VETERANS HEALTH ADMINISTRATION

MISSION Act Market Assessments Contain Inaccurate Specialty Care Workload Data

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Executive Summary

VA's Veterans Health Administration (VHA) is the nation's largest integrated healthcare system with an almost $81 billion budget to provide millions of veterans with medical services for fiscal year 2021. Among other issues, the VA MISSION Act of 2018 required VA to conduct an inventory of its healthcare system's capacity, identify gaps in furnishing care to veterans, and make recommendations for modernizing or realigning VA facilities to fill those gaps.[1] In making recommendations, the VA Secretary must assess the capacity of VHA medical facilities and then identify gaps in furnishing healthcare services. The Secretary is required to transmit VA's recommendations to the Asset and Infrastructure Review Commission by January 31, 2022.[2] Without an accurate understanding of the capacity of its facilities to provide health care, VA increases the risk that implementing investment decisions will not optimize the use of resources to improve veterans' access to care.

The VA Office of Inspector General (OIG) audited the accuracy of selected data used to measure VA's capacity to provide specialty health care to veterans in recognition of the high priority that Congress has placed on these recommendations and the extent to which inaccurate data undermine the MISSION Act's goals. Senate Veterans' Affairs Committee staff also expressed concerns to the OIG about the importance of data accuracy during the planning of this audit, further underscoring the need for oversight in this area.

What the Audit Found

VHA's Office of Strategic Planning and Analysis assessed the capacity to provide health care in each of VA's 96 geographic market areas.[3] The assessments identified services available to veterans in each market area to identify gaps where modernization or realignment may be necessary. The OIG initiated the audit in July 2020 during VHA's market assessments data collection phase—before the recommendation criteria had been published for what the Secretary should submit to the review commission. However, even at the start of the audit, the MISSION

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[1] The VA Maintaining Internal Systems and Strengthening Integrated Outside Networks (MISSION) Act of 2018, Pub. L. No. 115-182, § 203 (2018). Modernization includes any action required to align the form and function of a VHA facility to provide modern health care, including changes to utilities and environmental control systems or closure. Realignment includes any action that changes the number or location of services and includes "disposals or exchanges" between VA and other federal entities, including the Department of Defense; VA MISSION Act of 2018 § 209.

[2] The MISSION Act established a nine-member Asset and Infrastructure Review Commission appointed by the President to develop a plan for the modernization or realignment of VHA facilities and required VA to provide the commission with recommended changes.

[3] VA market areas are geographic locales that the Secretary has determined would benefit from the coordination and planning of healthcare services and can support a full healthcare delivery system based on a sufficient population and geographic size. See VA Chief Strategy Office's Geographic Information System Dataset Description.

Act required a range of recommendations be considered to include changing hours of operation, adding or realigning personnel, or changing community network provider contracts to address identified gaps in care. Because recommendations could be affected by inaccurate specialty care productivity data, the OIG selected it as the focus for this audit. VHA did not share any recommendations developed for the Asset and Infrastructure Review Commission with the OIG nor did the audit team seek to evaluate them.

The team evaluated the risk that major data elements would be materially inaccurate and could affect the required recommendations given the broad scope of these market assessments. The OIG looked for areas where the risk of materially inaccurate data was highest. The OIG limited the audit to evaluating the accuracy of the specialty care provider capacity data based on the complexity of the data, the large amount of specialty care VA provides, and the dynamic of specialty care adding costs such as operating rooms and diagnostics beyond the direct cost of the physicians. To quickly raise any material issues with data accuracy to VHA leaders for their consideration in market-related management decisions, the OIG did not conduct an extensive evaluation of what caused the identified data errors.

VHA's Office of Strategic Planning and Analysis leaders said in September 2021 that Asset and Infrastructure Review Commission recommendations related to facility location would be based primarily on enrollment, bed-days of care, and numbers of veterans assigned to each physician. In addition, they said that they did not plan to use specialty care workload data as a significant factor until later—when determining the type, size, and number of specialty care services to provide at facilities to implement the recommendations.

VA's Overstated Specialty Care Workload May Distort Assessments of Healthcare Capacity

The OIG evaluated 12 of the most offered medical specialties and focused its audit on the accuracy of three data components VA used to measure specialty care capacity: workload, wait times, and providers' clinical time allocations. The OIG concluded that data inaccuracies in only one of the three components—workload—were significant enough to affect potential specialty care modernization or realignment recommendations.

Based on the Current Procedural Terminology (CPT) codes assigned to a sample of 868 patient encounters within the 12 specialties from 10 randomly selected VA medical facilities, the OIG estimated about 47 percent of the encounters nationwide were incorrectly coded.[4] As a result, VHA's reported fiscal year 2019 workload for those 12 specialties across all VA care providers was estimated to be overstated by 10.7 percent, which, based on the average workload of all 12

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[4] VHA uses CPT codes to measure the workload needed for specialty care encounters based on the complexity and the time a provider needs to complete the encounter. The workload is expressed in relative value units, which are the standard measurement medical professionals use to document and report their level of effort.

specialties, would amount to about 563 full-time equivalent physician positions. The overstated workload varied by specialty from the equivalent of as few as 369 cardiologists to as many as 727 infectious disease physicians.[5]

The workload differences varied by medical facility. The OIG concluded that differences between the VA-reported and OIG-estimated workload at four of the 10 medical facilities, between 13.2 percent to 31.7 percent, were significant enough to potentially affect modernization recommendations if relied upon. This overstatement of workload could result in an inefficient use of taxpayer dollars and diminish access to care for veterans if it leads VA officials to place staffing resources where they are not needed. The six remaining facilities had estimated workload totals that were not significantly different from the reported workload totals.

The OIG did not evaluate VHA's system of documenting medical encounters beyond noting the risk that inaccurate coding results may contribute to miscalculating capacity. However, the OIG considered the varying accuracy of the workload data an additional risk to effectively implementing any MISSION Act specialty care recommendations due to the possibility that the inaccurate data could amplify the effect of the errors. Comparing a facility with overstated workload data to a similarly sized facility with accurate data increases the risk that the facility with the overstated workload data will receive staffing resources that could have been used more efficiently at the facility with more accurate data.

Without a clear understanding of the work performed, VHA cannot be assured that management decisions are based on verifiable, documented services provided and will result in the most efficient allocation of VA funds. The acting undersecretary for health should conduct more in-depth analyses before implementing recommendations, which could include comparing workload data to other types of data to make sure the officials understand the true level of services provided by a facility and to identify gaps in service.

Wait Time and Physician Staffing Were Materially Accurate

The OIG reviewed 584 appointments associated with the 868 patient encounters (some encounters were unscheduled) and estimated that 7 percent of VA specialty care appointments did not correctly capture wait times based on the referring physician's requested date. These inaccuracies resulted in the average wait time for a veteran with a scheduled appointment ranging from about three days shorter than the average time VA reported to less than one day longer.[6] These results were an improvement from some earlier OIG audits that determined wait time inaccuracies at VA facilities resulted in veteran waits being weeks longer than VA reported.

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[5] The 10.7 percent workload overstatement was calculated based on the projected effect of coding errors found in a review of 868 randomly selected patient encounters by professional coders contracted by the OIG.

[6] Since the sample was selected from all encounters, including inpatient and same-day procedures, some encounters did not have an appointment and, therefore, had no associated wait time.

The OIG also found only insignificant clinical and nonclinical allocation errors based on its review of how 439 physicians allocated their time spent supervising physicians and conducting clinical, formal education, and research duties. The results were statistically insignificant as the audit team found only 26 errors in the sample of 439 allocations for which the net total difference in full-time equivalent positions was less than 1 percent of the 231.1 audited equivalent positions. VA medical center leaders said they closely monitored physician time allocations and used VHA policy as a guide to allocate physician time in VA's cost accounting system.

The OIG concluded that the errors in wait times and position time allocations were not significant enough to materially affect implementation of modernization or realignment recommendations. The veteran wait times were slightly shorter than VA reported, and the sampled position allocations were under 1 percent less than VA reported. The OIG did not consider these differences to be material as they were unlikely to affect the Asset and Infrastructure Review Commission recommendations or their implementation.

What the OIG Recommended

The OIG recommended that the acting under secretary for health perform additional analyses to ensure materially accurate specialty care workload data is used to implement the Asset and Infrastructure Review Commission recommendations.

Management Comments

The acting under secretary for health concurred with the finding and recommendation. Appendix C provides the full text of the acting under secretary's comments.

OIG Response

The acting under secretary for health's planned corrective actions are responsive to the OIG recommendation on using accurate specialty care data when *implementing* the Asset and Infrastructure Review Commission's recommendations. This is based on the Office of Strategic Planning and Analysis leaders' September 2021 assertions they will be relying primarily on enrollment, bed-days of care data, and numbers of veterans assigned to each physician for *making recommendations* on facility modernization. Specialty care workload data will be considered when implementing those commission recommendations. However, to the extent that VHA's recommendations to the Asset and Infrastructure Review Commission rely on specialty care workload in the future—which seems relevant to VA's published criteria for making recommendations to the commission—the OIG expects that the acting under secretary for health will ensure the workload data used are accurate. The OIG will monitor the VHA work plan for addressing the OIG recommendation until all proposed actions are complete.

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Contents

Abbreviations

CPT   Current Procedural Terminology

FY   fiscal year

OIG   Office of Inspector General

VHA   Veterans Health Administration

VISN   Veterans Integrated Service Network

Introduction

The VA MISSION Act of 2018 requires VA to conduct an inventory of its healthcare system's capacity, identify gaps in furnishing care to veterans, and make recommendations for modernizing or realigning VA facilities to fill those gaps.[7] More specifically, in making these recommendations, the VA Secretary must assess the capacity of the medical facilities in each Veterans Integrated Service Network (VISN) to identify facilities with inadequate staffing levels and related resources to provide effective and efficient access to needed healthcare services.[8] Without an accurate understanding of the capacity of its facilities to provide health care, VA risks making strategic investment decisions that will not optimize the use of resources to improve veterans' access to this care. The MISSION Act includes three ways for the VA to address identified gaps in care:

- VA could change the way services are furnished at each medical facility, such as extending hours of operation, expanding space, or adding personnel.

- VA could build or realign department resources or personnel.

- VA could contract with community network providers or other entities.

The VA Office of Inspector General (OIG) recognizes the high priority that Congress has placed on these recommendations—and the extent to which inaccurate data could affect these recommendations and undermine the MISSION Act's goals. A team of OIG auditors, therefore, examined the accuracy of selected data used to measure VA's capacity to provide health care to veterans. Underscoring the need for oversight in this area, the US Senate Committee on Veterans' Affairs staff also expressed concerns to the OIG as the audit was being planned about the importance of data accuracy for decision-making.

The MISSION Act established a nine-member Asset and Infrastructure Review Commission, appointed by the President, to develop a plan for the modernization or realignment of Veterans Health Administration (VHA) facilities and required VA to provide the commission with

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[7] The VA Maintaining Internal Systems and Strengthening Integrated Outside Networks (MISSION) Act of 2018, Pub. L. No. 115-182, § 203 (2018). Modernization includes any action required to align the form and function of a VHA facility to provide modern health care, including changes to utilities and environmental control systems or closure. Realignment includes any action that changes the number or location of services and includes "disposals or exchanges" between VA and other federal entities, including the Department of Defense (VA MISSION Act of 2018 § 209).

[8] The Veterans Health Administration (VHA) delivers health care through 18 regional VISNs, each led by a director who is responsible for the coordination and oversight of administrative and clinical activities at medical facilities in the specified area.

recommended changes. The act provided a timeline for how the recommendations could be developed and approved. The recommendation timeline includes the following:[9]

- January 31, 2022: The VA Secretary transmits recommendations for VHA facility modernization or realignment to the Asset and Infrastructure Review Commission after consulting with veterans service organizations.

- January 31, 2023: The Asset and Infrastructure Review Commission transmits findings and conclusions to the President, which may include changes to the recommendations.

- February 15, 2023: The President submits an approved plan to Congress.

- February 15, 2026: The VA Secretary must begin to implement the recommendations according to a developed action plan no later than three years after the President transmits a report to Congress.

To quickly raise any material issues with data accuracy to VHA leaders for their consideration in market-related management decisions, the OIG limited its audit to determining the accuracy of the data VA has used and did not conduct an extensive evaluation of what caused the identified data errors.

VA Healthcare Capacity

VHA is the nation's largest integrated healthcare system. It meets the medical service needs of millions of veterans through its own facilities and care purchased from non-VA care providers such as affiliated medical centers, community care providers, and through sharing agreements with the Department of Defense. VA care sites include inpatient hospitals, outpatient clinics, community living centers, and other specialty settings such as dialysis centers. VA's FY 2021 budget request for healthcare services totaled almost $81 billion. Table 1 details the initial budget request (excluding additional funds provided as COVID-19 pandemic supplemental funds).

Table 1. VA Budget Request for Healthcare Services

Healthcare services	Request in billions
Ambulatory care (primary and specialty care)	$48.5
Inpatient care	$15.5
Mental health care	$10.3

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[9] VA MISSION Act of 2018 § 203. The President can also disapprove some or all the recommendations and fail to transmit an approval, which have different timelines in the act. If the President fails to transmit, the process by which facilities may be selected for modernization or realignment under the act is terminated.

Healthcare services	Request in billions
Prosthetics, rehabilitation care, and dental care	$6.7
Total	**$81.0**

Source: FY 2021 Budget Submission, Medical Programs and Information Technology Programs, vol. 2 of 4, February 2020, page VHA-7.

Market Assessment Data Used for Recommendations to the Asset and Infrastructure Review Commission

VHA's Office of Strategic Planning and Analysis assessed the healthcare services capacity available from VA facilities, community care providers, and other sources in each of VA's 96 geographic "market areas."[10] The office's leaders said the analysis would aid in determining market assessments used in recommendations to the Asset and Infrastructure Review Commission. The assessment of VA's capacity includes enrollment, inpatient bed-days of care, numbers of veterans assigned to each physician, and specialty care workload, among others. The leaders said that they interviewed over 1,800 officials at VA medical facilities to understand their perspective on market trends and provide context to the data used for the market assessments, and that they relied on those officials to ensure the data provided were complete and accurate.[11] Analyzing these data helped office leaders understand the services veterans have used in the past and are projected to need and prefer in the future.[12]

Given the broad scope of these market assessments, the team evaluated the risk that major data elements would be materially inaccurate and could affect the MISSION Act modernization or realignment recommendations or the implementation of those recommendations. The OIG initiated the audit in July 2020 during VHA's data collection phase of the market assessments to provide VHA with time to perform any further data analysis deemed necessary by issues found during the audit. Although the criteria for recommendations to the review commission had not been published, the MISSION Act required recommendations to include potential changes to hours of operation, adding or realigning personnel, or changes to community network provider

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[10] VA Chief Strategy Office's Geographic Dataset Description; VA market areas are geographic locales determined by the Secretary as having a sufficient population and geographic size to both benefit from the coordination and planning of healthcare services and to support a full healthcare delivery system. *Notice of Asset and Infrastructure Review (AIR) Commission Foreword and Criteria,* 86 Fed. Reg. 28,933 (May 28, 2021); A VA market area is composed of VA-owned or operated facilities, as well as partnering facilities associated with the Department of Defense, tribal authorities, other federal agencies, academic affiliates, and other community providers.

[11] Office of Strategic Planning and Analysis leaders stated in their written response to the OIG's draft findings that they had interviewed over 1,800 officials while developing the market assessments.

[12] One of VA's published selection criteria for recommendations to the commission is "Veterans' Need for Care & Services and the Market's Capacity to Provide Them (Demand)," 86 Fed. R. 28,934 (May 28, 2021). In applying these criteria, "VA will consider what Veterans may need through understanding of the services that Veterans have accessed in the past and are projected to need and prefer in the future."

contracts. These recommendations could be affected by inaccurate specialty care productivity data.

To put forth an effective plan to modernize and realign VHA's infrastructure, the VA Secretary must first have an accurate picture of the current capacity for meeting veterans' healthcare needs. Since the act does not provide specific metrics for measuring capacity, the OIG examined data VA used in the market assessments and identified data that were easier to calculate (and therefore unlikely to be materially inaccurate) as well as data with a higher risk of inaccuracies that could affect implementation of modernization or realignment recommendations or their implementation. The OIG focused this audit on the data with higher potential for inaccuracy.

However, Office of Strategic Planning and Analysis leaders stated in September 2021 that Asset and Infrastructure Review Commission recommendations related to facility location would be based primarily on enrollment, bed-days of care, and numbers of veterans assigned to each physician. The leaders did not plan to use specialty care workload data as a significant factor until later—when determining the type, size, and number of specialty care services to provide at facilities to implement the recommendations. VHA did not share any potential recommendations developed for the Asset and Infrastructure Review Commission with the OIG nor did the audit team seek to evaluate them.

The OIG considered several risk factors in determining which data to focus on as detailed below.

Higher Potential for Inaccuracy

Complex data would likely have a higher risk of being inaccurate than more straightforward metrics that are easier to calculate. An example of complex data with a high potential for inaccuracy that the OIG examined, and this audit focused on, was VHA's specialty care provider workload. That workload is more difficult to measure because the information is captured through a complicated coding process that requires the providers to thoroughly document the care provided in the associated medical records. VHA assigns each unique specialty care encounter (inpatient and outpatient) a Current Procedural Terminology (CPT) code and uses the associated relative value units to measure its specialty provider workload. The reported workload is the sum of the relative value units assigned to each encounter's CPT code. Each CPT code describes a provided service and has an associated relative value unit based on the complexity of the service and the time a provider needs to complete the encounter, which reflects "the skill,

effort, judgment and time required to deliver the service."[13] The specialty care workload used in the market assessments heavily relies on this method. Most outpatient specialty care encounters are not reviewed for coding accuracy because checking the coded encounters for errors is labor-intensive.

Lower Risk of Inaccuracy

VHA facility leaders evaluate inpatient capacity (other than specialty provider workload) using a measurement called bed-days of care, which is a relatively easy metric to calculate. A bed-day of care is an overnight stay.[14] The OIG concluded that because market assessments relied heavily on bed-days of care to represent VHA's inpatient capacity, these data were not likely to be materially inaccurate.

The OIG also evaluated the data risk for primary care. Because the assessments relied heavily on the numbers of veterans assigned to each physician to evaluate capacity, also a relatively easy metric to calculate, these data also were not likely to be materially inaccurate.

Audit Focus

In addition to the complexity of calculating specialty care workload, the OIG also considered other risk factors. These included the large amount of specialty care VA provides, using more than 13,500 full-time equivalent physicians in 31 specialties during FY 2019 and the dynamic of specialty care driving support costs beyond the direct cost of the physicians including the need for operating rooms and diagnostic work to support specialty services. Based on these factors, the OIG limited the audit to evaluating the accuracy of the specialty care provider workload data.

Further, VHA created a report that compares specialty care productivity at each facility using three measures: (1) workload as reported in relative value units, (2) access to health care as reported in patient wait times, and (3) staffing resources expressed as clinical provider full-time equivalent positions. The OIG concluded that materially inaccurate data in any of these measures would increase the risk that implementation of recommendations would not lead to the most efficient allocation of VA budgetary resources that support the greatest patient needs. Moreover, the combined effect of significant errors in more than one of these elements could increase the

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[13] VHA Directive 1065, *Productivity and Staffing Guidance for Specialty Provider Group Practice,* December 22, 2020. CPT is a numerical code for each specialty provider group practice service or procedure performed by a specialty provider group practice physician, as defined by the American Medical Association. In VHA, these codes are assigned to an encounter at the time that the service or procedure is performed or to any specified clinical care activity in accordance with the nature and scope of that patient care activity. Each procedure code has an associated relative value unit that represents the skill, effort, judgment, and time required to deliver the service. Relative value units were primarily designed for reimbursement purposes but have been widely employed to measure provider work effort and workload and consist of three components: physician work, practice expense, and malpractice expense. For productivity measurement, only physician work is used.

[14] VHA Handbook 1006.02, *VHA Site Classifications and Definitions*, December 30, 2013.

impact. If a facility is performing less work than what the data show or providers are performing that work in less time than the data show, then VA risks putting resources at a facility where they will not be used efficiently. Similarly, if veterans are waiting longer to receive care than the data show, then VA risks not putting enough resources at a location to ensure veterans can receive timely care. However, based on the results of the audit fieldwork, the OIG concluded that wait time and clinical equivalent position data inaccuracies would not materially affect the recommendations or their implementation. Therefore, this report focused solely on the accuracy of the workload data.

Results and Recommendation

Finding: Enhancing Specialty Care Workload Data Accuracy Would Refine Implementation of Market Assessment Recommendations

The OIG evaluated 12 of the most offered medical specialties at VA facilities and focused its audit on the accuracy of the three data components that VA uses to measure capacity: workload, wait times, and provider clinical time allocations. The OIG concluded that data inaccuracies in only one of the three components—workload—were significant enough to affect implementation of Asset and Infrastructure Review Commission modernization or realignment recommendations.[15]

Based on a sample of the CPT codes assigned to 868 patient encounters within the 12 specialties offered from 10 randomly selected VA medical facilities, the OIG estimated about 47 percent of the encounters nationwide were incorrectly coded. As a result, VHA's reported FY 2019 workload for those 12 specialties across all VA care providers was estimated to be overstated by 10.7 percent, which based on the average workload of all 12 specialties would amount to about 563 full-time equivalent physician positions.[16] The overstated workload varied based on physician specialties from the equivalent of as few as 369 cardiologists to as many as 727 infectious disease physicians. This overstatement of workload could result in an inefficient use of VA funds and diminish access to care for veterans if it leads VA officials to place staffing resources where they are not needed.

The audit team also observed that about 7 percent of the patient wait-time calculations were incorrect, resulting in the average wait time for a veteran with a scheduled appointment being slightly shorter than the VA-reported average. Based on VA's guidance on calculating wait times, the OIG estimated the average veteran wait times ranged from three days less than the average time VA reported to less than one day longer. The OIG also observed that the sampled allocation of specialty physician clinical and nonclinical time was generally accurate as the position allocations sampled were less than 1 percent lower than VA reported. Although there is potential for further improvement, the OIG concluded that accuracy of the reported wait times and physician position allocations would not materially affect the implementation of recommendations in the market assessments.

The OIG's overall finding for this report is supported by the following determinations:

- VA needs accurate workload data to identify service gaps.

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[15] Should VHA place more weight on specialty care in making recommendations to the commission in the future, inaccuracies would also affect its formulation.

[16] The 10.7 percent workload overstatement was calculated based on the projected effect of coding errors found in a review of 868 randomly selected patient encounters by professional coders contracted by the OIG.

- VA's overstated specialty care workload may distort assessments of healthcare capacity.

- VA wait time and specialty physician time allocations were materially accurate.

What the OIG Did

The audit team evaluated the accuracy of FY 2019 data for 12 of the most offered specialties at 10 statistically selected VA medical facilities. As previously mentioned, the OIG reviewed three data elements related to VA's capacity to provide specialty care: (1) workload as reported in relative value units, (2) access to health care as reported in patient wait times, and (3) staffing resources expressed as clinical full-time equivalent provider positions assigned to each specialty. The audit team provided each medical facility in the sample the opportunity to review, comment on, and provide additional documentation for each data element when appropriate.

To evaluate the accuracy of workload data, the audit team evaluated a statistically selected sample of 868 specialty care encounters from the 10 VA medical facilities and provided the medical records for these encounters to a contracted medical coding firm to determine the accuracy of VA's medical coding. The contractor coded each sampled encounter based on available Computerized Patient Records System medical records. For those encounters where the contracted coder arrived at a different code appropriate for the service, the audit team provided those results to leaders at the VA facility for review. For those items where facility staff disagreed with the code provided to them, facility staff provided the OIG additional evidence to support that the code the facility had initially used was correct. The contracted coder then recoded each returned encounter based on any additional information provided by the facility. Facility leaders agreed with the final code for about 96 percent of the 868 sampled encounter codes. The OIG concluded that VA did not present convincing support for the codes used for the remaining disputed encounters. The overall effect of the errors identified by the coding contractor after rereviewing these encounters could significantly affect the sampled workload measures at each facility.

In assessing the accuracy of patient wait times, the team used the same 868 encounters previously selected. The VA calculates wait time by measuring the number of days from the date the referring physician determined it was clinically appropriate for the veteran to receive care to the appointment date.[17] For example, the wait time for a 30-day follow-up appointment would start 30 days from the referral date. The audit team only evaluated the wait time for encounters in which the appointment had been previously scheduled, which was 584 of the 868 specialty care encounters and did not evaluate the medical appropriateness of the referring physician's

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[17] VHA Directive 1230, *Outpatient Scheduling Processes and Procedures*, July 15, 2016.

requested date.[18] The audit team calculated the appropriate wait time based on the requested appointment date in accordance with VA policy and compared those calculations with the VHA-reported wait time.

The team randomly selected 439 physicians from the 10 audited facilities to examine the accuracy of VA's reported specialty care full-time equivalent positions allocated to clinical time. The team worked with facility officials to review the time allocated for each selected physician to ensure the clinical and nonclinical time for each physician was justified. Nonclinical time included official time spent doing administrative, education, and research duties. Appendixes A and B discuss the scope and methodology and statistical sampling methodology in greater detail.

VA Needs Accurate Workload Data to Identify Service Gaps

As the purpose of the market assessments is to identify gaps in VHA's ability to provide health care to veterans and develop strategies to fill those gaps, planning officials need a clear understanding of the amount and types of services VA physicians are providing. VHA based its plans to meet future specialty care demand in large part on VHA's current reported internal capacity, including enrollment population, unique patients served, historic encounters, and workload. As VA refines implementation plans going forward for the Asset and Infrastructure Review Commission recommendations, VHA leaders should ensure coding and documentation of medical encounters accurately reflect VA's current capacity to meet veterans' healthcare needs to ensure appropriate resources for each specialty are placed where they are most needed. Without a clear understanding of the current capacity and services delivered at VA medical facilities, Office of Strategic Planning and Analysis leaders may miscalculate future staffing needs.

VA's Overstated Specialty Care Workload May Distort Assessments of Healthcare Capacity

The audit team calculated workload difference amounts for each of the 868 encounters within the 12 specialties provided by the 10 statistically selected facilities. The team compared the workload assigned to the CPT codes documented by the VA care provider with the workload assigned to the code the OIG's contracted coders determined was supported and appropriate. The OIG estimated about 47 percent of the encounters nationwide were incorrectly coded resulting in an overstatement of about 10.7 percent of the total workload. The average workload of the 12 specialties reviewed by the OIG was about 4,900 relative value units. However, average workload per physician varies by specialty as some specialists see more complex cases than others. For example, a cardiac surgeon will have a higher workload total than an infectious

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[18] Because the sample was selected from all specialty care encounters, including inpatient and same-day procedures, some encounters did not have an appointment and, therefore, had no associated wait time.

disease physician who primarily conducts office exams. The average workload for the 12 VA specialties in FY 2019 varied from 3,793 units per infectious disease physician to 7,482 units per cardiologist. If the differences identified by the OIG were due entirely to medical providers using inappropriate codes and not due to lacking documentation for work performed, then this overstatement ranged from about 369 cardiologist positions to about 727 infectious disease positions. Based on the overall average of 4,900 relative value units, the overstated workload was equivalent to roughly 563 full-time equivalent positions.[19]

The identified workload differences varied by medical facility. Six facilities had OIG-estimated workload totals that were not significantly different from those VA reported. However, the audit team determined that the differences at the remaining four medical facilities, ranging between 13.2 percent to 31.7 percent, were significant enough to potentially affect management decisions such as determining where services or functions are provided, realigning personnel, or relocating services.[20] For the four facilities with significant differences, table 2 shows the total difference in physician full-time equivalent positions between what the facility reported and what the OIG estimated.

Table 2. FY 2019 Differences in Specialty Physician Full-Time Equivalents between VA-Reported and OIG-Estimated Workloads

Facility	Full-time equivalent needed*		
	VA-reported	OIG-estimated	Potential difference†
A	98.7	71.3	27.4 (27.8%)
B	74.4	64.6	9.8 (13.2%)
C	42.9	31.6	11.2 (26.3%)
D	17.7	12.1	5.6 (31.7%)

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

*Full-time equivalent is calculated by dividing the relative value unit total by 4,900—the average units per physician in the 12 audited specialties.

†The differences may not sum to VA-reported totals due to rounding.

Of these four facilities that potentially overstated their workload, the three large facilities also reported needing significantly more physician full-time equivalent positions, including the

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[19] The actual point estimate of 2,759,047 relative value units divided by the approximate average of 4,900 relative value units produced by each specialty care physician equals 563 positions. (2,759,047/4,900 = 563). For cardiology the point estimated divided by 7,482 units equals 369 positions (2,759,047/7,482 = 369); for infectious disease, the point estimate divided by 3,793 units equals 727 positions (2,759,047/3,793 = 727).

[20] The OIG considers VA-reported workload that is greater than 10 percent above or below OIG's estimates to represent a significant material error that may affect management decisions based on this information.

resources needed to support these physicians, than the OIG estimated was necessary based solely on an examination of VA's medical records. The OIG determined that additional scrutiny by specialty is warranted for those facilities in particular.

The OIG considered the varying accuracy of the workload data an additional risk to the potential MISSION Act recommendations due to the possibility that the inaccurate data could amplify the effect of the errors. Comparing a facility with overstated workload data to a facility with accurate data increases the risk that the facility with the overstated workload data will receive staffing resources that could have been used more efficiently at a similarly sized facility with more accurate data.

Without a clear understanding of the work performed, VHA cannot be assured that management decisions at the facility and higher levels are based on verifiable, documented services provided that will result in the most efficient allocation of VA funds. Medical facility leaders frequently used the specialty physician workload data to evaluate the capacity of individual specialties. These leaders were aware that specialty physicians did not always choose the most appropriate code based solely on the medical records and took steps to ensure the providers had properly recorded all the work performed before making staffing changes. The leaders verified that the codes accurately described the work performed for physicians who appeared to be much more or less productive than anticipated based on their schedules when contemplating making staffing decisions. Although the facility leaders took these errors into account when making individual staffing decisions, the historical codes were not updated, and, therefore, workload calculations based on those codes remain inaccurate. Although the providers may have recently improved their coding, the prior inaccurate workload data would be included in historical capacity and trend analyses at these facilities.

Workload Inaccuracies Could Lead to Inefficient Resource Allocations

The potential effect on implementing the Asset and Infrastructure Review Commission's recommendations can be illustrated by considering the four facilities where the OIG determined the reported workload was not materially accurate. As shown in table 2, the OIG estimated that Facility A's medical records did not support the workload for about 27.4 full-time equivalent positions. If this entire effect was due to the use of inappropriate codes (that is, the actual work performed was less than what was coded by the care providers), then the facility could potentially meet current veteran needs with dozens fewer physician positions in those specialties, potentially affecting the size and placement of specialty care services. With more accurate workload data, Facility A leaders could more easily identify the inefficient specialties, plan, and budget to ensure quality patient care could still be provided while considering shifting or reducing physician positions at the facility, depending on the specialties, by about 27.4 full-time equivalent positions.

Office of Strategic Planning and Analysis leaders said they estimated demand for each specialty based on enrollment, unique patients, encounters, and the total workload of the encounters coded by VA facilities. Therefore, if a facility overstated its physicians' levels of effort, then calculations of future demand for specialty services based on that data will make the facility appear to need more resources than may be necessary. Without more accurate workload data, VA risks expanding or realigning space to accommodate the physicians needed to provide this potentially unnecessary capacity during implementation. At these four facilities, the risk increased with the size of the facility. Even though Facility D had a higher percentage error rate than Facility A, the cost to accommodate 5.6 additional positions at Facility D would be less than accommodating the 27.4 additional positions at Facility A.

Developing and implementing effective recommendations requires in-depth analyses to make sure officials understand the true level of services provided by a facility and where gaps in service exist. Table 3 demonstrates how workload accuracy affects VA's estimated capacity calculations in psychiatry as one example of specialty care planning. These calculations have the potential to affect how specialty care services are realigned internally within VA medical facilities or acquired externally through affiliates, community care agreements, or Department of Defense sharing agreements.

Table 3. VA-Reported Psychiatry Capacity vs. OIG-Estimated Workloads in FY 2019

Workload source	VA specialty workload target	Reported workload (in relative value units)	Potential additional capacity (in relative value units)	Relative value units per veteran	Capacity to serve additional veterans (in relative value units)*
VA-reported	9,300,000	8,600,000	700,000	8.4	80,000
OIG-estimated	9,000,000	6,700,000	2,300,000	6.5	354,000

Source: OIG analysis of Physician Capacity Summary Report productivity data for FY 2019.

*The capacity to serve additional veterans calculated using actual amounts, so differences in recalculated amounts shown in the table are due to rounding.

VA data indicated that in FY 2019, about 1,019,000 veterans received psychiatric care. Comparing VA-reported productivity data to the VA workload target for psychiatry, VHA calculated that if productivity targets had been met, it could have treated an additional 80,000 veterans across its healthcare system. However, the OIG estimate shows the effect of overstating productivity. Based on its analysis of VA's medical records, the OIG estimated that VHA produced 6.7 million relative value units of workload versus the VA-reported 8.6 million, a difference of about 22 percent. The OIG further estimated that based on VHA's target workload

alone, VHA had the capacity to serve an additional 354,000 veterans needing psychiatric care.[21] However, without a clear understanding of the accuracy of the encounter coding, it is unclear whether the true workload was actually lower than reported (suggesting that VA has more capacity than the data show) or the documentation does not capture the work actually conducted.

As noted earlier, the accuracy of the data varied significantly among the sampled facilities, so it is also unclear which facilities may have more capacity than reported and which facilities may need additional positions. If this entire effect was due to the use of inappropriate codes, then VHA could potentially increase the number of veterans treated using the same, or fewer, psychiatric full-time equivalent positions. With more accurate workload data, facility and VHA leaders could more easily identify inefficiencies, plan, and budget to improve access to care for many veterans by shifting the distribution of psychiatrists throughout the VA healthcare system.

Physicians Need to Be Able to Code Accurately

VHA's system of documenting medical encounters requires users to have an in-depth knowledge of coding requirements. Medical facility leaders said their coders trained physicians to document all the detailed actions necessary to use each code to accurately report workload. Example 1 illustrates the effect that coding can have on workload calculations and the importance of ensuring that medical records support the workload data.

Example 1

A VA physician used CPT code 99214 for a follow-up office visit for a veteran. This office visit code requires documentation of at least two of three key components: a detailed history, a detailed examination, and medical decision-making of moderate complexity. This code has the second-highest relative value unit level (1.5) of the five available office visit codes a physician can choose. The veteran in this example was seeing the physician to have lab testing as a follow-up to a prior visit to the congestive heart failure clinic where his medications had been modified. The OIG's contracted coder determined that the documentation in the veteran's medical record did not support all required elements for the CPT code, 99214, recorded by the VA provider. The contractor determined that CPT code 99211, the lowest evaluation and management code, was appropriate. The medical facility coder agreed with this analysis. CPT code 99211 is worth 0.18 relative value units, 1.32 units below the 99214 CPT code documented by the VA physician.

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[21] The actual ability to provide psychiatric care would, of course, also need to account for other factors, such as the availability of mental health team support and administrative personnel.

Facility leaders had taken some steps to monitor and improve coding accuracy, such as having additional physician training provided by facility coding staff. To improve coding efficiency and accuracy, the facilities developed and added templates, cheat-sheets, and pocket guides to the medical documentation system to provide physicians with the most-used standard codes by specialty. However, these solutions are still cumbersome and require extensive coding knowledge by each physician to properly document and code each encounter.

Audited facilities also provided some specialties with access to automated coding software to identify the correct code, which the physician then manually entered in VA's Computerized Patient Records System. These tools automate the coding process by using the physician-entered data to determine whether each required coding element had been documented. If fully implemented, these tools can calculate key components of an office visit, identify potentially incomplete and noncompliant coded records, and assign the correct code based on the documented medical record. The new electronic health record system VHA has started to implement is expected to include features similar to the automated coding tools used by the sampled facilities, including prompts and guides embedded in the medical record to improve the accuracy of the medical documentation for coding purposes. The VA deployed the electronic health record system at Mann-Grandstaff VA Medical Center in October 2020 and is rolling out its new system at facilities across the country. Implementation work for future sites is underway and is scheduled to end in 2028.

Patient encounters are reviewed by professional coders if the encounter is billable to a third-party insurer. However, each VA facility's Health Information Management Service is required to monitor coding accuracy by having professional coding staff audit at least 10 inpatient discharges and, depending on the size of the facility, 40 or 90 outpatient encounters per month. Each year, these audits must include an encounter coded by each provider. These audits did not calculate possible workload changes due to any identified errors, and the results are reported separately for encounters coded by providers and those initially coded by professional coders. They included all coding errors. In FY 2019, these audits found outpatient encounters nationwide coded by medical providers were about 67 percent accurate, and the outpatient encounters initially coded by professional coding staff were 94 percent accurate.

The audit team did not conduct an in-depth evaluation of VHA's process of training physicians in coding methods and did not evaluate oversight of the process. The OIG concluded, however, that VHA leaders need to evaluate their processes to ensure greater accuracy of workload data.

VA Wait Times and Specialty Physician Time Allocations Were Materially Accurate

The OIG estimated, based on its review of appointments associated with 584 of 868 patient encounters for which appointments were previously scheduled, that 7 percent of VA specialty care appointments did not correctly capture wait times based on the referring physician's

requested date. The audit team did not evaluate the medical appropriateness of the referral date. These inaccuracies resulted in the average wait time for a veteran with a scheduled appointment being slightly shorter than VA reported. Based on VA's guidance on calculating wait times, the OIG estimated the average veteran wait time ranged from about three days shorter than the average time VA reported to less than one day longer. These results were an improvement from some earlier OIG audits that determined wait time inaccuracies at VA facilities resulted in patient waits being weeks longer than VA reported.[22] The earlier errors were caused by schedulers incorrectly entering dates from the referring physician in the electronic scheduling system. Since then, VA modified its scheduling system to obtain the date from the referring provider's consult directly, no longer allowing these dates to be edited by the schedulers.

In addition, the OIG found only insignificant allocation errors between clinical and nonclinical time based on its review of how 439 physicians allocated their time spent supervising physicians and conducting clinical, formal education, and research duties. The results were statistically insignificant as the audit team found only 26 errors in the sample of 439 allocations. The net total difference in full-time equivalent positions was less than 1 percent of the 231.1 audited equivalent positions. In 2017, the Government Accountability Office (GAO) reported that the percentage of time allocated to nonclinical duties varied significantly at VA medical centers.[23] However, leaders at multiple medical facilities said that beginning in January 2019 they participated in an Increasing Capacity, Efficiency, and Productivity initiative through the Office of Veterans' Access to Care that was designed to address improvements to access to care in advance of the MISSION Act. These efforts focused on ensuring the facility accurately allocated physician time spent in clinical and other activities. VA medical center leaders stated that they closely monitored physician time allocations and used VHA policy as a guide to allocate physician time in VA's cost accounting system.

The OIG concluded that the errors in wait times and time allocations were not significant enough to materially affect modernization or realignment recommendations and implementation. The wait times for veterans were about one day shorter than VA reported, and the sampled position allocations were under 1 percent less than VA reported. The OIG did not consider these differences to be material as they were unlikely to affect the Asset and Infrastructure Review Commission recommendations and related responses.

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[22] VA OIG, *Audit of Veteran Wait Time Data, Choice Access, and Consult Management in VISN 6*, Report No. 16-02618-424, March 2, 2017; VA OIG, *Audit of Veteran Wait Time Data, Choice Access, and Consult Management in VISN 15*, Report No. 17-00481-117, March 13, 2018.

[23] GAO, *Improvements Needed in Data and Monitoring of Clinical Productivity and Efficiency*, GAO-17-480, May 2017.

Conclusion

The OIG found significant inaccuracies in the specialty care workload data VA will depend on to meet its obligations under the MISSION Act. These inaccuracies could cause the Secretary to implement recommendations from the Asset and Infrastructure Review Commission that may not improve veterans' access to medical care and could lead to the inefficient use of taxpayer funds. Since the law's intent was to identify and fill gaps in healthcare services to ensure proper care for veterans, VA should make certain the data used to make management decisions are accurate.

Recommendation

1. The OIG recommended that the acting under secretary for health perform additional analyses to ensure materially accurate specialty care workload data are used to implement the Asset and Infrastructure Review Commission recommendations.

Management Comments

The acting under secretary for health concurred with the finding and recommendation. The acting under secretary reported VHA's Health Informatics Management Office, in collaboration with other offices, will develop an action plan to assess coding accuracy of specialty care services and present recommendations to the under secretary for health to implement the plan. Appendix C provides the full text of the acting under secretary's comments.

OIG Response

The acting under secretary for health's planned corrective actions are responsive to the OIG recommendation on using accurate specialty care data when *implementing* the Asset and Infrastructure Commission's recommendations. This is based on Office of Strategic Planning and Analysis leaders' September 2021 assertions that they will be relying primarily on enrollment, bed-days of care, and numbers of veterans assigned to each physician for *making recommendations* on facility modernization. However, to the extent that the recommendations to the Asset and Infrastructure Commission rely on specialty care workload in the future—which seems relevant to VA's published criteria for making recommendations to the commission—the OIG expects that the acting under secretary for health will ensure the workload data used are accurate. The OIG will monitor the VHA work plan for addressing the OIG recommendation until all proposed actions are complete.

Appendix A: Scope and Methodology

Scope

The audit team conducted its work from July 2020 through September 2021. The scope of the audit focused on determining the accuracy of data elements used in market assessments to measure VA's capacity to serve veterans' healthcare needs. The VA MISSION Act of 2018 requires the department to perform a market assessment every four years to develop the capital infrastructure planning and procurement processes. The audit team focused on three data elements: (1) workload, (2) access, and (3) staffing resources and sampled specialty care encounters completed during FY 2019 from 10 statistically selected VA medical facilities.

Methodology

The audit team met virtually with VHA's Office of Policy and Planning and the Office of Health Informatics to ascertain governing policies and procedures, identify responsible officials, and determine what data were necessary to perform this audit. The team observed preliminary market assessment data gathered by VHA's Office of Policy and Planning to meet MISSION Act requirements.

As mentioned above, the team performed a statistical sample of three critical data elements comprising the productivity measure in the Specialty Productivity—Access Report and Quadrant Tool: workload, access, and staffing resources. The team collaborated with the OIG Data Services Division to identify the most reliable source for each data element. Leaders from each of the 10 medical facilities sampled were also provided with the opportunity to review and provide comments or additional documentation for each data element when appropriate.

Among those interviewed were facility staff including medical facility directors, chiefs of staff, program supervisors, and Health Information Management System officials from the 10 sampled facilities. The team provided the encounters used to evaluate the workload data to a professional coding contractor to determine the accuracy of VA's medical coding. The contractor coded the encounters based on the defined level of service for each CPT code and VHA's medical documentation. The contractor provided the reasons for assigning a different code than VHA and reevaluated each encounter for which VHA facility staff provided additional information.

Internal Controls

The audit team assessed the internal controls of VHA's Office of Productivity, Efficiency, and Staffing's Specialty Productivity—Access Report and Quadrant Tool significant to the audit objective. This included an assessment of the five internal control components to include control environment, risk assessment, control activities, information and communication, and monitoring. In addition, the team reviewed the principles of internal controls as associated with

the objective. The team identified the component and principle significant to the objective. The team identified internal control weaknesses during this audit and proposed recommendations to address the following control deficiencies:

- Component 5: Monitoring Activities

  - Principle 16: Management should evaluate and document the results of ongoing monitoring and separate evaluations to identify internal control issues.

Fraud Assessment

The audit team assessed the risk that fraud and noncompliance with provisions of laws, regulations, contracts, and grant agreements, significant within the context of the audit objectives, could occur during this audit. The team exercised due diligence in staying alert to any fraud indicators by contracted fee-for-service providers upcoding their procedures for monetary gain.

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

Data Reliability

The team used computer-processed data provided by the OIG Data Services Division and VHA's Office of Productivity, Efficiency, and Staffing. The data included workload CPT codes, completed appointments, and physician mapping in selected specialties from the Specialty Productivity—Access Report and Quadrant Tool. The team obtained and used physician notes, wait-time reports, and employment documentation from sampled facilities to conduct reliability testing. The team assessed and found the computer-processed data sufficiently reliable based on the following methods:

- **CPT codes:** Coding experts reviewed redacted encounter notes to verify the appropriateness of CPT codes. The team cross-checked their analyses with the attending physician notes for each encounter and received concurrence or comments from coding staff at each facility.

- **Completed appointments:** The team compared appointment data retrieved by the Office of Productivity, Efficiency, and Staffing with reports provided by Health Information Management Service coders from each sampled facility.

- **Physician mapping:** VA OIG data services staff extracted employee data from VA's Corporate Data Warehouse and additional fields from HRSmart to produce physician time allocation data. The team compared the data to employment documentation provided by the sampled facilities.

Government Standards

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 the findings and conclusions based on audit objectives. The OIG believes the evidence obtained provides a reasonable basis for the findings and conclusions based on the audit objectives.

Appendix B: Statistical Sampling Methodology

Approach

To accomplish the objective, the audit team reviewed a statistical sample of relative value units of workload, wait-time data elements, and the clinical full-time equivalent positions comprising the productivity measure in the Specialty Productivity—Access Report and Quadrant Tool. The team used statistical sampling to quantify the extent to which the workload reported by VA varied from the workload units as calculated based on the OIG's contracted review of the encounter CPT codes at the 10 selected facilities.

Population

The audit population included 14,506,945 veteran encounter records totaling 25,686,817 workload units from October 1, 2018, through September 30, 2019.

Sampling Design

The team evaluated data on 12 of the most offered specialties that provide direct patient care based on the total workload units of each specialty. The team performed a detailed analysis of three specialties:

1. Psychiatry

2. Cardiology

3. Gastroenterology

The remaining nine specialties were combined to form an "other" category to provide a broader review of each facility's internal controls and data validity. These specialties include:

1. Critical Care/Pulmonary Disease

2. Neurology

3. Surgery

4. Urology

5. Nephrology

6. Orthopedic Surgery

7. Hematology-Oncology

8. Otolaryngology

9. Infectious Disease

With the assistance of the Office of Productivity, Efficiency, and Staffing, the team retrieved productivity data from the Corporate Data Warehouse. The team used a three-stage sample design to select the encounters for examination.

The OIG statistician identified productivity data for 15,612 providers for the 12 specialties in the Specialty Productivity—Access Report and Quadrant Tool summarized at the facility level. In stage 1, with a sampling frame consisting of the 139 facilities that provided at least one of the 12 selected specialties, six high-complexity and four low-complexity facilities were statistically selected in proportion to the count of psychiatry, cardiology, and gastroenterology providers at each facility. The 10 selected facilities had a total of 1,281 of the 15,612 providers listed in the sampling frame.

In stage 2, the team randomly selected 439 providers from the 1,281 cardiology, gastroenterology, psychiatry, and other providers at the 10 facilities selected in stage 1. Working with facility officials, the OIG compared the clinical and nonclinical time allocations for each physician to the duties for each selected physician to ensure the allocations were justified.

In stage 3, the team randomly selected 868 of 1,320,271 encounters for the 439 providers selected in stage 2. To verify the accuracy of VA's medical coding, the audit team provided the documentation for these encounters to certified medical coders contracted by the OIG and provided a leader from each facility the opportunity to review, comment, and provide additional documentation when appropriate.

In addition, the audit team evaluated the patient wait times for 584 of these 868 encounters for which there was a previously scheduled appointment. The other encounters were for walk-in, inpatient, or other services that did not involve an appointment, so a wait-time calculation was not applicable. For these 584 encounters, the team calculated the appropriate wait time in accordance with VA policy; times were based on the return to clinic or the clinically indicated appointment date, and then those calculations were compared with the reported date. As indicated above, each facility official had the opportunity to review, comment, and provide additional documentation when appropriate.

Table B.1. Counts by Aggregate Specialty

Aggregate specialty	Providers	Encounters	Workload relative value units
Cardiology	1,571	3,364,050	3,448,784
Gastroenterology	1,063	859,189	2,528,754
Psychiatry	4,602	4,436,936	8,578,240
Other	8,376	5,846,770	11,131,039

Source: VA OIG statistician's stratified population. Data were obtained from the Specialty Productivity—Access Report and Quadrant Tool.

Weights

Samples were weighted to represent the population from which they were drawn, and the weights were used in the estimate calculations. For example, the team calculated the error rate estimates by first summing the sampling weights for all sample records that contained the given error and then dividing that value by the sum of the weights for all sample records.

For the three-stage design, the sampling weight for each encounter is the product of the following:

- **Stage 1:** The selection factor for each of the 10 sampled facilities of the 139 total facilities selected in proportion to the aggregate number of providers in psychiatry, gastroenterology, and cardiology

- **Stage 2:** The selection factor based on the probability for each provider randomly selected from the 1,281 providers identified in stage 1

- **Stage 3**: The selection factor based on the selection probability for each encounter randomly selected from the encounters identified by 439 stage-2 providers

Projections and Margins of Error

The projection is an estimate of the population value based on the sample. The associated margin of error and confidence interval show the precision of the estimate. If the OIG 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.

The OIG statistician employed statistical analysis software to calculate the weighted population estimates and associated sampling errors. This software uses replication or Taylor series approximation methodology to calculate margins of error and confidence intervals that correctly account for the complexity of the sample design.

The sample size was determined after reviewing the expected precision of the projections based on the sample size, potential error rate, and logistical concerns of the sample review. While precision improves with larger samples, the rate of improvement does not significantly change as more records are added to the sample review.

Figure B.1 shows the effect of progressively larger sample sizes on the margin of error.
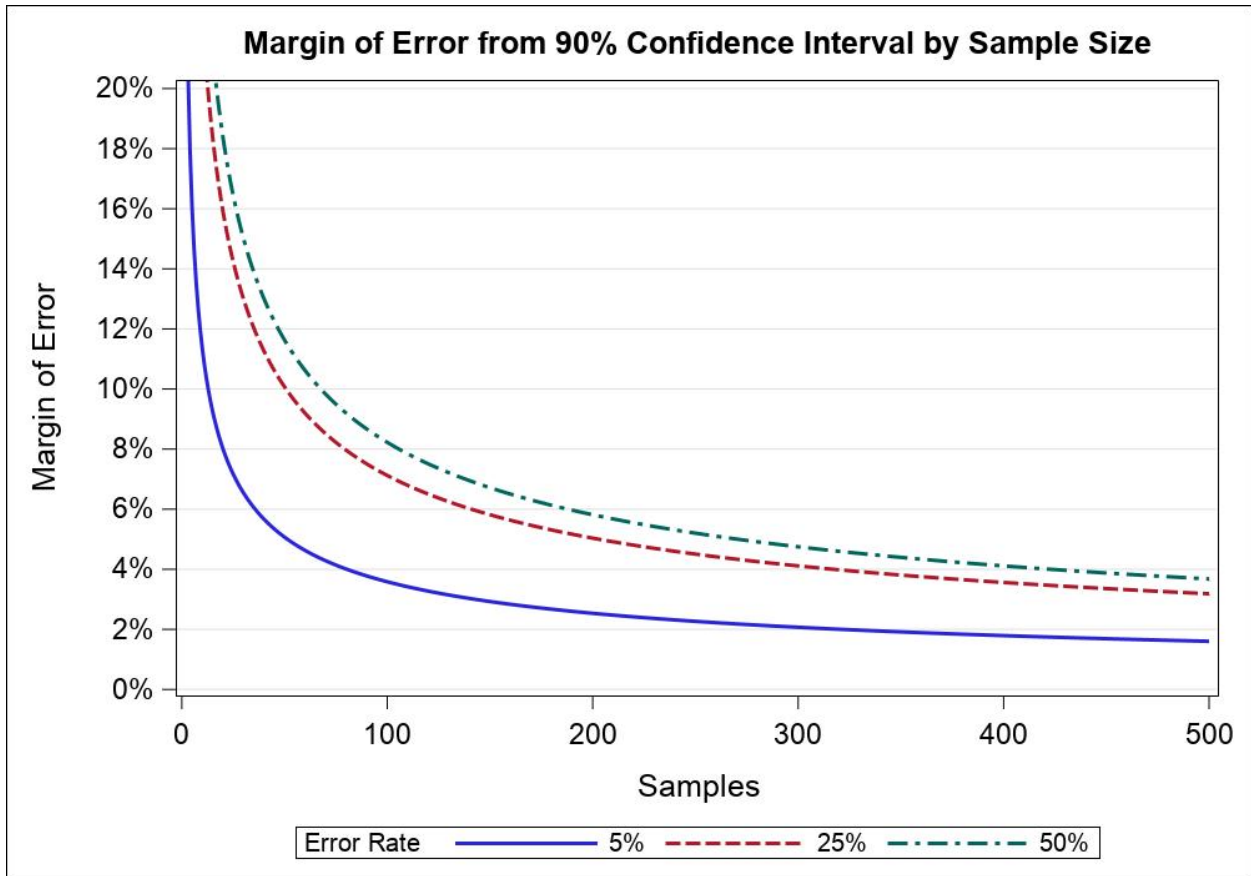
Figure B.1. *Effect of sample size on margin of error.*
Source: VA OIG statistician's analysis.

Table B.2 presents the projected overall error rate including the estimates derived from the sample population, including the sample results, estimate of claims or value, margin of error, lower 90 percent value, and upper 90 percent value.

Table B.2. Overall Estimated Workload Percent Error Rate Statistical Projection

Estimated error rate	Margin of error	90 percent confidence interval lower limit	90 percent confidence interval upper limit	Number of errors	Sample size
47.0	5.1	41.9	52.0	397	868

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

Tables B.3 through B.5 present the projections, including the estimates derived from the sample population, including the sample results, estimate of claims or value, margin of error, lower 90 percent value, and upper 90 percent value.

Table B.3. Overall Difference Between VA-Reported Total Relative Value Units of Workload and OIG Statistical Projections

Total workload	Relative value units	Positions*
VA reported	25,686,817	5,242
OIG calculated †	22,927,770	4,679
Difference (percent)	2,759,047 (10.7%)	563

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

*Positions are the full-time equivalent physician positions calculated by dividing the total workload units by 4,900, the average units per physician in the 12 audited specialty FY 2019 audit universe.

†OIG used a ratio estimate, the ratio of the OIG relative value unit of total workload to the known VA workload total for each of the sampled encounters, to calculate the total units.

Table B.4. Overall Statistical Projections Summary for Audited Relative Value Units of Workload and Full-Time Equivalent Positions*

Total workload based on 90% confidence level for ratio estimate†				Sample results	
Calculated OIG total units (positions)	Margin of error units (positions)	90 percent confidence interval lower limit units (positions)	90 percent confidence interval upper limit units (positions)	Number of errors	Sample size
22,927,770 (4,679)	2,544,728 (519)	20,383,042 (4,160)	25,472,514 (5,198)	397	868

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

*Positions are the full-time equivalent physician positions calculated by dividing the total workload units by 4,900, the average units per physician in the 12 audited specialty FY 2019 audit universe.

†OIG used a ratio estimate, the ratio of the OIG relative value unit of total workload to the known VA workload total for each of the sampled encounters, to calculate the total units.

Table B.5. Statistical Projections Summary for Audited Relative Value Units of Workload and Full-Time Equivalent Positions* by Sampled Facility in the Report

Facility	Estimated number of units (positions)	Margin of error units (positions)	90 percent confidence interval lower limit units (positions)	90 percent confidence interval upper limit units (positions)	Number of errors	Sample size
A	349,236 (71.3)	90,238 (18.4)	258,998 (52.9)	439,474 (89.7)	82	141

Facility	Estimated number of units (positions)	Margin of error units (positions)	90 percent confidence interval lower limit units (positions)	90 percent confidence interval upper limit units (positions)	Number of errors	Sample size
B	316,525 (64.6)	17,544 (3.6)	298,981 (61.0)	334,069 (68.2)	59	120
C	154,848 (31.6)	28,309 (5.8)	126,538 (25.8)	183,157 (37.4)	54	98
D	59,415 (12.1)	11,362 (2.3)	48,052 (9.8)	70,777 (14.4)	18	43

Source: VA OIG analysis of statistically sampled results projected over the sampled population. Data used for analysis and projections were obtained from VA's Corporate Data Warehouse.
*Positions are the full-time equivalent physician positions calculated by dividing the total workload units by 4,900, the average units per physician in the 12 audited specialty FY 2019 audit universe.

Estimation Methodology

The OIG used a ratio estimate, the ratio of the OIG relative value unit of total workload to the known VA workload total for each of the sampled encounters, to calculate the total units.

Ratio estimates at the facility level were calculated using statistical software and the OIG-computed and VA Specialty Productivity—Access Report and Quadrant Tool-computed relative value units based on the coding analysis of the 868 encounters randomly selected among the 439 providers at the 10 statistically selected stations. Based on the review of each sampled encounter and the application of appropriate sampling weights, the team calculated the OIG total of 22,927,770.00 units as the product of the ratio estimate (0.89) times the known total for the 12 selected specialties. The reported estimates, margins of error, and upper and lower bounds were calculated as the product of the ratio estimate and the total reported relative value units at each facility.

Table B.6 presents the VA-reported and the OIG projections, including the estimates derived from the sample population, such as the sample results, estimate of claims or value, margin of error, lower 90 percent value, and upper 90 percent value for the FY 2019 psychiatry relative value units.

Table B.6. VA-Reported vs. OIG-Estimated Psychiatry Relative Value Units of Workload in FY 2019

Workload source	Workload (in relative value units)	Margin of error	90 percent confidence interval lower limit	90 percent confidence interval upper limit	Number of errors	Sample size
OIG-identified overstated estimate	6,658,762	449,280	6,209,482	7,108,042	141	320

Source: VA OIG analysis of statistically sampled results projected over the sampled population. VA-reported relative value unit data were obtained from the Physician Capacity Summary Report, and data used for analysis and projections were obtained from VA's Corporate Data Warehouse.

Table B.7 presents the OIG calculations used to arrive at the estimated capacity to serve additional veterans using VA-reported and the OIG-projected data. The potential additional capacity column (C) was calculated by subtracting the reported workload column (B) from the VA specialty target column (A). The relative value units per veteran column (D) was calculated by dividing column B by the 1,018,647 veterans who received psychiatric care in FY 2019, and the capacity to serve additional veterans. Column (E) was calculated by dividing column C by the unrounded result in column D.

Table B.7. Capacity to Serve Veterans Calculations using VA-Reported vs. OIG-Estimated Psychiatry Workload

Workload source	VA specialty workload target	Reported workload (in relative value units)	Potential additional capacity (in relative value units)	Relative value units per veteran	Capacity to serve additional veterans (in relative value units)
Column reference	A	B	C	D	E
VA-reported	9,255,535	8,578,240	677,295	8.42121	80,427
OIG-estimated	8,974,728	6,658,762	2,315,966	6.53687	354,293

Source: VA OIG analysis of statistically sampled results projected over the sampled population. VA reported relative value unit data were obtained from the Physician Capacity Summary Report, and data used for analysis and projections were obtained from VA's Corporate Data Warehouse.

Table B.8 presents the projected overall estimated rate of incorrectly calculated wait times including the estimates derived from the sample population, including the sample results, estimate of claims or value, margin of error, lower 90 percent value, and upper 90 percent value. Since the sample was selected from all encounters, including inpatient and same-day procedures, only 584 of the 868 encounters had an appointment. For statistical purposes, the sampled encounters without an appointment were not considered an error.

Table B.8. Overall Estimated Wait-Time Percent Error Rate Statistical Projection

Estimated error rate	Margin of error	90 percent confidence interval lower limit	90 percent confidence interval upper limit	Number of errors	Sample size
7.2%	3.1%	4.1%	10.3%	49	868

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

Table B.9 presents the sample errors found in the review of the official clinical and nonclinical time allocations of 439 physicians spent supervising physicians and conducting clinical, formal education, and research duties. The error rate of incorrectly calculated wait times included in the estimates derived from the sample population was too low to result in meaningful statistical estimates, so the sample data totals below are only presented for context.

Table B.9. Clinical Time Allocation Sample Results

Sampled physicians	Errors	Error percent	VA reported clinical full-time equivalent	Audited full-time equivalent	Clinical full-time equivalent percent difference
439	26	5.9%	231.1	230.6	0.2%

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

Appendix C: Management Comments

Department of Veterans Affairs Memorandum

Date: October 6, 2021

From: Acting Under Secretary for Health

Subj: OIG Draft Report, MISSION Act Market Assessments Contain Inaccurate Specialty Care Workload Data (2020-03351-R8-0001) (VIEWS5997295)

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

1. Thank you for the opportunity to review and comment on the Office of Inspector General (OIG) draft report, "MISSION Act Market Assessments Contain Inaccurate Specialty Care Workload Data". The Veterans Health Administration concurs with the recommendation and provides an action plan in the attachment.

2. Comments regarding the contents of this memorandum may be directed to the GAO OIG Accountability Liaison Office.

The OIG removed point of contact information prior to publication.

(Original signed by)

Steven L. Liberman, M.D.

Attachment

VETERANS HEALTH ADMINISTRATION (VHA)

Action Plan

Veterans Health Administration: MISSION Act Market Assessments Contain Inaccurate Specialty Care Workload Data

(OIG 2020-03351-R8-0001)

Date of Draft Report: September 16, 2021

Recommendation 1. The OIG recommended that the under secretary for health perform additional analyses to ensure materially accurate specialty care workload data is used to implement recommendations to the Asset and Infrastructure Review Commission.

VHA Comments: Concur

VHA's Health Informatics Management Office, in collaboration with the Office of Integrity and Compliance, the Office of Internal Audit, and other offices, will develop an action plan to assess coding accuracy of specialty care services identified by OIG and present recommendations to the Under Secretary for Health to implement the plan. To close this recommendation, VHA will provide OIG with documentation of its approved plan and approved recommendations for implementation.

Status: In Progress   Target Completion Date: February 2022

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

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