process was not in place for the echocardiography technicians; however, echocardiography studies were reviewed intermittently, and feedback was provided to the technicians.

[11] VHA Handbook 1004.08. *Disclosure of Adverse Events to Patients*, October 12, 2012.
[12] Doppler imaging measures the velocities of flow. In the case of echocardiograms, the velocity of flow of blood through the heart valves is a critical measurement. If the doppler beam is not properly aligned with the flow of blood, this may result in inaccurate measurements. https://www.escardio.org/static_file/Escardio/Subspecialty/EACVI/position-papers/EAE-ASE-recommendation-cardiac-mechanics.pdf. Accessed November 1, 2016.
[13] Hines VA Hospital Policy Memorandum, *Healthcare System Performance Improvement Program*, September 27, 2010.

Conclusions

We substantiated the allegation of scheduling delays for 1,226 echocardiography studies during 2014. We found that 1,176 requests were performed between 31–120 days, and 50 requests were performed greater than 121 days from requests. For one of the patients whose imaging study was performed greater than 121 days, the scheduling delay resulted in a delay in diagnosing a condition requiring surgery. This delay had the potential to cause harm, but no apparent adverse effects occurred.

To assess the quality of the echocardiography images, we reviewed 50 routine echocardiography studies randomly selected from 1,122 studies completed July 1, 2014, through January 12, 2015. In all 50 studies, our findings were consistent with or had only minor deviations from the final written reports in each patient's EHR, and none of the deviations were clinically significant. All of the studies were sufficient for clinical decision making. We found the quality of the majority of the images reviewed was poor and may have been due to the technicians' competency.

We found no documented evidence of performance improvement activities for the echocardiography technicians. The Chief of Cardiology informed us that a formal performance improvement process was not in place for the echocardiography technicians.

Recommendations

1. We recommended that the Facility Director ensure that routine, outpatient echocardiography studies are scheduled in accordance with Veterans Health Administration policy.

2. We recommended that the Facility Director confer with the Office of Chief Counsel (formerly known as Regional Counsel) for possible disclosure to the patient with delayed echocardiography described in this report and take appropriate action, if any.

3. We recommended that the Facility Director ensure that echocardiography technicians are offered opportunities for re-training and continuing education to improve the quality of the echocardiography image acquisition.

4. We recommended that the Facility Director ensure that cardiology managers establish performance improvement activities for the echocardiography technicians in accordance with facility policy.

Appendix A

VISN Director Comments

Department of Veterans Affairs

Memorandum

Date: November 28, 2016

From: Acting Network Director, VA Great Lakes Health Care System (10N12)

Subj: **Healthcare Inspection—Echocardiography Scheduling and Quality of Care Concerns, Edward Hines, Jr. VA Hospital, Hines, Illinois**

To: Director, Chicago Office of Healthcare Inspections (54CH)
Director, Management Review Service (VHA 10E1D MRS Action)

1. I have reviewed the draft report for the Hines VA Hospital (VAH).

2. I concur with the recommendations and the facility response to the recommendations.

3. I appreciate the efforts of the Office of the Inspector General to ensure the highest level of care for Veterans at Hines VAH.

(original signed by:)
Renee Oshinski

Appendix B

Facility Director Comments

Department of Veterans Affairs

Memorandum

Date: November 28, 2016

From: Director, Edward Hines, Jr. VA Hospital (578/00)

Subj: **Healthcare Inspection—Echocardiography Scheduling and Quality of Care Concerns, Edward Hines, Jr. VA Hospital, Hines, Illinois**

To: Acting Network Director, VA Great Lakes Health Care System (10N12)

1. I would like to thank the Office of the Inspector General for their inspection of the access to the quality of our echocardiography services.

2. The recommendations made during the visit highlight opportunities to improve the care we provide to our Veterans. Hines VAH leadership will ensure implementation and ongoing monitoring of all the recommendations.

3. If you have any questions or require additional information, please contact Elaine Adams, MD at (708) 202-8387 x21231.

(original signed by:)
Steven E. Braverman, MD

Comments to OIG's Report

The following Director's comments are submitted in response to the recommendations in the OIG report:

OIG Recommendations

Recommendation 1. We recommended that the Facility Director ensure routine, outpatient echocardiography studies are scheduled in accordance with Veterans Health Administration policy.

Concur

Facility response: Hines VA Hospital performs routine, ongoing scheduling monitors and audits to ensure that schedulers follow all local and national regulations regarding scheduling patients. Echocardiograms are scheduled by Patient Administrative Service (PAS). A PAS staff member coordinates and monitors Echo scheduling and availability. Cardiology has a bi-weekly meeting with PAS scheduling staff to review consults and availability. Echo consults are currently under 30 days for access.

OIG Update: Based on information provided in November 2016, Recommendation 1 is closed.

Recommendation 2. We recommended that the Facility Director confer with the Office of Chief Counsel (formerly known as Regional Counsel) for possible disclosure to the patient with delayed echocardiography described in this report and take appropriate action, if any.

Concur

Facility response: The Interim Director decided to disclose the delayed echocardiography to the patient without conferring with the Office of Chief Counsel. The patient was notified by telephone on 5/31/16. At the time of the notification, the Veteran's results were discussed and an apology rendered for the delay in reporting. It was communicated and noted that the patient's cardiac function had improved compared to an echo study done at an outside facility in July 2015. The patient was very satisfied with the care received from Cardiology and had no concerns with the delay in echocardiogram testing.

OIG Update: Based on information we originally received, Recommendation 2 is closed.

Recommendation 3. We recommended that the Facility Director ensure that echocardiography technicians are offered opportunities for re-training and continuing education to improve the quality of the echocardiography image acquisition.

Concur

Facility response: Many factors contribute to the quality of echocardiography imaging as referenced within the inspection results including body habitus (COPD and obesity), post-operative status (bandages), equipment, consistent methods or protocols of image acquisition and the competency of the technician. It was unclear if specific objective quality criteria were used to determine poor from non-poor studies, and whether or not there was any check of inter-observer reliability of the quality determination, as there were no specifics in the report describing the factors that were used in each review to indicate that the quality was poor and infer that the technicians were incompetent in their performance of the echos. I am confident that the technical quality and interpretation on Hines' echocardiograms meet or exceed the community for our Veterans.

Two of our three Echocardiography technicians are certified technicians. As such, they maintain their certification via ongoing annual continuing professional education. The Cardiology department has been provided with continuing education tuition and travel funds to allow all Echocardiography technicians the opportunity for continuing education and training. The technician that is not certified is able to utilize these funds to continue educational opportunities.

Cardiovascular ultrasound imaging protocols and national quality measures published by the American Society of Echocardiography (ASE) and American Registry for Diagnostic Medical Sonography (ARDMS) were reviewed and incorporated into the Echo Lab Quality Improvement Program on September 30, 2015. QA results are shared and education inservices are provided at monthly staff meetings.

OIG Update: Based on information we originally received, Recommendation 3 is closed.

Recommendation 4. We recommended that the Facility Director ensure that cardiology managers establish performance improvement activities for the echocardiography technicians in accordance with facility policy.

Concur

Facility response: A Cardiology Quality Improvement Plan was implemented in September 2015 to include quarterly reviews of studies performed by Echo lab technicians, annual Echo Tech competency assessments and educational offerings based on American Society of Echocardiography standards, institution of monthly Echo Lab staff meetings, and upgrade of technology for storing and generating reports. The data from the Cardiology Quality Improvement Plan is presented quarterly to the Quality Council.

OIG Update: Based on information provided in November 2016, Recommendation 4 is closed.

Appendix C

OIG Contact and Staff Acknowledgments

Contact	For more information about this report, please contact the OIG at (202) 461-4720.
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Appendix D

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