

GAO

Report to the Chairman, Subcommittee
on National Security, Emerging
Threats, and International Relations,
Committee on Government Reform,
House of Representatives

December 2003

VA HEALTH CARE

Further Efforts Needed to Improve Hepatitis C Testing for At-Risk Veterans





Highlights of [GAO-04-106](#), a report to the Chairman, Subcommittee on National Security, Emerging Threats, and International Relations, Committee on Government Reform, House of Representatives

Why GAO Did This Study

Hepatitis C is a chronic disease caused by a blood-borne virus that can lead to potentially fatal liver-related conditions. In 2001, GAO reported that the VA missed opportunities to test about 50 percent of veterans identified as at risk for hepatitis C. GAO was asked to (1) review VA's fiscal year 2002 performance measurement results in testing veterans at risk for hepatitis C, (2) identify factors that impede VA's efforts to test veterans for hepatitis C, and (3) identify actions taken by VA networks and medical facilities to improve the testing rate of veterans at risk for hepatitis C. GAO reviewed VA's fiscal year 2002 hepatitis C performance results and compared them against VA's national performance goals, interviewed headquarters and field officials in three networks, and conducted a case study in one network.

What GAO Recommends

To improve testing performance, GAO recommends that VA determine the effectiveness of actions taken by networks and facilities to improve the hepatitis C testing rates for veterans and consider applying such actions systemwide. GAO also recommends VA provide local managers with information on current fiscal year performance results in order for them to determine the effectiveness of actions taken to improve hepatitis C testing processes. VA concurred with these recommendations.

www.gao.gov/cgi-bin/getrpt?GAO-04-106.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Cynthia A. Bascetta at (202) 512-7101.

VA HEALTH CARE

Further Efforts Needed to Improve Hepatitis C Testing for At-Risk Veterans

What GAO Found

VA's performance measurement result shows that it tested, in fiscal year 2002 or earlier, 5,232 (62 percent) of the 8,501 veterans identified as at risk for hepatitis C in VA's performance measurement sample, exceeding its fiscal year 2002 national goal of 55 percent. Thousands of veterans (about one-third) of those identified as at risk for hepatitis C infection in VA's performance measurement sample were not tested. VA's hepatitis C testing result is a cumulative measure of performance over time and does not only reflect current fiscal year performance. GAO found Network 5 (Baltimore) tested 38 percent of veterans in fiscal year 2002 as compared to Network 5's cumulative performance result of 60 percent.

In its case study of Network 5, which was one of the networks to exceed VA's fiscal year 2002 performance goal, GAO identified several factors that impeded the hepatitis C testing process. These factors were tests not being ordered by the provider, ordered tests not being completed, and providers being unaware that needed tests had not been ordered or completed. For more than two-thirds of the veterans identified as at risk but not tested for hepatitis C, the testing process failed because hepatitis C tests were not ordered, mostly due to poor communication between clinicians. For the remaining veterans, the testing process was not completed because orders had expired by the time veterans visited the laboratory or test orders were overlooked because laboratory staff had to scroll back and forth through daily lists, a cumbersome process, to identify active orders. Moreover, during subsequent primary care visits by these untested veterans, providers often did not recognize that hepatitis C tests had not been ordered nor had their results been obtained. Consequently, undiagnosed veterans risk unknowingly transmitting the disease as well as potential complications resulting from delayed treatment.

The three networks GAO looked at—5 (Baltimore), 2 (Albany), and 9 (Nashville)—have taken steps intended to improve the testing rate of veterans identified as at risk for hepatitis C. To do this, in two networks officials modified clinical reminders in the computerized medical record to alert providers that for ordered hepatitis C tests, results were unavailable. Officials at two facilities developed a "look back" method to search computerized medical records to identify all at-risk veterans who had not yet been tested and identified approximately 3,500 untested veterans. The look back serves as a safety net for veterans identified as at risk for hepatitis C who have not been tested. The modified clinical reminder and look back method of searching medical records appear promising, but neither the networks nor VA has evaluated their effectiveness.

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Abbreviations

NIH	National Institutes of Health
VA	Department of Veterans Affairs

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G A O

Accountability * Integrity * Reliability

United States General Accounting Office
Washington, DC 20548

December 12, 2003

The Honorable Christopher Shays
Chairman
Subcommittee on National Security, Emerging Threats,
and International Relations
Committee on Government Reform
House of Representatives

Dear Mr. Chairman:

In 1998, the Department of Veterans Affairs (VA) launched a major initiative to screen all veterans treated at VA facilities by asking them a series of questions about possible risk factors for hepatitis C and performing blood tests for those veterans identified as being at risk for contracting the disease.¹ Hepatitis C is a chronic disease caused by a blood-borne virus that can lead to potentially fatal liver-related conditions. This initiative represents a major undertaking for VA, which provided health care services to approximately 4.7 million veterans and identified over 180,000 veterans with hepatitis C infections in fiscal year 2002.

In June 2001, we testified before your subcommittee that VA was not conducting hepatitis C risk factor screening for about 80 percent of veterans making outpatient clinic visits to VA facilities and not testing, on average, about half of the veterans it identified with at least one risk factor at four VA facilities we visited.² We concluded and VA agreed that for VA to identify undiagnosed veterans, it would need to establish early detection as a standard of care and hold managers accountable for the testing of identified at-risk veterans who receive care in VA's outpatient

¹VA identifies veterans at risk for hepatitis C infection as those who have one or more of the following 11 risk factors: Vietnam-era veteran; blood transfusion before 1992; past or present intravenous drug use; unequivocal blood exposure of skin or mucous membranes; history of multiple sexual partners; history of hemodialysis; tattoo or repeated body piercing; history of intranasal cocaine use; unexplained liver disease; unexplained/abnormal alanine aminotransferase, which is an enzyme that is present in high concentration in the liver and other organs; and intemperate or immoderate use of alcohol.

²U.S. General Accounting Office, *Veterans' Health Care: Standards and Accountability Could Improve Hepatitis C Screening and Testing Performance*, GAO-01-807T (Washington, D.C.: June 14, 2001).

clinics. As a result, VA implemented a hepatitis C screening and testing process and, in fiscal year 2002, included both screening and testing of veterans for hepatitis C in its performance measurement system.³ VA's hepatitis C screening and testing performance is measured by reviewing a sample of veterans' medical records to determine the percentage of veterans screened against a list of risk factors for the disease and the percentage of at-risk veterans who are subsequently tested. To be included in the hepatitis C testing performance measure, the veteran does not have to have been tested in fiscal year 2002; testing may have occurred in a prior fiscal year. VA established its fiscal year 2002 national hepatitis C testing performance goal at 55 percent. For the veterans' medical records to be included in the performance measurement sample, veterans must have been enrolled to receive VA health care for 2 continuous years and been seen at least once during the current fiscal year in one of VA's primary care clinics.⁴

VA's hepatitis C screening performance result for fiscal year 2002 was 85 percent, a significant improvement from its baseline result of 51 percent in fiscal year 2001. As a result, you asked us to focus our work on testing performance and we (1) reviewed VA's fiscal year 2002 performance measurement results in testing veterans it identified as at risk for hepatitis C, (2) identified factors that impede VA's efforts to test veterans for hepatitis C in one VA health care network, and (3) identified actions taken by VA networks and medical facilities intended to improve the testing rate of veterans identified as at risk for hepatitis C.

We reviewed VA's fiscal year 2002 performance measurement process results in testing veterans it identified as at risk for hepatitis C, the most recently available data at the time we conducted our work. Specifically, to assess VA's fiscal year 2002 performance measurement results, we compared VA's national and individual network performance results for testing veterans in fiscal year 2002 or earlier against VA's national goal and

³VA's performance measurement process is based on the External Peer Review Program, which is a contracted program designed to measure quality of patient care provided in VA medical facilities. VA officials select a monthly sample of medical records, based on specific criteria, to be reviewed for its performance measurement process. Criteria include a visit to VA 2 years prior to the current year and a visit in the study year. Contractors from the West Virginia Medical Institute conducted the medical record reviews.

⁴VA's measurement of its performance in testing veterans identified as at risk for hepatitis C cannot be generalized to the entire population of veterans who seek health care at VA's medical facilities because of limitations in VA's sample selection.

analyzed VA's method for calculating performance results. In addition, we looked at one VA health care network's testing rate for at-risk veterans visiting its clinics in fiscal year 2002. We identified factors that impede VA's efforts to test veterans for hepatitis C through a case study of VA's Network 5 (Baltimore), which included interviews with network and facility officials and clinical staff. From the medical record review we were able to determine if a hepatitis C test was ordered, if the ordered test was completed, if the veteran visited the laboratory and provider after the test was ordered, and if a test result was present in the medical record. Network 5 was chosen for the case study because its rate of hepatitis C testing was comparable to VA's national performance results. To identify actions taken by networks and medical facilities intended to improve the rate of hepatitis C testing, we expanded our interviews of VA officials and clinical staff beyond Network 5 (Baltimore) to include staff in Network 2 (Albany) and Network 9 (Nashville). For a complete description of our scope and methodology, see appendix I. Our review was conducted from April 2002 through November 2003 and in accordance with generally accepted government auditing standards.

Results in Brief

VA's performance measurement results show that it tested, in fiscal year 2002 or earlier, 5,232 (62 percent) of the 8,501 veterans identified as at risk for hepatitis C in VA's performance measurement sample, exceeding its fiscal year 2002 national goal of 55 percent. Thousands of veterans, about one-third of those identified as at risk for hepatitis C infection in VA's performance measurement sample, were not tested. Moreover, the percentage of veterans identified as at risk who were tested for hepatitis C varied widely among VA's 21 health care networks, with 14 networks meeting or exceeding VA's national goal of 55 percent and 7 networks falling from 1 to 10 percent below the goal. VA's hepatitis C testing results are a cumulative measure of performance over time and do not reflect only the current fiscal year performance. When we looked at Network 5's testing performance for fiscal year 2002, we found that 38 percent of veterans who needed to be tested in fiscal year 2002 were tested as compared to the Network's cumulative performance result of 60 percent.

We identified three factors that impeded the hepatitis C testing process used by Network 5 (Baltimore), our case study, which was one of the networks to exceed VA's national goal. These factors were tests not being ordered by the provider, ordered tests not being completed, and providers being unaware that needed tests had not been ordered or completed. For more than two-thirds of the untested, at-risk veterans, providers did not order tests, a crucial step in the testing process, mostly due to poor

communication between clinicians that a hepatitis C test was needed. For the remaining veterans, tests were ordered but the testing process was not completed. Tests were not completed primarily because orders were expired by the time veterans visited the laboratory or test orders were overlooked due to the cumbersome process used by laboratory staff. Instead of being able to view a summary of active test orders, laboratory staff must scroll back and forth through a daily list of ordered tests—in two Network 5 facilities up to 60 days of orders—to identify laboratory tests that need to be completed. Moreover, during subsequent primary care visits by these untested, at-risk veterans, providers often failed to recognize that hepatitis C tests either had not been ordered or the results of tests had not been obtained. Consequently, neither the at-risk veterans nor their providers know whether the veterans have hepatitis C. These undiagnosed veterans unknowingly risk transmitting the disease as well as potentially developing complications as a result of delayed treatment.

Some networks and facilities have made changes intended to improve their hepatitis C testing processes. VA network and facility officials in the three networks we reviewed—Network 5 (Baltimore), Network 2 (Albany), and Network 9 (Nashville)—identified similar factors that impede hepatitis C testing and focused on getting test results immediately following risk factor identification. Officials at two networks modified clinical reminders in the computerized medical record to alert providers that for ordered hepatitis C tests, results were unavailable. Thus, if the laboratory has not completed the order, the reminder acts as a backup system to alert the provider that a hepatitis C test may need to be reordered. Officials at two facilities in different networks created a safety net for veterans identified as at risk for hepatitis C who remain untested. Officials developed a method that electronically looks back through computerized medical records, for any time frame specified, to identify at-risk veterans in need of testing and identified approximately 3,500 untested veterans.

To improve testing performance, we recommend that VA determine the effectiveness of actions taken by networks and facilities intended to improve the hepatitis C testing rates for veterans and, where actions have been successful, consider applying these improvements systemwide. Also, because VA's cumulative measurement looks at performance over time, VA should select a subset of the performance measurement sample of veterans to determine current fiscal year performance and provide managers with a tool for improving testing processes. In commenting on a draft of this report, VA concurred with our recommendations and noted that its fiscal year 2003 cumulative hepatitis C testing performance showed

improvement. We incorporated updated performance information provided by VA where appropriate. However, because VA did not include its fiscal year 2003 hepatitis C testing performance results by individual network, we do not know if the wide variation in network results, which we found in fiscal year 2002, still exists in fiscal year 2003.

Background

Hepatitis C was first recognized as a unique disease in 1989. It is the most common chronic blood-borne infection in the United States and is a leading cause of chronic liver disease.⁵ The virus causes a chronic infection in 85 percent of cases. Hepatitis C, which is the leading indication for liver transplantation, can lead to liver cancer, cirrhosis (scarring of the liver), or end-stage liver disease. Most people infected with hepatitis C are relatively free of physical symptoms. While hepatitis C antibodies generally appear in the blood within 3 months of infection, it can take 15 years or longer for the infection to develop into cirrhosis. Blood tests to detect the hepatitis C antibody, which became available in 1992, have helped to virtually eliminate the risk of infection through blood transfusions and have helped curb the spread of the virus. Many individuals were already infected, however, and because many of them have no symptoms, they are unaware of their infection. Hepatitis C continues to be spread through blood exposure, such as inadvertent needle-stick injuries in health care workers and through the sharing of needles by intravenous drug abusers.

Early detection of hepatitis C is important because undiagnosed persons miss opportunities to safeguard their health by unknowingly behaving in ways that could speed the progression of the disease. For example, alcohol use can hasten the onset of cirrhosis and liver failure in those infected with the hepatitis C virus. In addition, persons carrying the virus pose a public health threat because they can infect others.

The Centers for Disease Control and Prevention estimates that nearly 4 million Americans are infected with the hepatitis C virus. Approximately 30,000 new infections occur annually. The prevalence of hepatitis C infection among veterans is unknown, but limited survey data suggest that hepatitis C has a higher prevalence among veterans who are currently

⁵W. Ray Kim, MD M.Sc, MBA, "The Burden of Hepatitis C in the United States," *NIH Consensus Development Conference: Management of Hepatitis C: 2002* (Bethesda, Md.: National Institutes of Health, 2002).

using VA's health care system than among the general population because of veterans' higher frequency of risk factors. A 6 year study—1992–1998—of veterans who received health care at the VA Palo Alto Health Care System in Northern California reported that hepatitis C infection was much more common among veterans within a very narrow age distribution—41 to 60 years of age—and intravenous drug use was the major risk factor.⁶ VA began a national study of the prevalence of hepatitis C in the veteran population in October 2001. Data collection for the study has been completed but results have not been approved for release. The prevalence of hepatitis C among veterans could have a significant impact on current and future VA health care resources, because hepatitis C accounts for over half of the liver transplants needed by VA patients—costing as much as \$140,000 per transplant—and the drug therapy to treat hepatitis C is costly—about \$13,000 for a 48-week treatment regimen.⁷

In the last few years, considerable research has been done concerning hepatitis C. The National Institutes of Health (NIH) held a consensus development conference on hepatitis C in 1997 to assess the methods used to diagnose, treat, and manage hepatitis C infections. In June 2002, NIH convened a second hepatitis C consensus development conference to review developments in management and treatment of the disease and identify directions for future research.⁸ This second panel concluded that substantial advances had been made in the effectiveness of drug therapy for chronic hepatitis C infection.

VA's Public Health Strategic Healthcare Group is responsible for VA's hepatitis C program, which mandates universal screening of veterans to identify at-risk veterans when they visit VA facilities for routine medical care and testing of those with identified risk factors, or those who simply want to be tested. VA has developed guidelines intended to assist health

⁶Ramsey C. Cheung, MD, "Epidemiology of Hepatitis C Virus Infection in American Veterans," *The American Journal of Gastroenterology*, vol. 95, no. 3 (March 2000).

⁷See Samuel B. Ho, MD, "Managing the HCV Veteran," *The HCV Advocate Medical Writers' Circle* (April 2002), and [GAO-01-807T](#).

⁸NIH Consensus Development Conference, *Management of Hepatitis C: 2002*, June 2002. The 12-member consensus panel is an independent, nonadvocacy, and nonfederal panel including representatives from internal medicine, gastroenterology, infectious diseases, family practice, and the public. The panel heard presentations from 28 hepatitis C experts and reviewed an extensive body of medical literature and a report prepared by the Johns Hopkins University School of Medicine Evidence-based Practice Center.

care providers who screen, test, and counsel veterans for hepatitis C. Providers are to educate veterans about their risk of acquiring hepatitis C, notify veterans of hepatitis C test results, counsel those infected with the virus, help facilitate behavior changes to reduce veterans' risk of transmitting hepatitis C, and recommend a course of action. In January 2003, we reported that VA medical facilities varied considerably in the time that veterans must wait before physician specialists evaluate their medical conditions concerning hepatitis C treatment recommendations.⁹

To assess the effectiveness of VA's implementation of its universal screening and testing policy, VA included performance measures in the fiscal year 2002 network performance plan. Network performance measures are used by VA to hold managers accountable for the quality of health care provided to veterans. For fiscal year 2002, the national goal for testing veterans identified as at risk for hepatitis C was established at 55 percent based on preliminary performance results obtained by VA.¹⁰ To measure compliance with the hepatitis C performance measures, VA uses data collected monthly through its External Peer Review Program, a performance measurement process under which medical record reviewers collect data from a sample of veterans' computerized medical records.¹¹

Development of VA's computerized medical record began in the mid-1990s when VA integrated a set of clinical applications that work together to provide clinicians with comprehensive medical information about the veterans they treat. Clinical information is readily accessible to health care providers at the point of care because the veteran's medical record is always available in VA's computer system. All VA medical facilities have computerized medical record systems.

Clinical reminders are electronic alerts in veterans' computerized medical records that remind providers to address specific health issues. For example, a clinical reminder would alert the provider that a veteran needs

⁹U.S. General Accounting Office, *VA Health Care: Improvements Needed in Hepatitis C Disease Management Practices*, [GAO-03-136](#) (Washington, D.C.: Jan. 31, 2003).

¹⁰For fiscal year 2003, VA increased its hepatitis C testing performance goal to 82 percent.

¹¹The sample includes veterans with 2 years of continuous enrollment in VA who have been seen at least once in one of VA's eight primary care clinics during the current fiscal year. The eight clinics are primary care, general medicine, cardiology, endocrinology/metabolism, diabetes, hypertension, pulmonary/chest, and women's. A veteran's medical record can only be included in the performance measurement sample once during any fiscal year.

to be screened for certain types of cancer or other disease risk factors, such as hepatitis C. In July 2000, VA required the installation of hepatitis C clinical reminder software in the computerized medical record at all facilities. This reminder alerted providers when they opened a veteran's computerized medical record that the veteran needed to be screened for hepatitis C. In fiscal year 2002, VA required medical facilities to install an enhanced version of the July 2000 clinical reminder. The enhanced version alerts the provider to at-risk veterans who need hepatitis C testing, is linked directly to the entry of laboratory orders for the test, and is satisfied once the hepatitis C test is ordered.

Thousands of Veterans Identified as At Risk Remain Untested for Hepatitis C Despite VA Exceeding Its Testing Goal

Even though VA's fiscal year 2002 performance measurement results show that it tested 62 percent of veterans identified to be at risk for hepatitis C, exceeding its national goal of 55 percent, thousands of veterans in the sample who were identified as at risk were not tested. Moreover, the percentage of veterans identified as at risk who were tested varied widely among VA's 21 health care networks. Specifically, we found that VA identified in its performance measurement sample 8,501 veterans nationwide who had hepatitis C risk factors out of a sample of 40,489 veterans visiting VA medical facilities during fiscal year 2002.¹² VA determined that tests were completed, in fiscal year 2002 or earlier, for 62 percent of the 8,501 veterans based on a review of each veteran's medical record through its performance measurement process.¹³ For the remaining 38 percent (3,269 veterans), VA did not complete hepatitis C tests when the veterans visited VA facilities. The percentage of identified at-risk veterans tested for hepatitis C ranged, as table 1 shows, from 45 to 80 percent for individual networks. Fourteen of VA's 21 health care networks exceeded VA's national testing performance goal of 55 percent, with 7 networks exceeding VA's national testing performance level of 62 percent. The remaining 7 networks that did not meet VA's national performance goal tested from 45 percent to 54 percent of at-risk veterans.

¹²Of the 40,489 veterans selected as part of VA's performance measurement sample, VA providers had completed hepatitis C risk assessment screenings for 34,310 of them. Thus, the prevalence of risk factors among those assessed was approximately 25 percent (8,501 of 34,310).

¹³At the time of our audit work, testing data for fiscal year 2003 were unavailable. In commenting on a draft of this report, VA stated that its testing rate for fiscal year 2003 was 86 percent.

Table 1: Veterans in VA Performance Measurement Sample Identified as At Risk and Tested for Hepatitis C—VA National and Network Results, Fiscal Year 2002

VA network (location)	Number of veterans identified as at risk for hepatitis C	Number of at-risk veterans tested for hepatitis C ^a	Percentage of veterans identified as at risk tested for hepatitis C ^b
1 (Boston)	548	381	69
2 (Albany)	308	181	59
3 (Bronx)	284	226	80
4 (Pittsburgh)	528	315	60
5 (Baltimore)	288	173	60
6 (Durham)	424	288	68
7 (Atlanta)	539	289	54
8 (Bay Pines)	375	214	57
9 (Nashville)	436	219	50
10 (Cincinnati)	277	165	60
11 (Ann Arbor)	429	229	53
12 (Chicago)	327	169	52
15 (Kansas City)	392	231	59
16 (Jackson)	566	348	61
17 (Dallas)	198	90	45
18 (Phoenix)	428	224	52
19 (Denver)	303	208	69
20 (Portland)	505	327	65
21 (San Francisco)	590	472	80
22 (Long Beach)	353	187	53
23 (Minneapolis)	403	294	73
Total	8,501	5,232	62

Source: VA.

Note: In January 2002, VA merged Networks 13 and 14 to create Network 23.

^aThese numbers include veterans tested for hepatitis C prior to fiscal year 2002.

^bThese percentages are rounded.

VA’s fiscal year 2002 testing rate for veterans identified as at risk for hepatitis C reflects tests performed in fiscal year 2002 and in prior fiscal years. Thus, a veteran who was identified as at risk and tested for hepatitis C in fiscal year 1998 and whose medical record was reviewed as part of the fiscal year 2002 sample would be counted as tested in VA’s fiscal year 2002

performance measurement result. As a result of using this cumulative measurement, VA's fiscal year 2002 performance result for testing at-risk veterans who visited VA facilities in fiscal year 2002 and need hepatitis C tests is unknown. To determine if the testing rate is improving for veterans needing hepatitis C tests when they were seen at VA in fiscal year 2002, VA would also need to look at a subset of the sample of veterans currently included in its performance measure. For example, when we excluded veterans from the sample who were tested for hepatitis C prior to fiscal year 2002, and included in the performance measurement sample only those veterans who were seen by VA in fiscal year 2002 and needed to be tested for hepatitis C, we found Network 5 tested 38 percent of these veterans as compared to Network 5's cumulative performance measurement result of 60 percent.

Several Factors Impeded One Network's Efforts to Test Veterans Identified as At Risk

We identified three factors that impeded the process used by our case study network, VA's Network 5 (Baltimore), for testing veterans identified as at risk for hepatitis C. The factors were tests not being ordered by the provider, ordered tests not being completed, and providers being unaware that needed tests had not been ordered or completed. More than two-thirds of the time, veterans identified as at risk were not tested because providers did not order the test, a crucial step in the process. The remainder of these untested veterans had tests ordered by providers, but the actual laboratory testing process was not completed. Moreover, veterans in need of hepatitis C testing had not been tested because providers did not always recognize during subsequent clinic visits that the hepatitis C testing process had not been completed. These factors are similar to those we identified and reported in our testimony in June 2001.¹⁴

Hepatitis C Tests Were Not Always Ordered for Veterans Identified as At Risk

Primary care providers and clinicians in Network 5's three facilities offered two reasons that hepatitis C tests were not ordered for over two-thirds of the veterans identified as at risk but not tested for hepatitis C in the Network 5 fiscal year 2002 performance measurement sample. First, facilities lacked a method for clear communication between nurses who identified veterans' risk factors and providers who ordered hepatitis C tests. For example, in two facilities, nurses identified veterans' need for testing but providers were not alerted through a reminder in the computerized medical record to order a hepatitis C test. In one of these

¹⁴[GAO-01-807T](#).

facilities, because nursing staff were at times delayed in entering a note in the computerized medical record after screening a veteran for hepatitis C risk factors, the provider was unaware of the need to order a test for a veteran identified as at risk. The three network facilities have changed their practices for ordering tests, and as of late 2002, nursing staff in each of the facilities are ordering hepatitis C tests for at-risk veterans. The second reason for tests not being ordered, which was offered by a clinician in another one of the three Network 5 facilities, was that nursing staff did not properly complete the ordering procedure in the computer. Although nurses identified at-risk veterans using the hepatitis C screening clinical reminder in the medical record, they sometimes overlooked the chance the reminder gave them to place a test order. To correct this, nursing staff were retrained on the proper use of the reminder.

Hepatitis C Test Orders Were Not Always Completed

For the remaining 30 percent of untested veterans in Network 5, tests were not completed for veterans who visited laboratories to have blood drawn after hepatitis C tests were ordered. One reason that laboratory staff did not obtain blood samples for tests was because more than two-thirds of the veterans' test orders had expired by the time they visited the laboratory. VA medical facilities consider an ordered test to be expired or inactive if the veteran's visit to the laboratory falls outside the number of days designated by the facility. For example, at two Network 5 facilities, laboratory staff considered a test order to be expired or inactive if the date of the order was more than 30 days before or after the veteran visited the laboratory. If the veteran's hepatitis C test was ordered and the veteran visited the laboratory to have the test completed 31 days later, the test would not be completed because the order would have exceeded the 30-day period and would have expired. Providers can also select future dates as effective dates. If the provider had designated a future date for the order and the veteran visited the laboratory within 30 days of that future date, the order would be considered active.

Another reason for incomplete tests was that laboratory staff overlooked some active test orders when veterans visited the laboratory. VA facility officials told us that laboratory staff could miss test orders, given the many test orders some veterans have in their computerized medical records. The computer package used by laboratory staff to identify active test orders differs from the computer package used by providers to order tests. The laboratory package does not allow staff to easily identify all active test orders for a specific veteran by creating a summary of active test orders. According to a laboratory supervisor at one facility, the process for identifying active test orders is cumbersome because staff must scroll

back and forth through a list of orders to find active laboratory test orders. Further complicating the identification of active orders for laboratory staff, veterans may have multiple laboratory test orders submitted on different dates from several providers. As a result, when the veteran visits the laboratory to have tests completed, instead of having a summary of active test orders, staff must scroll through a daily list of ordered tests—in two facilities up to 60 days of orders—to identify the laboratory tests that need to be completed. Network and facility officials are aware of, but have not successfully addressed, this problem. VA plans to upgrade the computer package used by laboratory staff during fiscal year 2005.

Providers Often Unaware That Hepatitis C Tests Were Not Ordered or Completed

Hepatitis C tests that were not ordered or completed sometimes went undetected for long periods in Network 5, even though veterans often made multiple visits to primary care providers after their hepatitis C risk factors were identified. Our review of medical records showed that nearly two-thirds of the at-risk veterans in Network 5's performance measurement sample who did not have ordered or completed hepatitis C tests had risk factors identified primarily in fiscal years 2002 and 2001.

All veterans identified as at risk but who did not have hepatitis C test orders visited VA primary care providers at least once after having a risk factor identified during a previous primary care visit, including nearly 70 percent who visited more than three times. Further, almost all of the at-risk veterans who had hepatitis C tests ordered but not completed returned for follow-up visits for medical care. Even when the first follow-up visits were made to the same providers who originally identified these veterans as being at risk for hepatitis C, providers did not recognize that hepatitis C tests had not been ordered or completed. Providers did not follow up by checking for hepatitis C test results in the computerized medical records of these veterans. Most of these veterans subsequently visited the laboratory to have blood drawn for other tests and, therefore, could have had the hepatitis C test completed if the providers had recognized that test results were not available and reordered the hepatitis C tests.

Some VA Networks and Facilities Have Taken Action Intended to Improve Hepatitis C Testing of Veterans Identified as At Risk

Steps intended to improve the testing rate of veterans identified as at risk for hepatitis C have been taken in three of VA's 21 health care networks. VA network and facility officials in the three networks we reviewed—Network 5 (Baltimore), Network 2 (Albany), and Network 9 (Nashville)—identified similar factors that impede hepatitis C testing and most often focused on getting tests ordered immediately following risk factor identification. Officials in two networks modified VA's required hepatitis C testing clinical reminder, which is satisfied when a hepatitis C test is ordered, to continue to alert the provider until a hepatitis C test result is in the medical record. Officials at two facilities—one in Network 5 and the other in Network 9—created a safety net for veterans at risk for hepatitis C who remain untested by developing a method that looks back through computerized medical records to identify these veterans. The method has been adopted in all six facilities in Network 9; the other two facilities in Network 5 have not adopted it.

Some Networks and Facilities Took Steps Intended to Improve Hepatitis C Test Ordering and Completion

VA network and facility managers in two networks we reviewed—Networks 2 and 9—instituted networkwide changes intended to improve the ordering of hepatitis C tests for veterans identified as at risk. Facility officials recognized that VA's enhanced clinical reminder that facilities were required to install by the end of fiscal year 2002 only alerted providers to veterans without ordered hepatitis C tests and did not alert providers to veterans with ordered but incomplete tests.

These two networks independently changed this reminder to improve compliance with the testing of veterans at risk for hepatitis C. In both networks, the clinical reminder was modified to continue to alert the provider, even after a hepatitis C test was ordered. Thus, if the laboratory has not completed the order, the reminder is intended to act as a backup system to alert the provider that a hepatitis C test still needs to be completed. Providers continue to receive alerts until a hepatitis C test result is placed in the medical record, ensuring that providers are aware that a hepatitis C test might need to be reordered. The new clinical reminder was implemented in Network 2 in January 2002, and Network 9 piloted the reminder at one facility and then implemented it in all six network facilities in November 2002.

Some Facilities Developed a Safety Net for Veterans Identified as At Risk Who Have Not Been Tested

Officials at two facilities in our review searched all records in their facilities' computerized medical record systems and found several thousand untested veterans identified as at risk for hepatitis C. The process, referred to as a "look back," involves searching all medical records to identify veterans who have risk factors for hepatitis C but have not been tested either because the providers did not order the tests or ordered tests were not completed. The look back serves as a safety net for these veterans. The network or facility can perform the look back with any chosen frequency and over any period of time. The population searched in a look back includes all veteran users of the VA facility and is more inclusive than the population that is sampled monthly in VA's performance measurement process.

As a result of a look back, one facility manager in Network 5 identified 2,000 veterans who had hepatitis C risk factors identified since January 2001 but had not been tested as of August 2002. Facility staff began contacting the identified veterans in October 2002 to offer them the opportunity to be tested. Although officials in the other two Network 5 facilities have the technical capability to identify and contact all untested veterans determined to be at risk for hepatitis C, they have not done so. An official at one facility not currently conducting look back searches stated that the facility would need support from those with computer expertise to conduct a look back search.

A facility manager in Network 9 identified, through a look back, more than 1,500 veterans who had identified risk factors for hepatitis C but were not tested from January 2001 to September 2002. The manager in this facility began identifying untested, at-risk veterans in late March 2003 and providers subsequently began contacting these veterans to arrange testing opportunities. Other Network 9 facility managers have also begun to identify untested, at-risk veterans. Given that two facilities in our review have identified over 3,000 at-risk veterans in need of testing through look back searches, it is likely that similar situations exist at other VA facilities.

Conclusions

Although VA met its goal for fiscal year 2002, thousands of veterans at risk for hepatitis C remained untested. Problems persisted with obtaining and completing hepatitis C test orders. As a result, many veterans identified as at risk did not know if they have hepatitis C. These undiagnosed veterans risk unknowingly transmitting the disease as well as potentially developing complications resulting from delayed treatment.

Some networks and facilities have upgraded VA's required hepatitis C clinical reminder to continue to alert providers until a hepatitis C test result is present in the medical record. Such a system appears to have merit, but neither the networks nor VA has evaluated its effectiveness. Network and facility managers would benefit from knowing, in addition to the cumulative results, current fiscal year performance results for hepatitis C testing to determine the effectiveness of actions taken to improve hepatitis C testing rates. Some facilities have compensated for weaknesses in hepatitis C test ordering and completion processes by conducting look backs through computerized medical record systems to identify all at-risk veterans in need of testing. If all facilities were to conduct look back searches, potentially thousands more untested, at-risk veterans would be identified.

Recommendations for Executive Action

To improve VA's testing of veterans identified as at risk of hepatitis C infection, we recommend that the Secretary of Veterans Affairs direct the Under Secretary for Health to

- determine the effectiveness of actions taken by networks and facilities to improve the hepatitis C testing rates for veterans and, where actions have been successful, consider applying these improvements systemwide and
- provide local managers with information on current fiscal year performance results using a subset of the performance measurement sample of veterans in order for them to determine the effectiveness of actions taken to improve hepatitis C testing processes.

Agency Comments and Our Evaluation

In commenting on a draft of this report VA concurred with our recommendations. VA said its agreement with the report's findings was somewhat qualified because it was based on fiscal year 2002 performance measurement results. VA stated that the use of fiscal year 2002 results does not accurately reflect the significant improvement in VA's hepatitis C testing performance—up from 62 percent in fiscal year 2002 to 86 percent in fiscal year 2003, results that became available recently. VA, however, did not include its fiscal year 2003 hepatitis C testing performance results by individual network, and as a result, we do not know if the wide variation in network results, which we found in fiscal year 2002, still exists in fiscal year 2003. We incorporated updated performance information provided by VA where appropriate.

VA did report that it has, as part of its fiscal year 2003 hepatitis C performance measurement system, provided local facility managers with a tool to assess real-time performance in addition to cumulative performance. Because this tool was not available at the time we conducted our audit work, we were unable to assess its effectiveness. VA's written comments are reprinted in appendix II.

We are sending copies of this report to the Secretary of Veterans Affairs and other interested parties. We also will make copies available to others upon request. In addition, the report is available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staff have any questions about this report, please call me at (202) 512-7101. Another contact and key contributors are listed in appendix III.

Sincerely yours,



Cynthia A. Bascetta
Director, Health Care—Veterans'
Health and Benefits Issues

Appendix I: Scope and Methodology

To follow up on the Department of Veterans Affairs' (VA) implementation of performance measures for hepatitis C we (1) reviewed VA's fiscal year 2002 performance measurement results of testing veterans it identified as at risk for hepatitis C, (2) identified factors that impede VA's efforts to test veterans for hepatitis C in one VA health care network, and (3) identified actions taken by VA networks and medical facilities intended to improve the testing rate of veterans identified as at risk for hepatitis C.

We reviewed VA's fiscal year 2002 hepatitis C testing performance results, the most recently available data at the time we conducted our work, for a sample of 8,501 veterans identified as at risk and compared VA's national and network results for fiscal year 2002 against VA's performance goal for hepatitis C testing. The sample of veterans identified as at risk for hepatitis C was selected from VA's performance measurement process—also referred to as the External Peer Review Process—that is based on data abstracted from medical records by a contractor. In addition, we looked at one VA health care network's testing rate for at-risk veterans visiting its clinics in fiscal year 2002. To test the reliability of VA's hepatitis C performance measurement data, we reviewed 288 medical records in Network 5 (Baltimore) and compared the results against the contractor's results for the same medical records and found that VA's data were sufficiently reliable for our purposes.¹ To augment our understanding of VA's performance measurement process for hepatitis C testing, we reviewed VA documents and interviewed officials in VA's Office of Quality and Performance and Public Health Strategic Health Care Group.

To identify the factors that impede VA's efforts to test veterans for hepatitis C, we conducted a case study of the three medical facilities located in VA's Network 5—Martinsburg, West Virginia; Washington, D.C.; and the VA Maryland Health Care System. We chose Network 5 for our case study because its hepatitis C testing performance, at 60 percent, was comparable to VA's national performance of 62 percent.

¹In May 2003, VA's Office of Inspector General reported that differences in VA's performance measurement results collected by its contractor and the results found by the Inspector General were immaterial. See U.S. Department of Veterans Affairs, Office of Inspector General, *Accuracy of Data Used to Compute VA's Chronic Disease Care and Prevention Indices for FY 2001*, 01-01544-88 (Washington, D.C.: May 1, 2003).

As part of the case study of Network 5, we reviewed medical records for all 288 veterans identified as at risk for hepatitis C who were included in that network's sample for VA's fiscal year 2002 performance measurement process. Of the 288 veterans identified as at risk who needed hepatitis C testing, VA's performance results found that 115 veterans in VA's Network 5 were untested. We reviewed the medical records for these 115 veterans and found hepatitis C testing results or indications that the veterans refused testing in 21 cases. Eleven veterans had hepatitis C tests performed subsequent to VA's fiscal year 2002 performance measurement data collection. Hepatitis C test results or test refusals for 10 veterans were overlooked during VA's data collection.² As such, we consider hepatitis C testing opportunities to have been missed for 94 veterans.

On the basis of our medical record review, we determined if the provider ordered a hepatitis C test and, if the test was ordered, why the test was not completed. For example, if a hepatitis C test had been ordered but a test result was not available in the computerized medical record, we determined whether the veteran visited the laboratory after the test was ordered. If the veteran had visited the laboratory, we determined if the test order was active at the time of the visit and was overlooked by laboratory staff. Based on interviews with providers, we identified the reason why hepatitis C tests were not ordered. We also analyzed medical records to determine how many times veterans with identified risk factors and no hepatitis C test orders returned for primary care visits.

To determine actions taken by networks and medical facilities intended to improve the testing rate of veterans identified as at risk for hepatitis C, we expanded our review beyond Network 5 to include Network 2 and Network 9. We reviewed network and facility documents and conducted interviews with network quality managers and medical facility staff—primary care providers, nurses, quality managers, laboratory chiefs and supervisors, and information management staff. Our review was conducted from April 2002 through November 2003 in accordance with generally accepted government auditing standards.

²Our review for hepatitis C test results was extended to November 30, 2002, in order to allow time for testing of veterans who had tests ordered in September 2002.

Appendix II: Comments from the Department of Veterans Affairs



THE SECRETARY OF VETERANS AFFAIRS
WASHINGTON

November 17, 2003

Ms. Cynthia A. Bascetta
Director, Health Care Team
U. S. General Accounting Office
441 G Street, NW
Washington, DC 20548

Dear Ms. Bascetta:

The Department of Veterans Affairs (VA) has read your draft report, **VA HEALTH CARE: Further Efforts Needed to Improve Hepatitis C Testing for At-Risk Veterans** (GAO-04-106) and concurs with your recommendations. However, VA's agreement with the report's findings is somewhat qualified since they are based on outdated (FY 2002) information. VA is pleased to report that the Veterans Health Administration (VHA) has made great strides this past fiscal year in its efforts to improve both hepatitis C screening and testing for at-risk veterans. VHA is fully committed to ensuring ongoing improvement in all aspects of hepatitis C care management and is already taking concrete steps to ensure that best practices are systematically applied throughout all VA's health care facilities.

VA has established what is arguably the largest and most comprehensive hepatitis C screening and testing program of any health care organization. In fact, VA is recognized to have set the standard in the health care community. VHA's Office of Quality and Performance's External Peer Review Program (EPRP) reports that 95 percent of 52,427 patient charts that were reviewed during FY 2003 showed evidence of screening, testing or diagnosis of the disease. Such findings, when extrapolated systemwide, indicate remarkable compliance in potentially screening all veteran patients, yet GAO's report focuses only on testing data. However, in this arena, too, FY 2003 EPRP data confirm that 86 percent of the 24,196 veterans identified as at-risk were tested for, or diagnosed with, hepatitis C. These numbers strongly suggest that significant improvement in testing has occurred since the initial GAO data collection. The 2003 EPRP review process includes a supporting indicator (non-performance measure data element) that reports the number and percentage of veterans with identified risk prior to the study interval who were not tested during the study interval. This supporting indicator provides managers with a tool to assess real time performance as opposed to cumulative performance. In addition, VHA has taken steps to broadly promote hepatitis C education and awareness and has retained performance measures with high numerical standards for success. The

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Ms. Cynthia A. Bascetta

impressive gains in performance in FY 2003 demonstrate and further encourage the adoption of best practices in hepatitis C screening throughout the system.

In conclusion, VA believes that the report's lack of current FY 2003 data showing the significant improvements in VA's hepatitis C screening and testing performance leads to an incomplete and inaccurate understanding of the breadth, scope and progress of the program. In this rapidly changing health care field, it is not sufficient to base conclusions and recommendations solely on data that are more than a year old, now that more timely data are available. VA requests that GAO update its report to include current screening and testing statistics. VA also encourages GAO to assess the hepatitis C screening and testing activities of *any* large health care organization, health maintenance organization or health plan as a comparison to VA's program and progress.

Due to the limited amount of time to comment on GAO's draft report, VHA is still developing an action plan to implement GAO's recommendations. VA will provide the action plan in its comments to GAO's final report.

Sincerely yours,



Anthony J. Principi

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Marcia A. Mann, (202) 512-9526

Acknowledgments

In addition to the contact named above, Carl S. Barden, Irene J. Barnett, Martha A. Fisher, Daniel M. Montinez, and Paul R. Reynolds made key contributions to this report.

Related GAO Products

VA Health Care: Improvements Needed in Hepatitis C Disease Management Practices. [GAO-03-136](#). Washington, D.C.: January 31, 2003.

Major Management Challenges and Program Risks: Department of Veterans Affairs. [GAO-03-110](#). Washington, D.C.: January 2003.

Veterans' Health Care: Standards and Accountability Could Improve Hepatitis C Screening and Testing Performance. [GAO-01-807T](#). Washington, D.C.: June 14, 2001.

Veterans' Health Care: Observations on VA's Assessment of Hepatitis C Budgeting and Funding. [GAO-01-661T](#). Washington, D.C.: April 25, 2001.

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