



DEPARTMENT OF VETERANS AFFAIRS
OFFICE OF INSPECTOR GENERAL

Office of Audits and Evaluations

VETERANS HEALTH ADMINISTRATION

Improved Oversight of
Surgical Support Elements
Would Enhance Operating
Room Efficiency and Care

AUDIT

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Executive Summary

The VA Office of Inspector General (OIG) conducted an audit to determine if the Veterans Health Administration (VHA) effectively used National Surgery Office (NSO) data to identify and address operating room efficiency problems that affect patient care. Prior OIG audits and inspections have found operational problems at VA surgical facilities that have inconvenienced patients, put them at risk, and contributed to canceled surgeries. At some facilities, those problems remain unsolved.

The NSO is responsible for establishing surgical policy and providing oversight of clinical and quality improvement activities for the 135 VA medical facilities performing surgeries. The deputy under secretary for health for operations and management's office and Veterans Integrated Service Network (VISN) and medical facility surgical workgroups reviews the NSO's quarterly reports. VISN and medical facility workgroups are responsible for monitoring and implementing surgical improvement activities at the local and regional levels.

The NSO's quarterly performance reports summarize trends and compare clinical data for surgeries and their outcomes. In 2013, the NSO added four operating room efficiency measures to the performance report: surgical case cancellations, operating room first-time starts, operating room utilization rate, and lag times between surgeries. Surgical case cancellations include surgeries canceled within 48 hours of the scheduled start time. Operating room first-time starts are the first operations of the day that start on time or earlier. Operating room utilization rate compares operating room nurse time with active operating room run time, and lag time is the time needed to clean, reconfigure, or prepare the operating room between surgeries.

The NSO uses surgical workgroups at the VISNs and medical facilities to communicate best practices, minimize variances in operations, and engage in quality improvement activities. The NSO and the surgical workgroups are responsible for quality assurance oversight in surgical service, but they do not have authority over the medical facility support services and functions—other clinical services, logistics, sterilization processing, environmental management, and resource management—that also affect operating room efficiency. The OIG conducted this audit to determine if VISNs and medical facilities used the NSO's guidance and took action when the NSO operating room measures indicated that their operating rooms were not functioning efficiently.

What the Audit Found

The OIG found VA medical facility and VISN leaders were not effectively using the NSO guidance and operating room efficiency measures, which contributed to increased cancellations of surgeries, greater expense, increased inconvenience to patients and staff, and potentially greater risks to patients. The NSO has had mixed success convincing surgical programs and their

VISN and medical facility surgical workgroups to focus on their operating room efficiency, and it cannot control the degree to which medical facility support services and functions consider its efficiency measures relevant to their processes.

The NSO provided medical facility and VISN surgical workgroups operating room efficiency data with the expectation that remedial actions would be taken if the data indicated their facilities had inefficient operating rooms. The VISN and medical facility workgroups responsible for the six surgical programs the OIG reviewed used the NSO performance report information for clinical and quality assurance oversight. The chiefs of surgery and medical facility workgroups over the facilities with less efficient operating rooms did not fully incorporate the NSO operating room efficiency data into their quality assurance activities or use the data to try to influence and facilitate needed changes in support service processes and functions. The NSO did not have the authority to compel the workgroups to act on the operating room efficiency data because the workgroups performed their core quality assurance functions and the personnel in the workgroups reported to the medical facility or the VISN, not the NSO.

The OIG also found VA medical facilities with less efficient operating rooms had inspection reports and issue briefs that identified surgical support element problems that affected operating room efficiency. VISN, medical facility, and VHA program office reviews and inspections identified problems in logistics and sterilization processing such as inadequate storage space and staff not maintaining equipment cleaning schedules. In addition, three of the medical facilities with less efficient operating rooms reported events such as operating room closures and canceled surgeries due to surgical support element problems identified in issue briefs to their VISNs and the deputy under secretary for health for operations and management. Despite the inspection reports and issue briefs, the logistics and sterilization service managers at the VISNs and medical facilities with less efficient operating rooms often did not address the root causes of the problems or did not implement sustainable corrective actions, allowing the problems to recur. VISN and medical facility surgical workgroups responsible for less efficient operating rooms were aware of the recurring problems, but they lacked the more cooperative and collaborative relationships experienced by the workgroups responsible for efficient operating rooms. Thus, they could not influence and facilitate needed corrective actions in areas outside of surgical service, such as sterile processing, and prevent recurring problems from affecting the efficiency of their operating rooms.

The audit team analyzed almost four years of the NSO operating room efficiency data from October 1, 2014, through June 30, 2018, and found that 61 of the 135 medical facilities had subpar scores during 10 or more of the 15 reviewed quarters.¹ Additionally, 57 of the 61 medical facilities appeared to have ongoing surgical support element problems, because their scores did

¹ The audit team analyzed the most recent data available at the start of the audit to assess operating room efficiency at medical facilities.

not show any improvement in the 12 months before June 30, 2018. Based on a statistical analysis of the operating room efficiency scores, the audit team ranked the 135 medical facilities into groups of efficient and less efficient sites.

The OIG found that medical facilities with higher operating room efficiency scores had controls the less efficient medical facilities lacked to help improve the operation of their surgical support elements and achieve their high scores. The OIG found that controls at efficient medical facilities

- helped minimize tardiness and ensured operating room staff were held accountable when they were not on time for surgeries;
- ensured clinical services staff completed preoperative work and patient contacts;
- ensured operating room staff received sterile surgical instruments, equipment, and supplies;
- ensured operating rooms were cleaned and ready throughout the day; and
- focused on resource management issues before they became critical.

Overall, the OIG found that the VISN and medical facility surgical workgroups at all six reviewed medical facilities applied the surgical service quality assurance framework outlined in the NSO handbook (VHA Handbook 1102.01). According to the NSO handbook, the VISN workgroups are responsible for reviewing pertinent data, overseeing clinical outcomes and best practices, monitoring performance improvement activities, identifying gaps within surgical care, and recommending corrective actions. In addition, the chiefs of surgery, operating room nurse managers, and surgical quality nurses in the facility surgical workgroups are responsible for monitoring and implementing activities to improve surgical performance, identifying gaps in surgical care, and monitoring surgical outcomes and the NSO quality data. However, the OIG found the workgroups of the less efficient facilities focused their activities primarily on surgical outcomes while the efficient facilities focused on both surgical outcomes and operating room efficiency.

As a result, VISN and medical facility surgical workgroups at the efficient facilities included the NSO's operating room efficiency measures in their quality assurance activities, actively monitored their facilities' operating room efficiency scores, sought ways to maintain and improve their scores, and communicated and worked across service lines to implement controls and make changes needed to address problems that affected operating room efficiency. The OIG also found that VISN workgroups where leaders had implemented additional controls, such as the sharing of best practices to promote operating room efficiency across the medical facilities, had proportionately fewer medical facilities ranked as less efficient than the VISNs where the VISN workgroup leaders had not done so.

Problems at the less efficient facilities persisted for at least two years because VISN and medical facility leaders did not effectively monitor operating room efficiency and follow up when less

efficient facilities did not resolve underlying surgical support element problems. VHA controls, such as operating room reports, inspection reports, and issue briefs alerted various VISN, medical facility, and surgical support element program officials to operating room inefficiencies and related surgical support element problems, but the officials did not follow up to ensure the resolution of the problems. The NSO does not have specific oversight authority over VISN and medical facility directors or the surgical workgroups; accordingly, it could not provide the oversight needed to resolve operating room efficiency and related surgical support element performance problems. As a result, the NSO is not in the chain of accountability to ensure problems are solved.

The OIG also found medical facilities' overall scores on the NSO operating room efficiency measures did not account for all available operating rooms and could mask inefficiencies. The overall score includes a measure labeled "utilization," but this measure monitored operating room nursing staff time instead of the utilization of the operating rooms. Therefore, it calculates the total active run hours of the operating rooms as a percentage of the total number of assigned operating room nurse hours and does not compare the run hours to the total number of hours the medical facility operating rooms are available. Thus, the overall efficiency score did not include a measure that showed the utilization rate of the medical facilities' available operating rooms. According to the NSO director and the national nurse executive, the NSO excluded the capacity measure, which measures operating room utilization, from the overall score because of concerns it would have unintended negative consequences on patient care, efficiency, and hospital workflow. While this may be a valid concern, the OIG contends the capacity measure should be reported along with the medical facilities' overall operating room efficiency scores to provide context for the scores and transparency when medical facilities are not fully utilizing their operating rooms.

The OIG concluded surgery patients face unnecessary risks because some VISNs and medical facilities do not effectively manage the use of NSO data and support service inspection reports to monitor and improve operating room efficiency. Although the pace of future surgeries in VA could be altered by COVID-19, the audit team estimated that greater VISN and medical facility oversight of support elements would improve operating room efficiency at the less efficient facilities and reduce surgical cancellations by 8,600 over the next five years, save an estimated \$30 million, and improve surgical services for about 7,200 patients.

What the OIG Recommended

The OIG made six recommendations to the under secretary for health, including the development of an oversight mechanism to ensure VISNs monitor and hold medical facilities accountable for

addressing persistent operating room efficiency and surgical support element problems.² The OIG also recommended the under secretary consider the periodic assessment of operating room efficiency data to identify medical facilities with persistent problems; the clarification and refinement of the selected NSO performance measures; the identification of best practices and implementation, where appropriate, of these practices at less efficient facilities; and the broader sharing of efficiency data across medical facility service lines.

Management Comments

The executive in charge, Office of the Under Secretary for Health, concurred with all six recommendations. VHA provided the OIG with sufficient evidence in its response to support the closure of recommendation 4. The OIG will monitor the implementation of the planned actions for the remaining recommendations and will close the recommendations when VHA provides necessary evidence to demonstrate the proposed actions have been completed and the intent of the recommendations has been met. Although VHA requested closure of recommendation 2, the OIG needs additional support to be able to evaluate VHA's plans to assess surgical support element problems affecting patients and operating room efficiency. The full text of VHA's comments can be found in appendix F.



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² Recommendations directed to the under secretary for health were submitted to the executive in charge who has the authority to perform the functions and duties of the under secretary.

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Abbreviations

FY	fiscal year
NSO	National Surgery Office
OHI	Office of Healthcare Inspections
OIG	Office of Inspector General
SAIL	Strategic Analytics for Improvement and Learning
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network



Introduction

The VA Office of Inspector General (OIG) audited the Veterans Health Administration's (VHA) oversight of surgical programs to determine if VHA effectively used the National Surgery Office (NSO) operating room efficiency data to identify and address problems at the 135 medical facilities that conducted surgeries in fiscal year (FY) 2018. Those facilities performed about 391,000 inpatient surgeries and about 31,300 outpatient surgeries at a cost of \$2.9 billion.³ Operating rooms are a key component of a medical facility because surgeries require the involvement of numerous departments within the facility. They can be major life events for patients and their families, and efficient and effective surgical performance can drive patient satisfaction. Efficient coordination and operation of all parts of a surgical suite ensures patient safety and timely access to care; decreases patient delays and cancellations; maximizes the use of operating rooms, staff, and materials; and enhances employee and surgeon satisfaction.

Previous OIG audits and inspections found operational problems in VA surgical support elements that affected the safe, efficient delivery of services to patients, including the following:

- Surgical procedures were delayed or canceled because sterile instruments and equipment were unavailable.⁴
- Patients received anesthesia unnecessarily because their procedures were delayed or canceled.⁵
- Surgeries were canceled because employees did not perform adequate preoperative evaluations and a surgery was stopped due to a lack of necessary instruments.⁶
- Patients were placed at risk from a shortage of surgical supplies and inventory management problems that affected the availability of required surgical instruments.⁷

National Surgery Office Oversight

The NSO is responsible for establishing surgical policy and overseeing clinical and quality improvement activities for VA's 135 medical facilities performing surgeries. The NSO issues a

³ The reported number of surgeries in FY 2018 is for 134 medical facilities with surgical programs versus 135 medical facilities when the OIG began the audit.

⁴ VA OIG, *Alleged Concerns in Sterile Processing Services at the New Mexico VA Health Care System*, 17-04593-10, October 31, 2018.

⁵ VA OIG, *Critical Deficiencies at the Washington DC VA Medical Center*, 17-02644-130, March 7, 2018.

⁶ VA OIG, *Surgical Service Concerns Fayetteville VA Medical Center Fayetteville, North Carolina*, 15-00084-370, September 30, 2016.

⁷ VA OIG, *Interim Summary Report*, 17-02644-202, April 12, 2017.

quarterly performance report that evaluates access, patient satisfaction, operating room efficiency, and the overall quality of Veterans Integrated Service Network (VISN) and VA medical facility surgical delivery systems. These quarterly performance reports summarize trends and compare clinical data for surgeries and their outcomes. The deputy under secretary for health for operations and management's office and the VISN and medical facility workgroups review these quarterly reports. The medical facility surgical workgroups are responsible for monitoring and implementing surgical improvement activities, and the VISN surgical workgroups are responsible for monitoring performance improvement activities at the local and regional levels. The NSO, along with many other VHA program offices, contributes performance information to VHA's Strategic Analytics for Improvement and Learning (SAIL), which summarizes and assesses medical facility performance based on 25 quality measures in areas such as death rate, complications, patient satisfaction, overall efficiency, and physician capacity. However, operating room efficiency is not specifically addressed in the eight quality domains covered by SAIL.

The audit team focused on the NSO operating room efficiency measures to assess the medical facilities' management and administration of its surgical support elements. The NSO uses four measures to monitor and evaluate operating room efficiency:

1. **Surgical Case Cancellations**—The number of surgeries canceled within 48 hours of the scheduled start time as a percentage of the total number of scheduled surgeries and includes the reported reasons for cancellations.
2. **Operating Room First-Time Starts**—The number of first operations of the day that start on time or earlier than the scheduled start time as a percentage of the total number of first starts.⁸
3. **Operating Room Utilization Rate**—The total run hours of the active operating rooms as a percentage of the total number of assigned operating room nurse hours.⁹

⁸ The NSO monitors first-time starts because a late start for the first surgery of the day can have a cascading effect on the starts of subsequent scheduled surgeries.

⁹ Run hours are the elapsed time from when the first patient of the day is wheeled into the operating room to when the last patient is wheeled out of the operating room. The audit team noted that this measure monitored operating room nurse utilization and not utilization of operating rooms because it compared operating room run time to assigned nurse hours instead of the total number of available operating room hours. The NSO uses a "capacity" measure to measure operating room utilization but this measure is not part of the operating room efficiency score.

4. **Lag Times**—The elapsed time needed to clean, reconfigure, or prepare the operating room between surgeries compared to the established NSO thresholds. This is expressed as the percentage of total surgeries meeting the threshold.¹⁰

The NSO established these four measures in FY 2013 to make operating rooms as efficient as possible, meet veterans' demands for services, ensure veteran and provider satisfaction, and make services cost-effective. The Department of Defense uses these same operating room efficiency measures in its hospitals, and the NSO selected these measures based on various studies, even though the specific definitions and applications of efficiency measures may vary.¹¹ According to the NSO director, VHA's efficiency measures are similar to those used in the private sector but the definitions are different and without correlation. The NSO took the initiative to add multiple measures simultaneously over time to compare medical facility operating room efficiency across a large integrated healthcare system.¹²

The NSO assigns each VA medical facility an overall operating room efficiency score from one to four for each criterion and assigns an overall operating efficiency score based on the number of measures where the facility has received a score of three or four. For example, if a facility scores a one on three measures and a three on one measure, the overall score would be a one. An overall score of three or higher is considered good-to-optimal; facilities with lower scores need remedial actions to improve their efficiency (see appendix A). According to the NSO director, the NSO developed the ranges in the performance scoring to provide individual medical facilities aspirational goals and support continuous performance improvement.

VHA policy makes the NSO responsible for the oversight of surgical operations. Its primary role has been to monitor surgical quality and outcomes.¹³ The NSO added operating room efficiency to its oversight activities at the beginning of FY 2013. According to the former national director for surgery, the NSO only has an advisory role in overseeing operating room performance relative to efficiency performance goals. As a result, the NSO does not require VA medical facilities that do not achieve good-to-optimal efficiency scores to take remedial action.

¹⁰ The NSO established the following lag time thresholds: 20 minutes for ophthalmology surgeries, 35 minutes for same-day and standard surgeries, and 50 minutes for more complex surgeries. The NSO excludes lag times of more than three hours because it believes this reflects a gap in the scheduled surgeries rather than the time staff are preparing the operating room for the next surgery.

¹¹ The Department of Defense was using the same operating room efficiency measures as the NSO as of November 18, 2018.

¹² Douglas Bronson, William Gunnar, Marilyn Lynn, "The impact of benchmarking operating room efficiency within the Veterans Health Administration," *International Journal of Healthcare* 5, No. 1, (2018): 8-15.

¹³ VHA Handbook 1102.01, *National Surgery Office*, January 30, 2013; VHA Directive 1102.01(1), *National Surgery Office*, April 24, 2019. Surgical outcomes include areas such as access, quality, safety, rate of disease in a population, and number of deaths within a given area or time period.

Key Surgical Support Elements

The performance of surgeries in a timely and orderly manner and the efficient functioning of operating rooms in a VA medical facility depend on the seamless coordination of several different elements. Medical facility directors are responsible for ensuring their facilities maintain the clinical infrastructures and necessary support elements to perform surgeries.¹⁴ Significant operational problems in one component can affect the others and reduce operating room efficiency. VHA outlines in several different policies the clinical, administrative, and support services required for the care of surgical patients and the efficacy of operating rooms.¹⁵ The audit team's review of various VHA policies on surgical infrastructure and related administrative and support services identified the following four key surgical support elements necessary for the efficient and timely performance of surgeries:

- Clinical service staff
- Sterile processing service and logistics service
- Environmental management service
- Resource management

The medical facility director is ultimately responsible for the operation of the entire facility, including each surgical support element. However, medical facility directors must rely on various service chiefs and business or service line managers throughout the facility to manage and oversee the day-to-day operations of different departments. It follows, then, that daily management and control of the surgical support elements resides with chiefs or managers in different offices who have their own responsibilities and respective chains-of-command at the facility, VISN, and program office. (See appendix A for further details.) The responsibilities of each surgical support element along with the NSO measures that are affected if it performs poorly are described in table 1 on the next page.

¹⁴ VHA Directive 2010-018, Facility Infrastructure Requirements to Perform Standard, Intermediate, or Complex Surgical Procedures, May 6, 2010; VHA Directive 2011-037, Facility Infrastructure Requirements to Perform Invasive Procedures in an Ambulatory Surgery Center, October 14, 2011.

¹⁵ VHA Directive 1128, *Timely Scheduling of Surgical Procedures in the Operating Room*, November 24, 2014; VHA Directive 1116(2), *Sterile Processing Services*, March 23, 2016; VHA Directive 1761, *Supply Chain Inventory Management*, October 24, 2016; VA Handbook 7002/1, *Logistics Management Procedures*, April 14, 2011; VHA Directive 1850, *Environmental Programs Service*, March 31, 2017.

Table 1. Key Surgical Support Element Responsibilities and the NSO Measures

Support element and responsibility	NSO measures affected by poor performance
<p>Clinical service staff responsibility:</p> <ul style="list-style-type: none"> • Scheduling surgeries • Confirming surgery date, time, and transportation and ensuring consent forms and blood/lab work are completed <p>Clinical service managers responsibility:</p> <ul style="list-style-type: none"> • Ensuring operating room staff are being punctual and available for scheduled surgeries 	<ul style="list-style-type: none"> • Cancellations • Delayed first-time starts
<p>Sterile processing and logistics services responsibility:</p> <ul style="list-style-type: none"> • Providing the correct, properly sterilized reusable surgical equipment and instruments to operating rooms • Ensuring all necessary surgical equipment and expendable supplies are available 	<ul style="list-style-type: none"> • Cancellations • Delayed first-time starts • Increased lag times
<p>Environmental management service responsibility:</p> <ul style="list-style-type: none"> • Cleaning and sterilizing operating rooms before the first surgery of the day • Cleaning and sterilizing operating rooms between surgery starts 	<ul style="list-style-type: none"> • Delayed first-time starts • Increased lag times
<p>Resource management, including medical facility leadership, human resources, and surgical service responsibility:</p> <ul style="list-style-type: none"> • Recruiting and retaining operating room staff needed to meet surgical service workload • Hiring and onboarding operating room staff 	<ul style="list-style-type: none"> • Cancellations • Delayed first-time starts • Decreased operating room utilization • Increased lag times

Source: Audit team analysis of VHA policies and staff interviews.

The audit team focused its examination on the four key surgical support elements affecting operating room efficiency that the medical facilities can influence or control. The audit team did not address many of the other factors raised by the NSO director, such as surgical workload, veteran access in rural areas, and the scheduling of surgeries, that can also significantly affect operating room efficiency and scores on the NSO’s measures.

Results and Recommendations

Finding: VHA Medical Facilities Have Not Consistently Used Data to Address Surgical Support Element Problems Affecting Patient Care

The OIG found medical facility and VISN leaders across VA had not consistently used the available NSO efficiency measures and data to improve operating room efficiency—contributing to potential patient and staff inconvenience, possible increases in patient risks, greater patient expenses, and canceled surgeries. The OIG found medical facilities with high operating room efficiency scores had controls that the less efficient medical facilities lacked to help improve the operation of their surgical support elements. However, the lack of effective controls allowed related surgical support element problems to persist for at least two years at the less efficient medical facilities because VISN and medical facility leaders did not effectively monitor operating room efficiency and hold medical facilities accountable when underlying surgical support element problems occurred. Various VHA controls—the NSO operating room efficiency data; sterile processing service and logistics inspections and reviews; and issue briefs for significant adverse events, including operating room closures—alerted various VISN, medical facility, and surgical support element program officials to operating room inefficiencies and related surgical support element problems, but the officials did not follow up to ensure the resolution of the problems.¹⁶

Problems persisted at some facilities because VHA lacked the mechanisms to ensure VISN and medical facility leaders identified and addressed the root causes. The NSO does not have specific oversight authority over the VISN and medical facility directors or the surgical workgroups. Therefore, the NSO cannot be expected to provide the oversight needed to resolve surgical support element problems that affect operating room efficiency.

In consultation with the NSO, the audit team used the NSO operating room efficiency data to rank the VHA facilities that actively performed surgery. The audit team’s review of surgical support element operations at a statistical sample of medical facilities found problems that VHA controls did not identify, and problems the controls identified but did not resolve:

- Clinical service employees did not perform preoperative follow-up or arrived late contributing to delayed or canceled surgeries.

¹⁶ The deputy under secretary for health for operations and management’s *Guide to VHA Issue Briefs* requires medical facilities to send an issue brief to senior leaders, such as the deputy under secretary for health for operations and management, within two business days through the VISN for significant clinical incidents/outcomes negatively affecting a group of veterans, such as incidents involving surgical equipment and instruments or operating room closures. Issue briefs from facilities contain a summary of the issue, the date the incident occurred, brief statement of the issue and status, actions, progress, and resolution date. Medical facilities should provide updates to the VISN and the deputy under secretary for health for operations and management as information develops regarding the incident.

- Sterile processing service and logistics employees did not provide sterile surgical instruments, equipment, or supplies when needed.
- Environmental management service employees did not clean operating rooms in a timely manner.
- Staffing shortages caused full or partial operating room shutdowns.

The audit team’s work at less efficient sites confirmed that these sites had many long-standing and persistent surgical support element problems even though in many cases the problems had been previously identified by VHA controls. For example, figure 1 shows one of the reviewed facilities where the NSO data and a sterile processing service inspection report identified potential surgical support element problems as early as 2016. However, the facility’s low scores and surgical support elements problems continued through 2018.

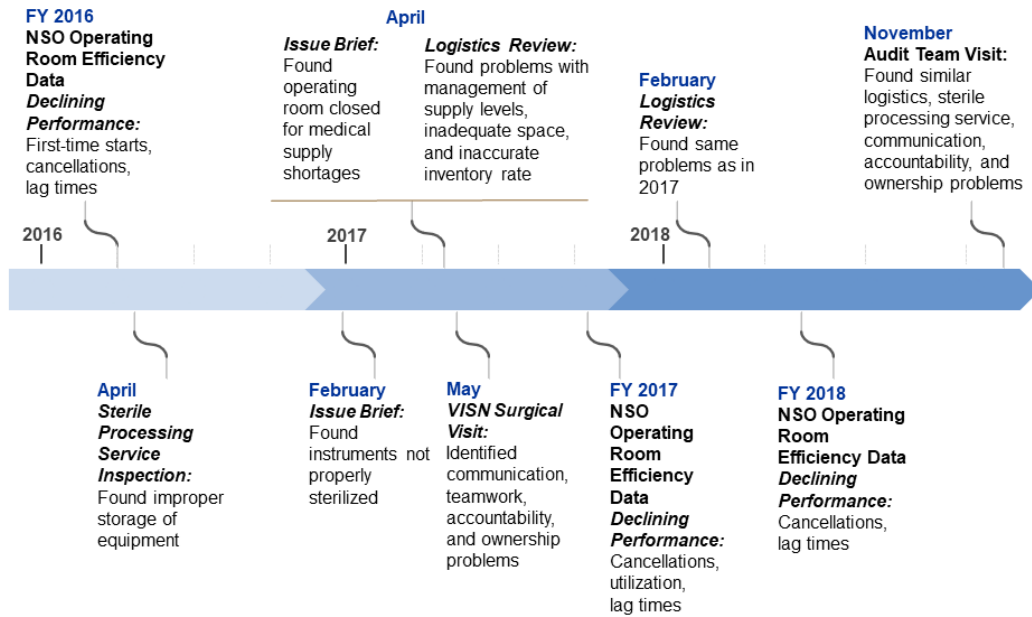


Figure 1. Birmingham, Alabama, surgical support element problems identified by VHA controls.

Source: OIG team analysis of issue briefs, the NSO efficiency data, sterile processing service inspections, and VISN site visits.

Note: Birmingham met the NSO’s goals for operating room utilization in 2018 after it closed four operating rooms and corrected the reported nursing hours data used in the utilization measure calculation.

What the OIG Did

The audit team reviewed and analyzed operating room efficiency data from October 1, 2014, through June 30, 2018, to identify trends in the efficiency scores of VHA's 135 medical facilities that actively performed surgery.¹⁷ The audit team used the efficiency score data to rank the facilities and grouped them into four categories: least efficient, less efficient, efficient, and most efficient.¹⁸ The OIG developed this analysis in consultation with the NSO, and the NSO concurred with the rankings and groupings of the medical facilities.¹⁹ The audit team classified the 67 medical facilities that achieved an average operating room efficiency performance score of 2.57 or above as efficient. The remaining 68 medical facilities that scored 2.54 or below were classified as less efficient. (See appendix D for operating room efficiency groupings and rankings.)

The audit team statistically selected four medical facilities from each of the efficient and less efficient groups for review. The audit team reviewed all four of the less efficient medical facilities, but only two of the efficient sites because the audit team concluded from its visits to the two efficient facilities that while their specific controls differed, they facilitated similar outcomes: communication and collaboration across service lines, shared responsibility for the efficiency of the operating rooms, and accountability for improved or sustained operating room efficiency.

The two efficient facilities reviewed were in Hines, Illinois, and Loma Linda, California. The four less efficient facilities reviewed were in Birmingham, Alabama; Brooklyn, New York; Portland, Oregon; and Saginaw, Michigan. At all six, the audit team interviewed employees involved in the oversight and monitoring of operating room efficiency and surgical operations; toured relevant surgical support element areas; observed preoperative surgical processes such as scheduling, operating room prep, and sterilization; and reviewed various documents and data. Finally, the audit team assessed whether local managers at the medical facilities and VISNs took effective corrective action when facilities did not receive satisfactory overall scores, and the role of VHA program officials in ensuring problems were fixed. Appendixes B and C provide additional details on the audit work.

The audit team's review of the scores disclosed 61 of the 135 medical facilities scored below 3.0 during 10 or more of the 15 reviewed quarters. Additionally, 57 of the 61 medical facilities

¹⁷ The audit team analyzed the most recent data available at the start of the audit to assess operating room efficiency at medical facilities.

¹⁸ The audit team excluded two surgical sites that ceased operation in 2016.

¹⁹ The audit team held four teleconferenced meetings with the NSO director, deputy director, or statistician and corresponded with them via email from July to September 2018 to gain an understanding of the operating room efficiency data and develop the rankings and groupings. The NSO director concurred with the audit team's rankings and groupings of the 135 medical facilities on September 7, 2018 in an email.

appeared to have ongoing surgical support element problems because their scores did not show any improvement in the 12 months leading to June 30, 2018.

This finding discusses the following key issues:

- Surgical support problems inconvenienced patients, subjected patients to increased risks from repeated procedures, and led to inefficient use of resources.²⁰
- Efficient facilities' control systems minimized surgical support problems.
- Facility and VISN oversight controls at efficient facilities focused on monitoring and continuous process improvement.
- VHA oversight weaknesses allowed operating room efficiency and surgical support element problems to persist for years.

Surgical Support Problems Inconvenienced Patients, Placed Them at Additional Risk, and Led to Inefficient Use of Resources

The audit team identified patients who were inconvenienced or placed at additional risk when their surgical procedures had to be canceled and rescheduled or repeated to successfully complete the procedure due to sterile processing services and logistics problems. Because VHA does not monitor surgeries that may be affected by surgical support element problems, the audit team reviewed patient safety reports. Those reports let medical facility employees record any incidents, events, or conditions they feel may compromise patient safety.²¹ While patient event reports may not necessarily provide comprehensive or complete information about surgeries that have been affected by support element problems, they did allow the team to track some cases and identify the impact the incidents had on the patients.

The audit team found from its review of about 4,200 patient event reports at the six selected medical facilities that operating room employees had reported 97 cases where sterile processing services or logistics problems affected the performance of surgeries. The audit team referred the cases to the OIG's Office of Healthcare Inspections (OHI) for clinical reviews. The OHI clinicians either did not have enough information to query the patients' electronic health records or the records lacked information about the incidents for 75 of the referred cases.

The OHI's review of the remaining 22 cases disclosed that the sterile processing or logistics problems identified in the patient safety reports pertained to the scheduled surgeries of 19

²⁰ Each time a patient undergoes a surgical procedure, the patient is exposed to a broad range of possible surgical and anesthesia complications that include conditions such as infection, bleeding, sore throat and laryngeal damage, anaphylaxis, and nausea and vomiting.

²¹ VHA monitors for surgical mortality and morbidity but these controls do not identify or address surgical support problems unless the problems resulted in some harm to the patient.

patients.²² The OHI clinical review disclosed that the reported problems did not affect the completion of the surgeries of three patients. However, the review found that the reported problems caused the cancellation of the remaining 16 surgeries. The clinical review found 10 patients had 12 procedures canceled before they were anesthetized, and six patients had their procedures aborted after they were anesthetized. Furthermore, two patients had their procedures canceled twice due to sterile processing or logistics problems before the procedures could be completed during a third scheduled surgery, as illustrated by example 1.

Example 1

In the fall of 2018, a Portland patient who needed neurosurgery had to travel to the medical facility three separate times to have his procedure performed because the medical facility lacked the needed sterile instruments to perform the surgery. The patient had the procedure canceled and rescheduled twice due to contaminated instruments and did not have the procedure successfully completed until about 20 days after the originally scheduled date.

Cancellations, especially multiple cancellations of the same procedure, should be avoided as much as possible to minimize the inconvenience and possible psychological and financial impact the delays can have on patients and caregivers. Patients and their caregivers may be stressed by preparations for surgeries and can be inconvenienced by the need to rearrange personal schedules to repeat preoperative work and surgical procedures. Moreover, some patients and their caregivers may have to travel long distances to medical facilities for surgeries. Thus, canceled and rescheduled surgeries may result in increased VA or patient and caregivers' costs to cover the additional transportation, lodging, meal, and miscellaneous expenses. While the audit team could not measure and quantify the impact the canceled and rescheduled surgeries had on the 16 identified patients, example 2 demonstrates how a canceled surgery can significantly erode a patient's confidence in VA.

Example 2

In the spring of 2018, a Brooklyn patient arrived at the medical facility for a scheduled right knee surgery, but the surgery had to be canceled due to contaminated bone pieces in the primary and backup instrument sets. The patient became "very upset" when she learned of the reason for the cancellation and declined the medical facility's offer to reschedule the surgery because she "did not have trust in the system."

²² One patient had two patient safety reports that reported logistics or sterilization issues for the same surgical procedure. Two patients had reported logistics or sterilization issues during the initial and rescheduled procedures.

The use of anesthesia is also generally accompanied by an additional risk for complications, including heart attacks and strokes; respiratory difficulties; allergic reactions; immediate or delayed alterations in behavior, mood, and cognition; or even death. Patients may also experience uncomfortable side effects, such as nausea and vomiting, difficulty passing urine, and sore throats from the use of breathing tubes while they are under anesthesia. Because anesthesia increases patients' risks for complications and discomfort, unnecessary episodes of anesthesia should be avoided whenever possible. However, the audit team noted that logistics or sterile processing problems caused the surgeries of six patients to be canceled after they were already anesthetized. Consequently, all six of the patients experienced increased risks after they were anesthetized at least twice to complete the procedures even though they did not experience any complications from the administration of the anesthesia. Example 3 illustrates how an anesthetized patient's surgery had to be aborted and rescheduled to complete the procedure.

Example 3

In January 2018, a Portland patient underwent a biopsy procedure to evaluate a tumor. During the procedure, the surgeon determined that the cystoscope was too short, and the surgeon requested a longer scope to evaluate the tumor. A longer cystoscope, however, was unavailable because it had been sent out for repair and there was no backup instrument. The surgeon determined the procedure could not continue because the available cystoscope was too short to adequately visualize the area and access the tumor and the procedure was canceled. The patient had to repeat the biopsy 11 days later due to the unavailability of the cystoscope. The OIG concluded that the unavailability of the needed instrument during the initial biopsy necessitated the rescheduling of the procedure and increased the patient's risk for anesthesia complications even though the patient did not experience a lasting injury.

Although the OIG did not have enough information to verify many of the problems cited in the patient safety reports, the three canceled procedures discussed above demonstrate the importance of minimizing sterile processing services and logistics problems that erode the efficient functioning of medical facility operating rooms and delivery of surgical care.

The audit team's review and analysis of general surgical cancellation data available for the six reviewed medical facilities disclosed that efficient medical facilities reported fewer cancellations related to problems with surgical support element operations than less efficient ones. During the 12-month period ending June 30, 2018, employees at the six reviewed medical facilities reported in the Veterans Health Information Systems and Technology Architecture system that about 2,400 surgical cancellations were avoidable. The audit team reviewed a statistical sample of 180 avoidable surgical cancellations—30 cases from each of the

six reviewed medical facilities. The audit team found that 20, or 17 percent, of the 120 sampled cancellations at the four less efficient facilities, and five, or 8 percent, of the 60 sampled cancellations at the two efficient medical facilities were related to surgical support problems.

The audit team used the 8 percent cancellation rate of the efficient sites as a benchmark. Applying this benchmark to all less efficient facilities that reported avoidable cancellations, the audit team estimated that 51 of the 68 less efficient facilities could decrease their annual estimated 12,000 avoidable cancellations by 2,000, or 17 percent, if those facilities addressed surgical support element problems. Furthermore, the OIG estimated that an annual reduction of 2,000 cancellations would improve the delivery of surgical services by just over 1,600 patients. Using the NSO's 2013 estimate (most recent data available) that a surgical cancellation costs VA about \$3,000 per surgery, the reduction could result in an annual better use of funds of about \$6 million.²³

Although the pace of future surgeries in VA could be altered by COVID-19, the OIG estimated the less efficient facilities could help 7,200 patients have 8,600 fewer canceled surgeries and achieve an estimated \$30 million in better use of funds over the next five years if they minimized their surgical support element problems and improved their operating room efficiency.

Efficient Facilities' Control Systems Minimized Surgical Support Problems

The audit team found that the two efficient facilities reviewed, Hines and Loma Linda, had fewer, less critical surgical support element problems than the four less efficient sites, Birmingham, Brooklyn, Portland, and Saginaw. The two efficient medical facilities generally had more effective internal controls that minimized operational problems compared to the four less efficient sites. The chiefs of surgeries at the efficient medical facilities, with the support of the medical facility leaders above them, made operating room efficiency a priority. Thus, managers and employees in the operating rooms, surgical services, and surgical support elements at the efficient medical facilities generally assumed a proactive approach toward sporadic, potentially systemic problems that could affect operating room efficiency and patient care.

²³ Douglas Bronson, William Gunnar, Marilyn Lynn, "The impact of benchmarking operating room efficiency within the Veterans Health Administration," *International Journal of Healthcare* 5., No. 1, (2019): 8-15. The NSO, VHA's Office of System Redesign, and the Veterans Engineering Resource Center developed a cost estimate for canceled VHA surgeries that was used in this 2019 study. The audit team used this \$3,000 per-surgery cost estimate to calculate the cost of canceled surgeries and the related estimated monetary benefit because it was the most current estimate VHA had at the time of the audit according to the former NSO director and VHA's Office of System Redesign.

The audit team compared the controls and operations of surgical support elements at the two efficient and four less efficient sites through

- interviews with about 170 clinical and administrative employees, including chiefs of surgery, surgeons, and nurses;
- reviews of about 4,200 patient safety reports;
- reviews of about 13,400 surgical cancellation cases;
- reviews of about 9,400 surgical delay cases;
- reviews of eight issue briefs;
- reviews of local surgical element procedures, including scheduling, sterile processing services, logistics, and environmental management services processes at each medical facility; and
- observation of surgical support element processes during site visits.

Based on this information, the audit team determined that the two efficient facilities had effective interdependent, internal controls that functioned across business and service lines to help ensure they consistently met the NSO's goals. Managers and employees at the efficient facilities assumed responsibility for maintaining the high efficiency of their medical facility's operating rooms and for resolving support element problems that could hurt their efficiency scores. In contrast, managers and employees at the four less efficient medical facilities did not effectively use the NSO data to monitor operation of their surgical support elements. They did not consistently communicate to address problems and improve efficiency scores. Thus, the less efficient facilities often lacked the additional controls that the efficient medical facilities used to prevent serious, recurring operational problems and could not ensure that

- clinical service staff coordinated the completion of patients' preoperative work and operating room staff arrived on time for surgeries;
- logistics and sterile processing service staff provided operating room staff the correct sterile, clean instruments, equipment, and supplies they needed for surgeries;
- environmental management staff cleaned and readied operating rooms throughout the day in time for surgeries; or
- operating rooms had the staff resources to prevent full or partial operating room closures.

Efficient Facilities Sought to Reduce the Late Arrival of Clinical Service Staff for Surgeries

The chiefs of surgery at the two efficient medical facilities, Loma Linda and Hines, implemented controls to minimize tardiness and held operating room staff accountable for showing up on time for surgeries. Interviews with the 50 administrative and clinical staff at Loma Linda and Hines did not disclose any significant concerns about the timely arrival of surgeons and other clinical staff for scheduled surgeries. At both facilities, the chiefs of surgery actively managed the operating room schedules to ensure there were no scheduling conflicts and would discuss any delays with clinical employees if they were late. Loma Linda's chief of surgery also had a specific policy for first-time starts where he required surgeons to check into the front desk 30 minutes before the first surgery of the day to minimize the risk of delay. The chief indicated that surgeons risked losing the privilege of having their surgeries scheduled as first starts if they were consistently late. Hines' chief of surgery kept abreast of the previous day's first-time start delays and changed schedules for surgeons who had commitments outside the VA medical facility to reduce the risk of them being late. Reviews of about 2,500 delay cases and interviews with about 50 clinical and administrative staff at the efficient facilities identified approximately 13 instances, or less than 1 percent, of the delays resulted from surgeons or other clinical staff being late or unavailable due to scheduling conflicts.

In contrast, the OIG found tardiness of operating room staff at three of the four less efficient medical facilities contributed significantly to delayed surgeries. During interviews with 83 clinical and administrative employees at the three facilities, 16 employees, or 19 percent, cited the late arrival or absence of clinical service personnel as the primary cause for delayed surgeries. The employees attributed the tardiness to traffic or because they had scheduled meetings or were seeing other patients at either the VA medical facility or a local hospital during their assigned operating room times. The audit team's review of about 6,300 local surgical delay cases, identified 3,100 cases, or 49 percent, where the late arrival of surgeons, anesthesiologists, nurses, or other necessary team members adversely affected first-time starts or lag times at these facilities.

Managers at these less efficient facilities generally did not take steps to discourage their clinical employees from being tardy or hold them accountable for being late or unavailable for scheduled surgeries because the managers did not consider delayed starts to be a major problem. In addition, these managers felt they needed to give the surgeons, anesthesiologists, and nurses a "pass" because of difficulties in recruiting staff for these positions.

Efficient Facilities Ensured Clinical Service Staff Completed Preoperative Work and Patient Contacts

The two efficient medical facilities, Loma Linda and Hines, employed "one stop shops" that allowed patients to complete their preoperative work in one place and required employees to call

patients at least twice before their surgeries to remind them of the surgery date, the need for transportation, and other preparations for their surgeries. Both efficient facilities also had implemented monitoring controls to ensure preoperative work and patient contacts had been completed. Loma Linda's nurse manager reviewed patients' medical records and preoperative one-stop-shop checklists the day before the patients' scheduled surgeries to ensure the patients had their laboratory work, surgical consent, and transportation arranged and that they had received a reminder call 72 hours before their surgery. Hines' surgical service arranged with nursing service to have the assigned operating room nurses contact patients 48 hours before their surgery to remind patients of their scheduled surgery, check all the necessary preoperative work had been completed, and ensure patients' health status had not significantly changed. These actions resulted in fewer delays. For example, the audit team's review of 2,532 delayed surgery cases and interviews with about 50 administrative and clinical employees at these facilities identified only approximately 30, or 1 percent, of the delays were related to problems in the completion of preoperative work or patient contacts.

Three of the four less efficient medical facilities, Birmingham, Brooklyn, and Saginaw required patients to go to multiple places to complete forms or required tests and lacked a single unit or employee to ensure all the preoperative work was completed before scheduled surgeries. Furthermore, personnel at the less efficient medical facilities did not consistently contact patients before surgeries as required by their local medical facility procedures, and medical facility managers did not monitor personnel to ensure they contacted patients. Thus, the managers were unaware patients were not being consistently contacted, and the lack of preoperative follow-up contributed to surgery delays. The audit team's review of 2,503 delayed surgery cases disclosed that clinical service employees did not contact 545, or 22 percent, of the patients in advance to ensure they filled out consent forms or had completed their required blood work and lab tests. Interviews with 10 of the 83 administrative and clinical employees at the three medical facilities also indicated that clinical and administrative personnel did not always follow up with patients to confirm the date and time of the surgery or the patients' transportation.

Unlike the efficient facilities, the less efficient medical facilities did not have multiple controls in place to ensure the completion of preoperative work and patient contacts before surgeries. Consequently, operating room staff at the less efficient medical facilities could not always be sure patients' preoperative work was properly completed before the day of the surgery or patients would arrive prepared for the surgery, contributing to last-minute cancellations and delayed surgeries.

Efficient Facilities Ensured Operating Room Staff Received Sterile Surgical Instruments, Equipment, and Supplies

The audit team also found during its site visits that Loma Linda and Hines had several controls (some of which are listed below) to help make certain that sterile processing services, logistics,

and operating room staff worked collaboratively to ensure operating rooms had the correct sterile, clean instruments, equipment, and supplies:

- Sterile processing services personnel stored sterilized instruments and equipment on the same floor as the operating rooms, which reduced wait times if instruments needed to be replaced before a surgery.
- Sterile processing services personnel had surgeons approve selected instrument trays before surgeries to ensure the trays had the necessary instruments.²⁴
- Sterile processing services personnel performed required quality reviews and inspected equipment, supplies, and instruments. The inspections included the use of electronic magnification to identify bioburden that was difficult to see with the naked eye.²⁵
- Operating room personnel employed a stringent pretreatment process in which they wiped and soaked used instruments in a solution during surgeries, or shortly thereafter, to minimize the risk of bioburden sticking to instruments.
- The medical facility assigned logistics personnel primary and secondary storage areas for surgical supplies so that they could be quickly and easily located.
- Logistics and operating room personnel shared the inventory responsibilities for surgical supplies and did not rely solely on logistics personnel to identify supplies that needed to be restocked.

Operating room teams at Loma Linda and Hines also collaborated with their colleagues in sterile processing services and logistics to immediately address and minimize potentially widespread, systemic problems affecting the efficiency of their operating rooms. For example, operating room teams at both medical facilities found that tears in the protective packaging of instrument trays caused surgical delays because the trays had to be returned to sterile processing services as unsterile. In both cases, the operating room teams worked with their colleagues in sterile processing services to try to identify a solution. They purchased silicone bumpers and hard rigid containers, respectively, to reduce the risk of torn packaging during the transportation of the instrument trays from sterile processing services to the operating rooms.

The audit team's interviews with 50 administrative and clinical staff at Loma Linda and Hines did not identify major concerns about the provision of clean, sterile instruments, equipment, and supplies for scheduled surgeries, which spoke to the effectiveness of these controls. In addition,

²⁴ Instrument trays are a collection of reusable medical instruments that are grouped together based on the type of surgical procedure.

²⁵ VHA Directive 1116(2), *Sterile Processing Services*, March 23, 2017, defines bioburden as the number of bacteria on a contaminated object.

the audit team's review of more than 2,500 local surgical delay cases and about 450 patient safety reports identified approximately 300 instances in which instrument, equipment, or supply problems reportedly contributed to surgical delays.

In contrast, the audit team identified serious instrument sterilization or stock problems in the operating rooms of Birmingham, Brooklyn, and Portland. At these facilities, 55 percent of the interviewed clinical and administrative employees, including chiefs of staff, chiefs of surgery, surgeons, nurses, sterile processing service staff, and logistics staff, reported they had encountered unsterile or missing surgical instruments, equipment, or supplies at least once a week as they performed scheduled surgeries during the audit review period. In addition, the audit team identified 465 local surgical delay cases, 162 patient safety reports, and seven issue briefs at the three less efficient facilities where operating room employees reportedly encountered unsterile or missing surgical instruments, equipment, or supplies as they performed scheduled surgeries.²⁶

The OIG found that these three less efficient medical facilities had not effectively implemented many of the controls employed by Loma Linda and Hines, and as a result

- sterile processing service personnel inconsistently performed required quality reviews and checks of instruments and equipment;
- sterile processing service personnel processed instruments only a few hours before scheduled surgeries even though they were notified well in advance of what instruments were needed;
- operating room personnel did not consistently pretreat used surgical instruments before sending them back to sterile processing service for reprocessing;
- logistics personnel did not have assigned storage areas near the operating rooms so needed supplies could be quickly and easily located; and
- logistics personnel did not effectively monitor surgical supply inventories to ensure they ordered additional supplies before they ran out.

In addition, operating room employees at these three less efficient medical facilities had to spend time either before or during scheduled surgeries trying to locate needed sterile instruments, equipment, and supplies because they had such serious sterilization and operating room stock problems. Logistics employees at two of the three medical facilities, Birmingham and Portland, resorted to borrowing equipment or expendable supplies from local hospitals when they could not locate them at their medical facility. Example 4, a summary of an issue identified in a patient

²⁶ The audit team reviewed about 5,600 local surgical delay cases, close to 3,100 patient safety reports, and 8 issue briefs for these three medical facilities.

safety report, demonstrates how logistics or sterile processing problems can potentially delay surgeries.

Example 4

A scrub nurse could not find the power cords for the surgical instruments used to cut tissue and control bleeding before a patient's scheduled hysterectomy in 2018. The power cords were usually stored in bins in the operating room, but the scrub nurse reported the bins were empty. Logistics staff brought some power cords to the operating room, but the operating room staff discovered while the anesthetized patient was being intubated that the cords were not the correct ones. The operating room staff eventually obtained the correct cords after contacting another hospital. The audit team's review of the patient's electronic healthcare record showed the patient had been under anesthesia for two hours before the actual start of the surgery. However, the audit team could not find electronic health record documentation that explained whether the operating room staff were looking for the cords as indicated in the patient safety report or if there was another reason why the surgery began two hours after the start of the anesthesia.

The chiefs of surgery and operating room staff at these facilities either tried to work with sterile processing employees to resolve sterilization problems, just dealt with the issues instead of notifying facility managers of the issues, or elevated the issues to the chief of staff, but this did not appear to result in lasting improvements. Managers at the less efficient medical facilities often did not become involved in sterilization or stock issues until problems escalated into multiple surgical cancellations or operating room closures.

The operating room, sterile processing services, and logistics personnel at three of the four less efficient medical facilities lacked the collaborative relationships and sense of accountability for operating room efficiency that existed at the efficient medical facilities. Thus, the less efficient medical facilities were much less effective than Loma Linda and Hines in maintaining and implementing controls needed to fix problems and did not consistently meet the NSO's goals during the review period.

Efficient Facilities Ensured Operating Rooms Were Cleaned and Ready throughout the Day

Environmental management services at the Loma Linda and Hines medical facilities assigned specifically trained employees to clean the operating rooms and ensured they were available to properly and promptly clean them as soon as surgeries were finished. Environmental management services also staggered employees' start times to provide coverage during shift changes and to allow the morning shift to perform operating room prechecks before the first start of the day.

Loma Linda also developed a lag time delay checklist to help the chief of surgery and operating room nurse manager identify operational areas, such as environmental management services, that contributed to delays. The nurse manager said delays were discussed with the responsible service and were usually fixed quickly, which contributed to the facility consistently meeting the lag time standard. The acting chief of environmental management services at Loma Linda also stated that operating room teams generally disposed of unnecessary materials and took out surgical supplies and equipment to save time before turning over the room to environmental management services. Hines did not have such extensive controls as Loma Linda. However, Hines' assistant chief of environmental management services conducted weekly facility rounds, which included the operating rooms, to monitor work efforts and to provide clinical and environmental management services personnel the opportunity to communicate any issues.

The audit team's interviews with staff at the efficient facilities did not identify concerns regarding prompt cleaning or the readiness of the operating rooms. In addition, the audit team's review of more than 2,500 local surgical delay cases and about 450 patient safety reports only identified 27 instances in which environmental management related issues reportedly contributed to surgical delays.

The audit team's work at the four less efficient medical facilities, Birmingham, Brooklyn, Portland, and Saginaw, revealed clinical service staff had experienced persistent problems over the past three years with operating rooms not being cleaned on time for the first surgery of the day or as needed throughout the day. Interviews with 118 employees at the less efficient facilities disclosed 21 of them, or 18 percent, were dissatisfied or had encountered an issue with environmental management services staff availability and their timeliness in cleaning operating rooms. Surgeons primarily complained that they were waiting for environmental management services personnel to show up. For example, one orthopedic surgeon recounted being reprimanded for helping to clean an operating room so he could start his next surgery when environmental management services employees were unavailable. Also, surgeons complained that environmental management services employees had staffing issues that led to staff either cleaning only one room at a time or only providing one employee to clean a room.

The audit team could not confirm the pervasiveness of the types of reported problems because VHA lacks a reliable system to monitor and track environmental management service problems that affect its operating rooms. Chiefs of surgery and environmental management services managers at these medical facilities were unaware of the magnitude of these problems because they also did not monitor and track them. However, the audit team confirmed through its review of local delay cases at one of the four less efficient facilities that employees reported 90 instances in which environmental management service problems delayed the start of surgeries. Furthermore, based on the audit team's observations and interviews with staff, the facility did not have enough employees to clean the operating rooms throughout the day as surgeries finished.

Although the chiefs of surgery and environmental management services managers discussed the problems, they did not act to correct them.

The clinical services and environmental management staff at the four less efficient medical facilities lacked the basic resource management and monitoring controls that existed at the efficient medical facilities to ensure the prompt cleaning of operating rooms. As a result, the less efficient medical facilities could not consistently meet the NSO's first-time start, and lag time performance goals during the review period.

Efficient Facilities Focused on Resource Management Issues Before They Became Critical

Loma Linda and Hines ensured their surgical programs had enough staff, such as operating room nurses, technicians, and sterile processing service employees, to minimize or prevent partial operating room closures. Managers at these two efficient medical facilities identified upcoming staffing shortages and acted to prevent them from significantly affecting operating room use. Loma Linda managers proactively anticipated the need for nurses and surgeons and requested more resources in advance to ensure the operating rooms would be sufficiently staffed. Hines managers identified staffing shortages, filled the positions, and detailed nurses from other areas. Also, no problems with staffing shortages were identified during the 50 interviews conducted with clinical and administrative employees during the audit team's site visits.

Managers at three of the four less efficient medical facilities—Birmingham, Portland, and Brooklyn—were not as proactive as those at the efficient medical facilities in ensuring the facilities had enough staff, including sterile processing services employees, surgeons, nurses, and operating room technicians to support all available operating rooms. This occurred because the chiefs of surgery, chiefs of sterile processing services, and chiefs of human resources at these facilities either did not identify optimal staffing levels or did not ensure employees were hired to maximize the use of their operating rooms. Additionally, the audit team noted that these three medical facilities did not report staffing shortages in logistics or sterile processing services as part of the VA OIG's FY 2018 staffing survey.²⁷ However, resource management issues led to the curtailment and cancellation of surgeries at one facility and the removal of four operating rooms from service at another facility. At the remaining facility, over half of the 23 employees interviewed (56 percent) said their facility had staffing shortages in surgical support elements that affected operating rooms. Each of the less efficient medical facilities had already initiated actions to address the shortages and hire more staff at the time of the audit team's site visit. The audit team could not evaluate the impact of these actions since the hiring, onboarding, and training of employees takes time and the medical facilities had only recently begun their efforts.

²⁷ VA OIG, *Determination of Veterans Health Administration's Occupational Staffing Shortages*, 18-01693-196, June 14, 2018.

Facility and VISN Oversight Controls at Efficient Facilities Focused on Monitoring and Continuous Process Improvement

The audit team found the VISN and medical facility surgical workgroups at the six reviewed medical facilities applied the surgical services quality framework and met the general oversight requirements for operating room efficiency in the NSO handbook.²⁸ According to the former NSO director, the handbook was intended only to provide the medical facilities a framework for the oversight and management of their surgical support elements and they were expected to use the framework to implement additional controls based on their facilities' needs and improve the efficiency of their operating rooms.

The chiefs of surgery, facility managers, and VISN surgical workgroups at all six of the reviewed medical facilities focused their attention on surgical services' performance in areas such as access to care, SAIL scores quality of care, mortality and morbidity, and sentinel events.²⁹ The chiefs of surgery and facility surgical workgroups also discussed, and to varying degrees analyzed, their facilities' operating room efficiency data as required by VHA policy. However, the managers and workgroups at the efficient medical facilities went a step further. They considered operating room efficiency important enough to the operations of their surgical programs that they actively monitored their facilities' efficiency scores, sought ways to maintain and improve those scores, and communicated and worked across service lines to implement controls and make changes needed to address problems. Although the NSO handbook does not require medical directors to monitor operating room efficiency, the chiefs of surgery at the efficient facilities maintained open communication with their facility directors, and facility directors ensured the managers and staff in the supporting services took necessary actions to address issues that affected operating room efficiency.

The chiefs of surgery and facility surgical workgroups at Loma Linda and Hines collectively created a culture that encouraged surgical and operating room staff to proactively identify relevant issues. They each produced an internal report that identified surgical support problems affecting the facility's ability to meet operating room efficiency goals, the root causes for the problems, and proposed solutions. Medical facility leaders, including the chief of staff and assistant director, were aware of the reports and the issues affecting surgical operating room efficiency, so the medical facility staff could enlist their assistance in correcting the problems. Furthermore, the chiefs of surgery often discussed operating room efficiency performance and

²⁸ VHA Handbook 1102.01. VISN workgroups are responsible for overseeing clinical outcomes and best practices, reviewing pertinent data, monitoring performance improvement activities, identifying gaps within surgical care, and recommending corrective actions. Facility workgroups are responsible for monitoring surgical outcomes and the NSO quality data, identifying gaps in surgical care, and monitoring and implementing activities to improve surgical performance.

²⁹ SAIL assesses 25 quality measures in areas such as death rate, complications, and patient satisfaction, as well as overall efficiency and physician capacity at medical facilities. It does not address operating room efficiency.

the results of their analyses and reports with medical facility leaders and surgical support service personnel in sterile processing services, logistics, and environmental management service to break down silos and engage them in resolving problems. For example, medical facility staff reported the chief of surgery at Hines held quarterly town hall meetings with the surgical department and all the surgical support services to keep everyone informed about their current operating room efficiency performance and other topics. Similarly, at Loma Linda, the other efficient facility, the chief of surgery and facility managers held daily huddle briefings with support services to ensure they knew how efficiently the operating rooms were performing and to discuss the upcoming day's surgeries and any issues from the previous day's surgeries.

In contrast, chiefs of surgery and facility surgical workgroup members at the four less efficient facilities, Brooklyn, Saginaw, Portland, and Birmingham, discussed their facilities' efficiency scores, but did not foster sustained efforts to identify and address surgical support element problems that reduced those scores. The less efficient facilities analyzed surgical performance data to varying degrees. One of the less efficient facilities did not analyze any of the operating room efficiency measures, while the other three analyzed most or all measures. However, chiefs of surgery and facility surgical workgroup members responsible for the four less efficient facilities did not focus on process improvements or implement additional controls because they had other higher priorities or they did not consider corrective actions requiring the assistance of services and personnel outside the surgical service or business line to be feasible. Overall, the chiefs of surgery at these sites did not always establish collaborative relationships across service lines with surgical support element managers to ensure problems that affected operating room efficiency were addressed.

Based on the practices at the two reviewed medical facilities with efficient operating rooms, the OIG recommended VHA require medical facility managers and surgical workgroups discuss the NSO's efficiency goals and their facility's performance with facility leaders and supporting services to ensure everyone works proactively to address surgical support element problems.

VISN Oversight of Efficient Facilities Was Effective in Promoting Improvement

All six of the VISN surgical workgroups that supported their respective reviewed medical facilities met at least monthly to discuss surgical performance data as required by the NSO handbook. All the reviewed VISN surgical workgroups discussed issues related to surgical outcomes and access but only VISN 22 and VISN 12 overseeing Loma Linda and Hines, respectively, consistently included discussions of the operating room efficiency measures. Even when the VISN surgical workgroups responsible for the less efficient medical facilities identified surgical support element problems at facilities, the VISN chief surgical consultants stated they did not require the facilities to provide corrective action plans. As a result, they did not follow up to ensure problems were addressed.

The NSO handbook does not require site visits to evaluate operating room efficiency. However, VISN chief surgical consultants reported that the VISN surgical workgroups responsible for five of the reviewed facilities performed site visits, while the only VISN surgical workgroup responsible for one of the less efficient facilities, Saginaw, did not perform any facility visits to evaluate operating room efficiency. The VISN surgical work group staff and chiefs of surgery responsible for Loma Linda and Hines stated the VISN surgical workgroups either conducted annual site visits or performed visits to follow up when the facilities in their VISN did not meet the NSO’s performance goals. Specifically, at Loma Linda, the VISN chief surgical consultant created an informal VISN surgical council of high-performing facility members. According to members of the council, they assisted facilities by sharing best practices and providing recommendations to help them meet operating room efficiency measures.

In contrast, the VISN chief surgical consultants responsible for Portland, Birmingham, and Brooklyn stated they did not require their medical facilities to provide action plans and therefore they did not perform follow-ups to ensure identified issues were corrected and operating room efficiency improved. Instead, the VISN chief surgical consultants over the less efficient facilities stated they relied on their facilities to independently monitor operating room efficiency and improve their performance as needed because they considered certain areas, such as sterile processing services, to be beyond surgical service’s ability to fix. Ultimately, VISN leaders responsible for the less efficient medical facilities did not ensure their medical facility leaders fostered an environment where staff worked across service lines to address issues that affected operating room efficiency. VISNs also did not follow up with facility leaders to ensure these issues were addressed and corrected.

The audit team’s review of the operating room efficiency rankings for all the medical facilities in the six reviewed VISNs indicated that the additional processes and controls the VISN 22 and 12 surgical workgroups implemented may have positively influenced the operating room efficiency scores of other facilities in their networks. Table 2 shows that VISNs 22 and 12 had proportionately fewer medical facilities ranked as less efficient than the VISNs that had not implemented additional controls.

Table 2. Percentage of Efficient and Less Efficient Surgical Facilities by VISN

VISN and sampled surgical facility	Efficient surgical facilities	Percentage	Less efficient surgical facilities	Percentage
VISN 22-Loma Linda, CA	5	71	2	29
VISN 12-Hines, IL	4	57	3	43
VISN 20-Portland, OR	3	50	3	50
VISN 7-Birmingham, AL	3	43	4	57
VISN 10-Saginaw, MI	3	30	7	70

VISN and sampled surgical facility	Efficient surgical facilities	Percentage	Less efficient surgical facilities	Percentage
VISN 2-Brooklyn, NY	1	13	7	88

Source: Audit team analysis of the NSO surgical efficiency data by VISN, from October 1, 2014, through June 30, 2018.

Note: due to rounding, not all percentages sum to 100 percent.

Based on these results, the OIG recommended VHA identify VISN surgical group controls and best practices to help less efficient facilities effectively address surgical support element problems and improve operating room efficiency.

VHA Oversight Weaknesses Allowed Operating Room Inefficiency and Surgical Support Element Problems to Persist for Years

The OIG found VHA cannot ensure that less efficient medical facilities and their VISNs effectively manage surgical support elements, analyze operating room efficiency data, and improve performance to address identified problems and maintain operating room efficiency. This is because VHA does not have the structural controls to be able to hold VISNs and their medical facilities accountable for improving operating room efficiency and addressing surgical support element problems. According to the assistant deputy under secretaries for health for clinical and administrative operations, surgical support element problems affecting operating room efficiency are local issues that should be fixed by the medical facilities. Further, the assistant deputy under secretaries stated the VISNs were aware of these localized issues but did not inform their offices of these issues unless the VISNs considered them systemic problems. Furthermore, VHA asserts that the medical facilities and VISNs should identify and resolve these systemic issues through their various quality control review processes and workgroups.

VHA lacks effective controls to monitor operating room efficiency and follow up on less efficient facilities to ensure they resolve underlying surgical support element problems. VHA policy assigns the deputy under secretary for health for operations and management general responsibility for the national compliance with policies and the NSO responsibility for the operational oversight related to VHA surgical programs. However, at the local level the policy does not specifically assign the VISN director responsibility for the oversight of operating room efficiency and the resolution of surgical support element performance problems when medical facilities do not consistently meet the NSO goals.³⁰

The NSO independently initiated VHA’s national operating room efficiency data system and tries to help medical facilities provide patients greater access to surgical care through improved

³⁰ VHA Handbook 1102.01 and VHA Directive 1102.01. The former deputy under secretary for health for operations and management stated he reviewed portions of the NSO’s quarterly report, but he did not specifically review operating room efficiency measures.

efficiency. The NSO routinely provides medical facilities their operating room efficiency scores and has attempted to help medical facilities improve those scores. For example, from 2014 to 2016, the NSO initiated a one-time review to assist 15 low-performing facilities, including Brooklyn and Saginaw, to improve their operating room efficiency. In addition, the NSO developed “toolkits,” including information from a local facility-level data analysis and several brief Microsoft PowerPoint presentations on topics such as first-time starts and scheduling to help medical facilities identify problem areas that reduced operating room efficiency.

However, the NSO’s efforts to improve operating room efficiency have been hampered by its lack of authority. The NSO views itself as only an advisor to the medical facilities on operating room efficiency because it views the oversight and monitoring of surgical quality and outcomes as its primary responsibility.³¹ The NSO does not have specific oversight authority over VISN and medical facility directors or the surgical workgroups. Therefore, the NSO is not in the chain of accountability and cannot be expected to provide the oversight needed to ensure surgical support problems related to operating room efficiency are resolved. In addition, it does not have fiduciary or direct supervisory responsibilities at the facility level. Thus, it does not follow up to ensure they follow guidance and improve their operating room efficiency.

Consequently, 68 of the less efficient medical facilities, including the four less efficient medical facilities that the audit team reviewed, had low operating room efficiency scores (below the 2.55 average score) throughout the review period, October 1, 2014 to June 2018. (See appendix D, table D.2.) Table 3 shows the performance of the four less efficient facilities and two efficient facilities the audit team examined on the NSO’s four operating room efficiency performance measures during the review period. An X indicates the medical facility failed to meet the NSO’s goals for the measure during 10 or more of the quarters of the review period.

Table 3. Performance of Reviewed Medical Facilities on the NSO Operating Room Efficiency Measures

VA medical facility location	Overall score FY 15–FY 18 (ending June 30, 2018)	Operating room efficiency category	Cancellation rate not met	First-time starts not met	Utilization not met	Lag time not met
Birmingham, AL	1.9	Less efficient	X			X
Brooklyn, NY	1.7	Less efficient	X	X		X
Portland, OR	2.2	Less efficient		X		X

³¹ VHA Handbook 1102.01. Surgical outcomes include areas such as access, quality, safety, rate of disease in a population, and number of deaths within a given area or time period.

VA medical facility location	Overall score FY 15–FY 18 (ending June 30, 2018)	Operating room efficiency category	Cancellation rate not met	First-time starts not met	Utilization not met	Lag time not met
Saginaw, MI	2.0	Less efficient	X		X	X
Hines, IL	2.6	Efficient				
Loma Linda, CA	3.3	Efficient				

Source: Audit team analysis of the NSO’s operating room efficiency data from October 1, 2014, through June 30, 2018.

Note: The audit team categorized Hines as an efficient program because it exceeded the average overall performance score, 2.55, for the 15 reviewed quarters of the NSO data.

In addition, the audit team noted that none of the six reviewed medical facilities used the NSO’s toolkits—four were aware of the NSO’s toolkits but did not use them and two were unaware of them. To address this weakness in VISN and medical facility oversight controls for operating room efficiency, the OIG recommended VHA establish a control system to ensure VISN directors monitor their medical facilities’ operating room efficiency and follow up to ensure the medical facilities resolve underlying surgical support element problems and improve their performance.

The NSO Operating Room Efficiency Measures Could Provide More Transparency About Operating Room Closures

The OIG found the medical facilities’ overall scores on the NSO operating room efficiency measures did not account for all the available operating rooms and could mask inefficiencies. The NSO’s “utilization” measure currently only monitors use of operating room nursing staff instead of the use of operating rooms. It calculates the total active run hours of the operating rooms as a percentage of the total number of assigned operating room nurse hours and does not compare the run hours to the total number of hours the medical facility operating rooms are available.³² The NSO director acknowledged that the measure was not comprehensive and was not intended to address all elements of operating room use and efficiency. Accordingly, the NSO only intended the measure to provide important data needed in the assessment of available nursing staff.

The NSO’s “capacity” measure captures the utilization rate of all operating rooms because it calculates the total run time hours for the active operating rooms as a percentage of the expected total 40 hours of operating time for all available operating rooms. However, the NSO excludes

³² Run hours reflect the elapsed time from when the first patient of the day is wheeled into the operating room to when the last patient is wheeled out of the operating room.

capacity in the calculation of the medical facilities' overall operating room efficiency scores. According to the NSO director and the national nurse executive, the NSO excluded the capacity measure, which measures operating room use, due to concerns it would encourage medical facilities to use all available operating rooms even if they lacked adequate resources, space, or equipment, and would create unintended negative consequences on patient care, efficiency, and hospital workflow. While this may be a valid concern, the OIG contends the capacity measure should be reported along with the medical facilities' overall operating room efficiency scores to provide context for the scores and transparency when medical facilities are not fully using their operating rooms.

Birmingham and Portland, two of the less efficient facilities in the OIG's review, achieved good-to-optimal scores of 86 percent and 76 percent, respectively, on the NSO's "utilization" measure during the third quarter of FY 2018 while only at 48 and 54 percent capacity. At the time of the audit team's site visits, the corresponding chiefs of surgery reported that Portland only used 10 of its 14 available operating rooms due to sterile processing services staffing shortages, and Birmingham only used six of its 10 available operating rooms due to nursing and operating room technician shortages. For Portland, their chief of surgery stated the medical facility had the available surgeons, but support staff shortages required the operating rooms' closure.

Because of these results, the OIG recommended the NSO clarify that the "utilization" measure focuses only on staff availability and develop other measures or controls to evaluate the actual use of operating rooms.

Inspections and Issue Briefs Require Follow-Up to Ensure Identified Problems Are Addressed

VHA-required inspections and issue briefs identified and alerted VHA officials to surgical support element problems that affected operating room efficiency. However, these controls were not effective in ensuring the correction of those problems or improved operating room efficiency. Facilities are required to have environmental management, logistics, and sterile processing inspections at least annually, or more frequently, based on the service area.³³ In addition, VHA

³³ VHA Directive 1608, *Comprehensive Environment of Care Program*, February 1, 2016. Facility Comprehensive Environment of Care (CEOC) rounds, at a minimum, shall be conducted once per fiscal year in non-patient care areas, and twice per fiscal year in patient care areas, however, teams shall, on a recurring basis, conduct CEOC rounds to include subject matter expertise from Environmental Management Service. VHA Directive 1761, *Supply Chain Inventory Management*, October 24, 2016. The VISN chief logistics officer is responsible for assessing inventory management programs annually through a quality control review. Information and Instructions for FY 2018 Sterile Processing Service Inspections, September 25, 2017. Sterile processing services requires three inspections a year—one by the VISN, a second by the facility, and a third by either the VISN or the facility. An inspection by the National Program Office for Sterile Processing is not assigned a frequency and is considered separate from annual inspections from the VISN and facility.

requires medical facilities to send an issue brief through the VISN to VHA leaders, such as the deputy under secretary for health for operations and management, for significant clinical incidents or outcomes negatively affecting a group of veterans, such as incidents involving surgical equipment and instruments or operating room closures.

The audit team's review of the facilities' environmental management service inspection checklists disclosed that the inspections covered various areas in the facility, including the operating rooms, and made general observations about medical waste handling and cleanliness of the floors, vents, lights and tiles. However, the information from the inspection checklists was not specific enough to identify systemic operating room problems, such as cleaning delays that resulted in delayed surgeries.

Moreover, the audit team's review of VISN, medical facility, and VHA program office logistics and sterile processing service's inspection reports for all six of the reviewed medical facilities disclosed the identification of systemic logistics and sterilization problems affecting operating rooms, such as inadequate storage space and staff not maintaining equipment cleaning schedules. However, efficient facilities had fewer recurring problems and were more likely to resolve the problems. The FY 2017 and 2018 logistics inspections at the two efficient facilities identified 14 recurring problems, and some of the findings included lack of monthly supply-level reviews to avoid shortages, storerooms that were not kept clean and uncluttered, or prosthetics inventory not reviewed to determine appropriate item stock level. In contrast, inspections at the four less efficient facilities identified 64 recurring problems including inaccurate inventory levels, lack of regular review and adjustment of inventories, and inadequate physical space to meet the needs of the facility's supply chain program. Similarly, sterile processing inspections identified fewer recurring sterile processing problems affecting the operating rooms at the two efficient facilities than the less efficient facilities —10 problems at the efficient medical facilities compared to 21 problems at the less efficient medical facilities. The efficient facilities had recurring issues related to insufficient instrument and equipment levels to meet workload and the lack of standard operating procedures in the decontamination and processing areas. In contrast, less efficient facilities had several recurring issues related to missing biohazard labels on collection carts used to transport soiled items; the use of non-medical-grade containers to transport soiled critical and noncritical supplies; and staff not maintaining equipment cleaning schedules.

Personnel at the efficient facilities generally worked more effectively than personnel at the less efficient facilities to implement action plans and resolve problems identified during the inspections. The less efficient facilities also developed actions plans to address identified logistic and sterilization problems affecting their operating rooms. However, unlike the efficient facilities, the less efficient facilities either did not fully implement the plans or did not sustain needed operational changes. Furthermore, VISN logistics and sterile processing officials responsible for the services at the less efficient medical facilities did not follow up and hold the services at these medical facilities accountable for implementing corrective actions.

Lastly, VHA required facility issue briefs sent to the VISN and deputy under secretary for health for operations and management to include a summary of the issue, the date the incident occurred, a brief statement of the issue and its status, actions taken, progress toward resolution, and estimated resolution date. However, the issue briefs allowed facilities to focus on fixing the immediate problems affecting the patient or group of patients but did not require medical facilities to identify and remediate the root causes for systemic problems. The audit team's review of eight issue briefs from Birmingham, Brooklyn, or Portland identified incidents such as the closure of operating rooms due to staffing issues, the cancellation of surgeries for the lack of necessary supplies, and the use of contaminated medical equipment during surgeries.³⁴

Birmingham, Brooklyn, and Portland addressed the immediate problem that affected patients in six of the eight issue briefs, but did not perform root cause analyses and their VISNs did not perform any follow-up after the facilities submitted the issue briefs. For the remaining two issues briefs, VISN 7 staff and the director of the National Program Office for Sterile Processing conducted in-depth reviews respectively, at Birmingham and Portland, to identify systemic issues related to supply shortages and dirty surgical instruments and made recommendations to fix the identified problems. However, the VISNs responsible for Birmingham and Portland did not hold the facilities accountable for correcting the problems.

VHA controls, such as the NSO operating room efficiency data, and various reviews, inspections, and issue briefs, identified problems but did not ensure the problems were resolved. For example, the NSO's operating room efficiency data showed a decline in Portland's operating room efficiency between FY 2016 and 2017. Logistics reviews, starting as early as 2016 and 2017 respectively, began repeatedly identifying inaccurate inventories and space issues affecting the facility's operating rooms. By FY 2018, the sterile processing service problems identified in issue briefs and sterile processing inspections had become so serious the facility had to reduce its surgical caseload by 15 to 20 percent. Figure 2 provides a timeline of the long-standing operational issues that persisted at Portland despite controls that alerted VHA officials and VISN and medical facility staff to problems.

³⁴ The remaining three medical facilities reviewed by the audit team did not report incidents affecting surgery in their issue briefs. The OIG requested all issue briefs with surgical support element issues from FY 2016 to FY 2018 and did not include issue briefs that staff prepared as status updates for previously reported events in this count of eight briefs.

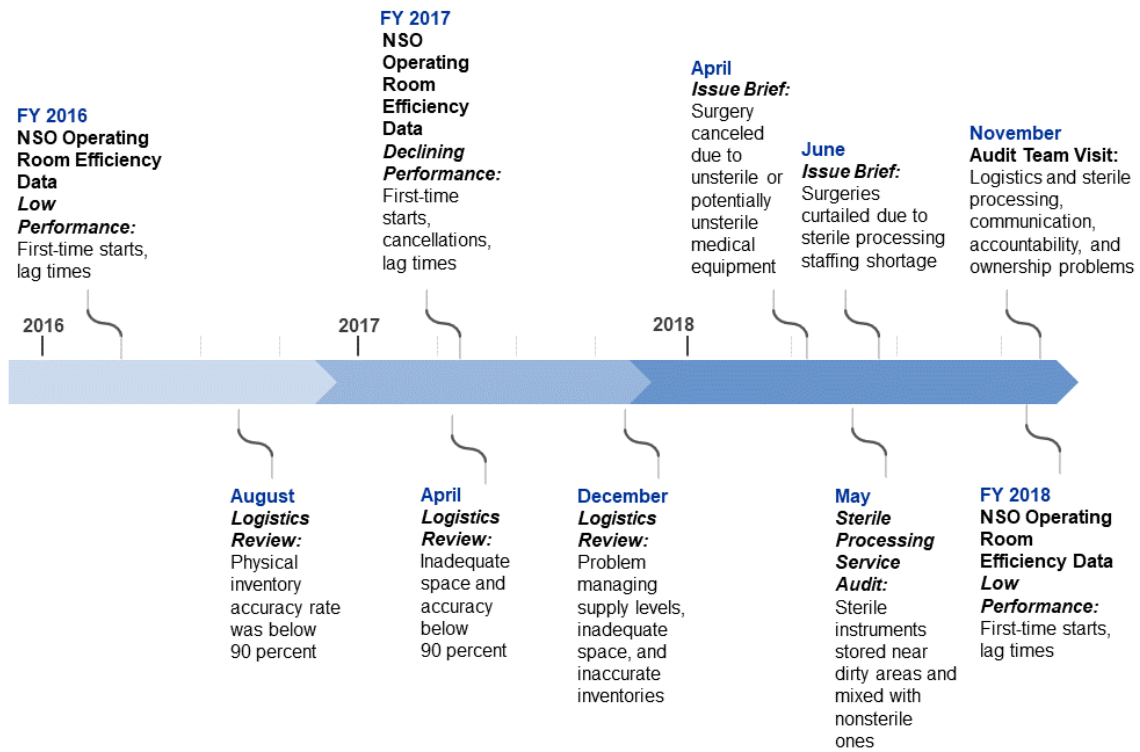


Figure 2. Portland surgical support element problems identified by VHA controls and OIG visit.
 Source: OIG team analysis of issue briefs, the NSO efficiency data, and sterile processing service audits.

At the time of the OIG’s site visit in November 2018, the facility still had not passed the NSO’s first-time starts and lag times goals and the audit team found that many of the logistics and sterile processing problems still persisted, but the facility had begun to correct them.

Various VHA controls have repeatedly identified problems but VHA lacks an effective control mechanism to ensure VISNs are monitoring and following up with less efficient medical facilities to ensure they improve operating room efficiency and correct persistent surgical support problems. The absence of effective VHA oversight allows less efficient facilities to avoid implementing the additional systemic controls and best practices employed by its efficient facilities. Moreover, it does not ensure local accountability at the facility or VISN level for the sustained correction of the identified problems; as a consequence, inefficiencies and surgical support element problems can persist at less efficient medical facilities for years.

Conclusion

Surgery patients face inconvenience and additional risks because VISNs and medical facilities do not effectively manage the use of the NSO data and support services’ inspection reports to monitor operating room efficiency and ensure problems are corrected. The audit team estimated that if VISN and medical facility strengthened its surgical support element oversight, it could

improve operating room efficiency and the delivery of surgical services to about 7,200 patients at its less efficient facilities through the reduction of 8,600 surgical cancellations. Furthermore, a reduction of 8,600 cancellations could result in an estimated better use of \$30 million in VHA funds over the next five years, although the pace of surgeries may be altered in a COVID-19 environment.

Recommendations 1–6

The OIG recommended the under secretary for health consider³⁵

1. Developing an oversight mechanism that includes the VISN Surgery Integrated Clinical Chairs in the monitoring of medical facility operating room efficiency and surgical support element problems and ensures VISN directors hold medical facilities accountable when these problems persist and reduce operating room efficiency;³⁶
2. Periodically analyzing two to three years of operating room efficiency data to identify medical facilities that have not consistently met the National Surgery Office efficiency goals and assess surgical support element problems affecting patients and operating room efficiency;
3. Requiring the National Surgery Office clarify the intent of the current utilization measure and assess other utilization measures other than staffing;
4. Requiring the National Surgery Office gather as part of its capacity measure information about operating room closures or reduced usage, including the reasons for the closures or curtailment of surgeries;
5. Identifying surgical support element best practices used by efficient facilities and ensure less efficient medical facilities, where appropriate, implement these practices to address problems, reduce surgical cancellations and delays, and minimize patient risks; and
6. Requiring medical facility surgical workgroups to discuss the National Surgery Office's efficiency goals and their facility's performance with support services, such as logistics, sterile processing service, and environment management service, at least quarterly and ensure they all work proactively and collaboratively to address surgical support element problems.

³⁵ Recommendations directed to the under secretary for health were submitted to the executive in charge who has the authority to perform the functions and duties of the under secretary.

³⁶ The VISN Surgery Integrated Clinical Chair is a member of the National Surgery Integrated Clinical Community that promotes facilitative decision-making to support facilities and VISNs in effective operations and veteran-centric care.

Management Comments

The executive in charge, Office of the Under Secretary for Health, concurred with all six OIG recommendations. Action plans and the full text are provided in appendix F.

For recommendation 1, the executive in charge stated that the NSO will define the requirements for the VISN Surgery Integrated Clinical Community's review of operating room efficiency data and oversight of the VISNs' facility surgery programs. The VISN Surgery Integrated Clinical Community Chair will report operating room efficiency performance and recommended improvement strategies through the VISN Healthcare Delivery Councils to the VISN directors.

For recommendation 2, the executive in charge reported that the implementation had been completed as NSO has modified quarterly reports in February 2020 to provide additional operating room efficiency data trends to the facilities and VISN Surgery Workgroups. Two-year data trends will be discussed at the annual NSO VISN Surgery Summits.

For recommendation 3, the executive in charge stated the NSO will review the language in its quarterly report interpretation document to confirm clarity of intent for operating room utilization. The NSO will assess the feasibility of additional or alternate measures of utilization.

For recommendation 4, the executive in charge reported that the NSO has begun collecting and reporting information about operating room closures or reduced usage, including the reasons for the closures or curtailment of surgeries and that the NSO has made this data available to key medical facility and VISN personnel for review and analysis—considering the implementation of this recommendation completed.

For recommendation 5, the executive in charge stated that VHA program offices will develop structures to define, identify, and communicate best practices for surgical support elements.

For recommendation 6, the executive in charge stated that NSO will provide direction to the surgical workgroups and will include facility representatives from logistics, sterile processing, and environmental management to review operating room efficiency data. The oversight role for VISN Surgery Integrated Clinical Communities will be defined consistently with current VISN Surgery Workgroup duties and Integrated Clinical Community charters.

OIG Response

The executive in charge's comments and corrective action plans are responsive to the recommendations. Although VHA requested closure of recommendation 2, the OIG needs additional support to be able to evaluate VHA's plans to assess surgical support element problems affecting patients and operating room efficiency. VHA provided the OIG with sufficient evidence in its response to support the closure of recommendation 4.

The OIG will monitor the implementation of the planned actions for the remaining recommendations and will close the recommendations when VHA provides necessary evidence

to demonstrate the proposed actions have been completed and the intent of the recommendations has been met.

Appendix A: Background

Key Surgical Support Elements Roles and Responsibilities

VHA Directive 2010-018, *Facility Infrastructure Requirements to Perform Standard, Intermediate, or Complex Surgical Procedures*, and VHA Directive 1102.01, *National Surgery Office*, provide the organizational framework for the oversight and provision of VHA surgical services. Figure A.1 outlines the roles and responsibilities of the key individuals and groups that oversee surgeries and surgical support elements.

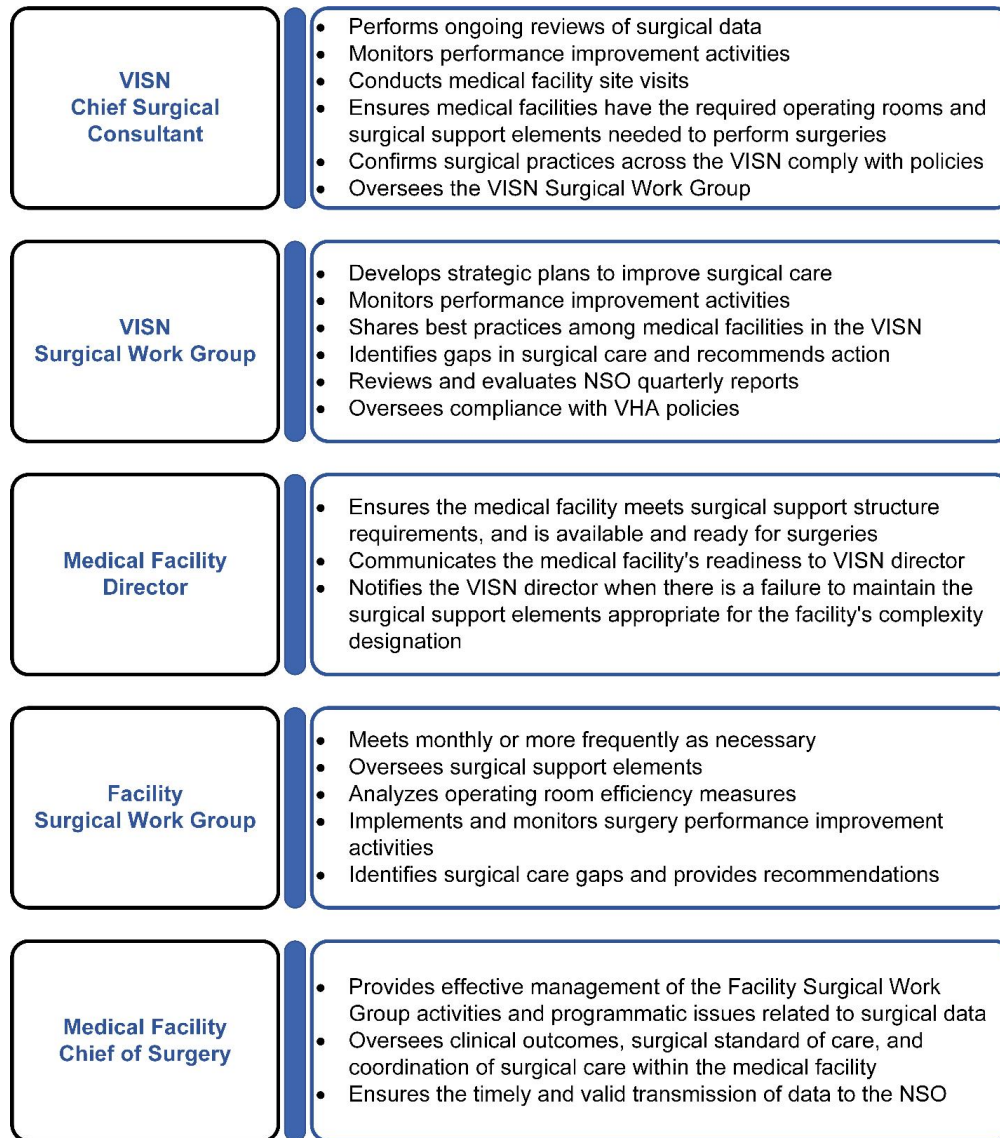


Figure A.1. Key surgical support element roles and responsibilities.

Source: The OIG's summary of VHA Directive 2010-018 and VHA Directive 1102.01.

Prior Reports Related to Surgical Support Element Problems

The OIG published six reports from FY 2016 to FY 2020 that discussed surgical support element problems and the resulting surgical delays, cancellations, and increased patient risks:

- The report *Deficiencies in Sterile Processing Services and Decreased Surgical Volume at the VA Connecticut Healthcare System Newington, Connecticut West Haven Connecticut*, 19-00075-14 (November 20, 2019) found that the facility had canceled and outsourced surgical cases to a non-VA hospital due to unaddressed issues in sterile processing services. Sterile processing services issues not addressed were related to standard operating procedures, training, staffing, and quality assurance processes. The OIG team found that from May 13, 2018, to January 31, 2019, 1,975 surgical cases were outsourced to a non-VA hospital.
- The report *Alleged Concerns in Processing Services at the New Mexico VA Health Care System*, 17-04593-10 (October 31, 2018) found that 38 of 356 inspected sterile sets were missing instruments and were not consistently labeled as to which instruments were missing. The OIG also determined that some surgical procedures were delayed or canceled due to unavailable sterile instruments and equipment. Although no patients experienced adverse events, the audit team identified related delays or cancellations and three patients who were at increased risk for adverse clinical outcomes.
- The report *Critical Deficiencies at the Washington DC VA Medical Center*, 17-02644-130 (March 07, 2018) found that 24 of the 30 interviewed healthcare providers reported they had problems with surgical supplies, instruments, or equipment. Specifically, multiple providers reported that procedures were canceled or delayed due to supply, instrument, or equipment issues and staff had to leave the medical facility to obtain needed supplies from another hospital “across the street.” There were also instances where patients received anesthesia before staff identified an instrument or supply was missing and the patients received the anesthesia unnecessarily because the procedures were delayed or canceled. A related interim report titled *Interim Summary Report*, 17-02644-202 (April 12, 2017) also reported that a shortage of surgical supplies and inventory management problems affected the availability of required surgical instruments and supplies, and in some cases, this placed patients at unnecessary risk.
- The report *Surgical Service Concerns Fayetteville VA Medical Center Fayetteville, North Carolina*, 15-00084-370 (September 30, 2016) substantiated allegations that two surgeries were canceled because staff did not perform adequate preoperative evaluations and a surgery was stopped due to a lack of necessary instruments. The OIG found that the medical facility lacked “a consistent, coordinated

interdisciplinary process for the provision of supplies, equipment and instruments necessary for scheduled cases on a daily basis.” The OIG identified cases where:

- Extra trays had to be opened over the course of a few weeks because the instruments still had rust on them.
- An instrument tray and the backup tray did not have the equipment assembled properly, leading to a short delay before use.
- An emergency laparoscopic appendectomy was delayed 1½ hours due to instruments not being cleaned and sterilized in a timely manner.
- The report *Operating Room Reusable Medical Equipment and Sterile Processing Service Concerns VA New York Harbor Healthcare System New York, New York, 14-04274-418* (September 29, 2016) substantiated that surgical equipment trays were missing instruments or were not properly processed, which led to 14 delays or cancellations in a five-month period in FY 2015. Operating room staff expressed consistent problems with sterile processing services and their frustration with sterile processing services due to the lack of accountability during the audit team’s review.

The NSO Operating Room Efficiency Goals

In FY 2013, the NSO established four operating room efficiency measures and their applicable benchmarks: cancellation rate, first-time starts, utilization rate, and lag times. The NSO raised the performance levels for medical facilities in FY 2016. Table A.1 shows the scoring criteria the NSO has used to evaluate VA medical facility operating room efficiency since FY 2016. For cancellation rates, the lower the percentage rate the better because medical facilities do not want canceled surgeries. For first-time starts and lag times, the percentages represent the share of times medical facilities met the NSO’s guideline for the measure. For the utilization rate, a higher percentage indicates the operating room nursing staff hours are generally in line with the operating room run times and that the operating rooms are functioning without significant amounts of nursing overtime.

Table A.1. The NSO’s Operating Room Efficiency Goals

Score	Cancellation rate—cases that were canceled	First-time starts—surgery started on time	Lag times—measure was met	Utilization rate—run hours to assigned operating room nurse hours
4	≤6%	≥85%	≥70%	≥80%
3	>6% to 9%	70% to <85%	55% to <70%	60% to <80%
2	>9% to 13%	50% to <70%	40% to <55%	40% to <60%
1	≥13%	<50%	<40%	<40%

Source: The NSO quarterly report interpretation document.

To determine a medical facility’s overall score, the NSO first assigns the medical facility a score of one to four for each measure using the criteria shown in table A.1. The NSO then counts the total number of individual measures in which a facility scored a three or higher. For example, if a facility scored a three on one measure and ones or twos on the remaining three measures, its overall score would be a one. The NSO considers overall scores from three to four indicators of good-to-optimal performance and scores of two to one indicators of declining performance requiring attention.

Surgical Support Element Reporting Structure

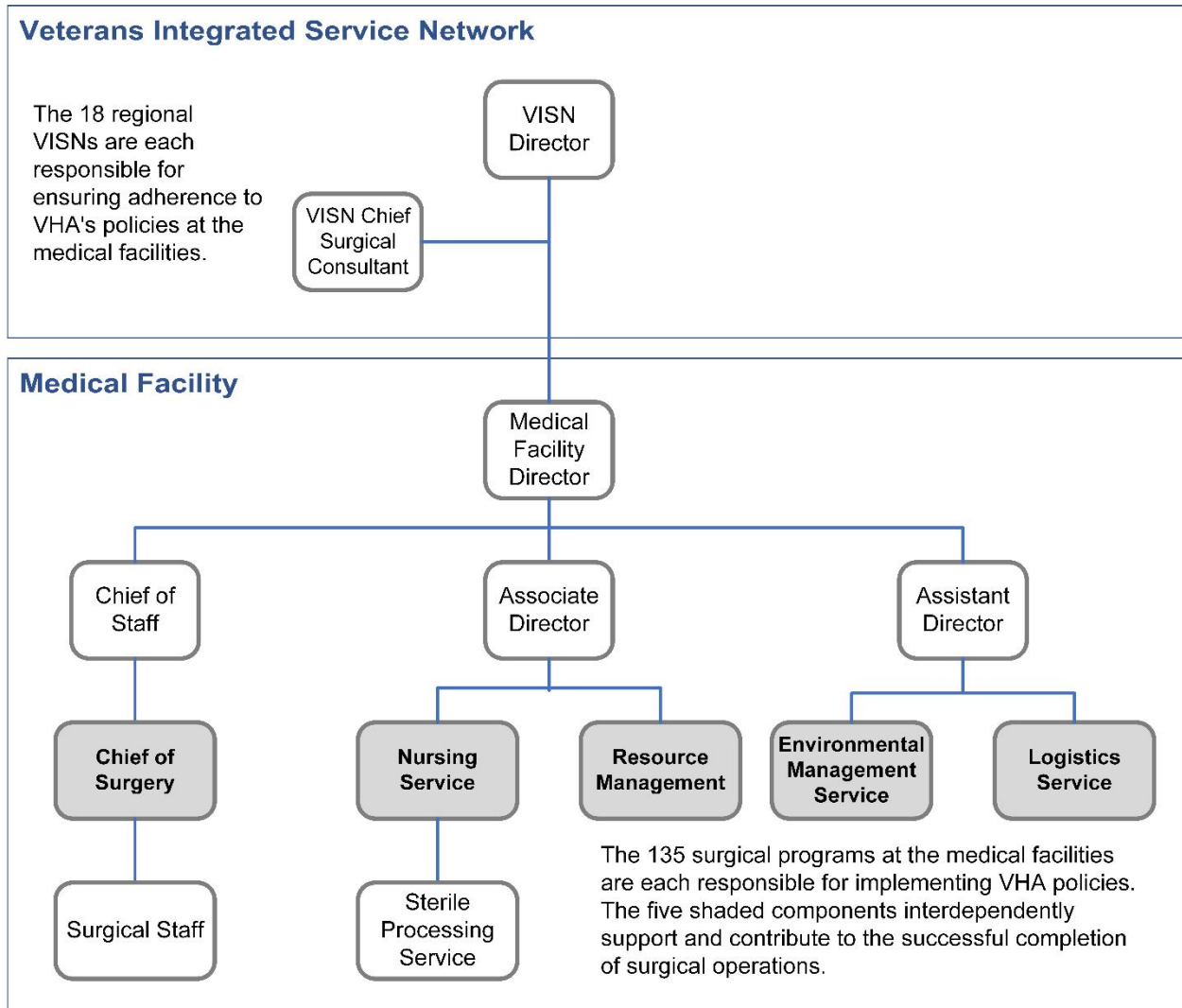


Figure A.2. Surgical support element reporting structure.

Source: The OIG's analysis of VISN and medical facility reporting structure based on site visit interviews.

Appendix B: Scope and Methodology

Scope

The OIG conducted its audit from September 2018 through July 2020. The audit team analyzed the NSO operating room efficiency data from October 1, 2014, through June 30, 2018, for all 135 VA medical facilities that provided surgical services during the 12-month period ending June 30, 2018. The audit evaluated whether VHA, VISN, and VA medical facilities effectively used the NSO's operating room efficiency performance data to identify and address underlying administrative, operational, and logistical problems affecting operating rooms at VA medical facilities where surgeries are performed. The audit team's reviews of the core services, information, and processes that support operating room operations and efficiency included areas such as preoperative clinical services, operating room staffing, sterilization, and provision of instruments, equipment, and supplies to the operating room, and maintenance of the surgical environment.

Methodology

To accomplish the audit objective, the team conducted site visits to a stratified sample of medical facilities within six separate VISNs. The audit team reviewed national and local policies, procedures, and guidance related to surgical infrastructure, supporting services, and operating room efficiency. For the six medical facilities shown in table B.1, the audit team interviewed more than 160 key managers and staff who were responsible for overseeing, monitoring, and managing surgical services, surgical support elements, and operating room efficiency at the medical facility, VISN, and VHA levels.

In addition, the team reviewed national and local operating room efficiency data, about 4,200 related patient safety reports, about 870 patient complaints, and local policies and procedures. The audit team's review of the 4,200 patient safety reports identified 75 patient safety reports where logistics or sterilization problems occurred during the surgery.³⁷ The audit team referred these patient safety reports to the OHI clinicians for clinical review to assess if the reported logistics or sterilization problems had placed the patients at an additional risk for complications or lead to clinically significant adverse outcomes. The OHI clinicians conducted clinical reviews for 22 patient safety reports where the report contained sufficient information to identify the patient, and the patient's electronic health records contained information about the surgery and alleged incidents. The OHI completed clinical reviews for the 19 patients whose surgeries were discussed in the 22 patient safety reports.

³⁷ Audit team requested the OHI clinicians to review 75 patient safety reports, however four patients had two safety reports each; hence, the OHI clinicians reviewed 71 patients.

The team identified about 2,400 cancellations at the six VA medical facilities and reviewed a statistical sample of 180 cancellations to identify avoidable surgical cancellations caused by non-clinical operational, administrative, or logistical problems.

Table B.1. OIG VA Medical Facility Sample Selection

VISN	Medical facility location	Strata	Surgical complexity level	Surgeries completed FY 2016 to FY 2018
2	Brooklyn, NY	Less efficient	Complex	4,001
7	Birmingham, AL	Less efficient	Complex	11,255
10	Saginaw, MI	Less efficient	Basic Ambulatory Surgical Care	5,823
20	Portland, OR	Less efficient	Complex	18,541
12	Hines, IL	Efficient	Complex	20,491
22	Loma Linda, CA	Efficient	Complex	16,013

Source: The OIG statisticians and NSO reported surgical volume.

Note: The NSO only had data for FY 2016 up through the third quarter of FY 2018, ending June 30, 2018, at the start of the audit.

Fraud Assessment

The OIG assessed the risk that fraud, violations of legal and regulatory requirements, and abuse could occur during this audit. The audit team exercised due diligence in staying alert to any fraud indicators and fraud and violations of legal requirements by taking actions such as reviewing fraud indicators and conducting fraud assessments to identify fraud risks significant to the audit objective. The OIG did not identify any instances of fraud or potential fraud during this audit.

Data Reliability

The team obtained several computer-processed items for this audit: (1) an NSO spreadsheet showing operating room efficiency performance scores; (2) an NSO spreadsheet showing surgical volume; (3) local medical facility spreadsheets showing patient event reports; and (4) local VistA data showing canceled and delayed surgical cases.

The audit team tested the NSO operating room efficiency performance spreadsheet showing the efficiency scores by determining whether any data was missing from key fields or were outside of the time frame requested. The audit team also assessed whether the data contained obvious duplication of records, alphabetic or numeric characters in incorrect fields, or illogical relationships among the data elements. Furthermore, the team traced the data back to the original NSO reports and compared medical facility information and operating room efficiency scores. Testing of the data disclosed that they were sufficiently reliable for the audit objective.

Comparison of the data with information contained in the original NSO reports reviewed did not disclose any problems with the data reliability.

The OIG assessed whether the data in the NSO surgical volume spreadsheet contained obvious duplication of records, alphabetic or numeric characters in incorrect fields, or illogical relationships among the data elements. However, the team was unable to trace the data to the supporting documentation because the NSO extracted this data from VHA's corporate data warehouse, which in turn obtains the data from the VistA surgical packages of the respective medical facilities. Although the team could not trace the data back to the medical facilities' VistA systems, the team considered the data sufficiently reliable to generally gage the volume of surgeries at the medical facilities and to identify and select a sample of medical facilities for the audit.

The audit team did not attempt to assess the completeness and reliability of the information reported in the patient safety report spreadsheets because the spreadsheets were the only available data source for this information and the audit team did not use this information as the sole or primary source of evidence for any of its findings.³⁸ The audit team used the spreadsheet, which synopsised various medical facility staff's firsthand accounts of patient events at the medical facilities to help corroborate and demonstrate the types of conditions the team identified during the audit. Also, when a reported patient event involved a surgical support element problem and the entry contained sufficient identifying information, the audit team attempted to validate and corroborate the information about reported patient events through other sources, such as the identified patient's electronic health record.

The audit team tested the reliability of the local medical facilities' VistA surgery package data for similar canceled surgical cases and did not find any obvious duplication of records, alphabetic or numeric characters in incorrect fields, or illogical relationships among data elements. In addition, the audit team compared local VistA surgery package data with information from the patient electronic health records, such as veterans' names, social security numbers, surgery type, and cancellation dates to assess data reliability. The comparison of the data did not disclose any data reliability problems and disclosed that it was sufficiently reliable to use to achieve the audit's objective.

Government Standards

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

³⁸ During the audit, medical facility staff disclosed that they did not always or consistently report related issues in the patient safety reports, thus the audit team was unable to attest to the completeness of these reports.

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

Appendix C: Statistical Sampling Methodology

The audit team sampled medical facilities that performed surgeries to determine if VHA, VISNs, and facility managers effectively used the NSO's or other operating room efficiency monitors to identify and address underlying administrative, operational, and logistical problems affecting their operating rooms.

For each of the sampled medical facilities, the audit team then sampled canceled surgical cases to identify long-standing surgical administration, operational, and logistical problems that resulted in unnecessary risk to patients, missed opportunities, and avoidable financial costs.

Population

The audit team selected the population based on the parameters of the audit objective by identifying 135 medical facilities that performed surgery during the 12-month audit period ending June 30, 2018. The team excluded medical facilities that were no longer performing surgical services and those facilities that had not performed surgeries during the audit period. To determine whether VHA, VISN, and medical facilities effectively used the NSO's or other operating room efficiency monitors to identify and address problems affecting operating rooms, the audit team visited a stratified sample of six medical facilities that perform surgeries.

The team then selected the population of canceled surgeries based on the parameters of the audit objective by identifying about 2,400 canceled surgeries during the 12-month period ending June 30, 2018. To determine if operating room inefficiencies related to surgical support element problems results in canceled surgeries resulted in unnecessary risk to patients, the audit team reviewed a random sample of 180 canceled surgeries among at the six medical facilities.

Sampling Design

To obtain this sample, the audit team developed a multiphase stratified sample by ranking the NSO's operating room efficiency scores for all 135 medical facilities performing surgeries in the team's universe for the review period from October 1, 2014, through June 30, 2018. In the first phase, the OIG statistician developed an average operating room efficiency performance score for each facility based on their overall scores for the fifteen quarters of the reviewed NSO data and identified the number of quarters the facilities achieved a good-to-optimal score. The OIG statistician then used the RANK statistical function formula in Microsoft Excel to analyze the data and to rank the 135 facilities. After completing the rankings, the OIG statistician divided the population into four groups: least efficient, less efficient, efficient, and most efficient.

The least efficient facilities had average scores that were 1.9 or below, the less efficient ones had average scores of 2.0 to 2.54; the efficient ones had average scores of 2.57 to 3.1; and the most efficient ones generally had average scores above 3.1. The OIG statistician did include some surgical facilities with scores between 2.9-3.1 in the most efficient group if they also achieved good-to-optimal scores in the fourth quarter of FYs 2015, 2016, and 2017 and the third quarter of FY 2018 because these scores indicated the medical facilities generally maintained good-to-optimal scores throughout the audit team's review period. The team discussed the rankings of the 135 facilities and the groupings with the NSO, and the NSO agreed with the team's approach and the placement of the facilities in the groupings.

The team used these data to select a statistical sample of eight VA medical facilities from the different efficiency levels. The team randomly selected four of the less efficient surgical ones (two each from the least efficient and less efficient groups) and four efficient ones (two each from the efficient and most efficient groups) to assess why some performed better than others and had more efficient operating rooms (appendix D). The OIG statistician ensured each sampled facility was from a separate and unique VISN. The OIG statistician also took into consideration the total number of surgeries performed and the complexity level of surgical operations to obtain a stratified sample selection of eight medical facilities, two facilities within each of the four categories.

Based on the audit's preliminary results, the team decided to visit only six of the eight selected medical facilities, and the statistician post-stratified the sample into two categories: less efficient (combined least and less efficient) and efficient (combined efficient and most efficient). As a result, the team visited six of 135 medical facilities that performed surgery; four in the less efficient and two in the efficient group. The sampling design was representative of the universe and ensured estimates described the entire population.

Additionally, the audit team selected a simple random statistical sample from all canceled surgeries, excluding those related to bed space limitations, reported by the six medical facilities during the 12-month period ending June 30, 2018. The team selected a sample of 180 cancellations, with 30 cases from each of the reviewed medical facilities. The sampling design was representative of the sample and ensured estimates described the entire population.

Weights

The audit team calculated estimates in this report using weighted sample data. Samples were weighted to represent the population from which they were drawn. The audit team used the weights to compute estimates. For example, the team calculated the error rate point estimates by summing the sampling weights for all sample records that contained the error, then dividing that value by the sum of the weights for all sample records.

Projections and Margins of Error

The point estimate (e.g., estimated error) is an estimate of the population parameter obtained by sampling. The margin of error and confidence interval associated with each point estimate is a measure of the precision of the point estimate that accounts for the sampling methodology used. 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 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 C.1 shows the effect of progressively larger sample sizes on the margin of error.

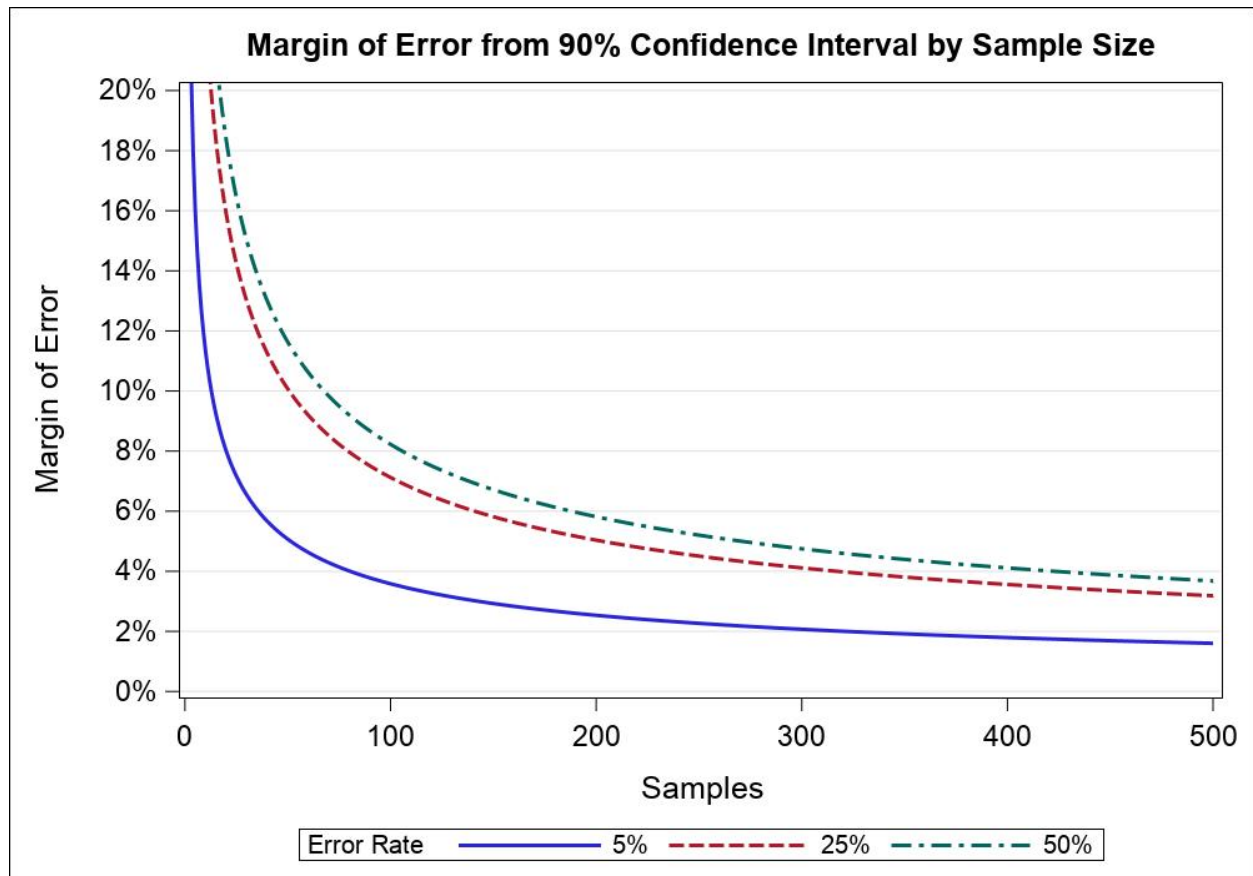


Figure C.1. Effect of sample size on margin of error.

Source: VA OIG statistician's analysis.

Based on the samples results, the audit team estimated that 51 of the 68 less efficient facilities could decrease their annual estimated 12,000 cancellations by almost 2,000 (17 percent) if they addressed surgical support element problems. The audit team used exponential smoothing forecasting to estimate that over the next five years, the less efficient facilities could reduce cancellations by 8,600 surgeries affecting 7,200 patients with an estimated cost savings of \$30 million if they minimized their surgical support element problems and improved their operating room efficiency.

Table C.1. Statistical Projections Summary for Less Efficient Surgical Sites

Error type	Point estimate	Margin of error	Lower limit	Upper limit	Total sample size	Count from sample
Less efficient surgical programs with surgical support element problems	51	17	15	68	6	3

Source: VA OIG statistical analysis performed in consultation with the Office of Audits and Evaluations statistician.

Note: The audit team used the upper limit for the number of less efficient surgical facilities in the universe because all four of the sampled less efficient facilities had surgical support element problems.

Table C.2. Statistical Projections Summary for Surgical Cancellations

Error type	Point estimate	Margin of error	Lower limit	Upper limit	Total sample size	Count from sample
Less efficient sites above the goal	51	36	15	87	4	3
Cancellations for efficient sites (benchmark)	700	500	200	1,200	60	5
Cancellations at less efficient sites	2,700	900	1,800	3,600	120	20
Cancellations at less efficient sites that could be avoided	2,000	1,030	970	3,030	180	25
Patients affected at efficient sites	630	450	180	1,100	60	5

Error type	Point estimate	Margin of error	Lower limit	Upper limit	Total sample size	Count from sample
Patients affected at less efficient sites	2300	770	1,500	3,000	120	20
Annual estimated cancellations	12,000	1,000	10,900	13,000	180	90
Annual cancellations at less efficient sites cost (in millions)	\$8,000	\$2,700	\$5,300	\$10,700	180	25

Source: VA OIG statistical analysis performed in consultation with the Office of Audits and Evaluations statistician.

Appendix D: Surgical Facility Efficiency Ranking

Tables D.1 and D.2 list the 135 facilities performing surgeries in order based on their average operating room efficiency score for the fifteen quarters reviewed. The average score was 2.55. The efficient facilities average scores ranged from 3.52 to 2.57 while the less efficient facilities' scores ranged from 2.54 to 1.71. The scores and related rankings are the product of a number of factors, such as surgical workload, veteran access in rural areas, and the scheduling of surgeries, that the NSO director noted the medical facilities cannot influence or control.

Table D.1. Rank of Efficient Surgical Facilities

Location					
1	Houston, TX	24	Little Rock, AR	47	Tucson, AZ
2	Charleston, SC	25	Des Moines, IA	48	West Roxbury, MA
3	San Juan, PR	26	Harlingen, TX	49	Wilkes-Barre, PA
4	St. Cloud, MN	27	Marion, IL	50	Minneapolis, MN
5	Grand Junction, CO	28	Sacramento, CA	51	Columbus, OH
6	Fargo, ND	29	Pineville, LA	52	Columbia, SC
7	Mountain Home, TN	30	Muskogee, OK	53	Seattle, WA
8	Asheville, NC	31	Tampa, FL	54	Wichita, KS
9	Orlando, FL	32	Spokane, WA	55	Dublin, GA
10	Long Beach, CA	33	Green Bay, WI	56	Boston JP, MA
11	Lebanon, PA	34	Madison, WI	57	Denver, CO
12	Lake City, FL	35	Pittsburgh, PA	58	Sioux Falls, SD
13	Loma Linda, CA	36	Oklahoma City, OK	59	Fayetteville, NC
14	Evansville, IN	37	Salt Lake City, UT	60	Bay Pines, FL
15	Fresno, CA	38	Dayton, OH	61	Hines, IL
16	Erie, PA	39	West Palm Beach, FL	62	Fort Harrison, MT
17	Biloxi, MS	40	Leavenworth, KS	63	Lexington, KY
18	Providence, RI	41	Reno, NV	64	Louisville, KY
19	Gainesville, FL	42	Huntington, WV	65	San Diego, CA
20	Iron Mountain, MI	43	Albuquerque, NM	66	North Chicago, IL
21	Boise, ID	44	Indianapolis, IN	67	Togus, ME
22	Shreveport, LA	45	Hampton, VA		
23	Billings, MT	46	Syracuse, NY		

Source: Audit team analysis of the NSO's operating room efficiency data from October 1, 2014, through June 30, 2018.

Table D.2. Rank of Less Efficient Surgical Facilities

Location					
68	Martinsburg, WV	91	Fort Meade, SD	114	Bronx, NY
69	Atlanta, GA	92	Durham, NC	115	Kansas City, MO
70	Danville, IL	93	Temple, TX	116	Portland, OR
71	Clarksburg, WV	94	Amarillo, TX	117	New Orleans, LA
72	West Haven, C	95	Palo Alto, CA	118	Dallas, TX
73	Cape Coral, FL	96	Murfreesboro, TN	119	Miami, FL
74	Fort Wayne, IN	97	Nashville, TN	120	New York, NY
75	San Francisco, CA	98	Eugene, OR	121	Albany, NY
76	Martinez, CA	99	Augusta, GA	122	Milwaukee, WI
77	Washington, DC	100	Cincinnati, OH	123	Memphis, TN
78	Cleveland-ASC, OH	101	Fayetteville, AR	124	East Orange, NJ
79	Buffalo, NY	102	Cleveland, OH	125	Omaha, NE
80	Cheyenne, WY	103	Philadelphia, PA	126	Chicago-Jesse Brown, IL
81	Ann Arbor, MI	104	Wilmington, DE	127	Saginaw, MI
82	Montgomery, AL	105	Roseburg, OR	128	Beckley, WV
83	Topeka, KS	106	Tacoma, WA	129	White River Junction, VT
84	Richmond, VA	107	Salem, VA	130	St. Louis, MO
85	Las Vegas, NV	108	Columbia, MO	131	Phoenix, AZ
86	Jackson, MS	109	Iowa City, IA	132	Birmingham, AL
87	West Los Angeles, CA	110	Detroit, MI	133	Manchester, NH
88	El Paso, TX	111	Northport, NY	134	Hot Springs, SD
89	San Antonio, TX	112	Viera, FL	135	Brooklyn, NY
90	Baltimore, MD	113	Salisbury, NC		

Source: Audit team analysis of the NSO's operating room efficiency data from October 1, 2014, through June 30, 2018.

Note: These 68 facilities scored below the 2.55 average score.

Appendix E: Monetary Benefits in Accordance with Inspector General Act Amendments

Recommendation	Explanation of Benefits	Better Use of Funds	Questioned Costs
1-6	Less efficient surgical facilities could reduce the cost incurred due to canceled surgeries if facilities minimized surgical support element problems.	\$30 Million	\$0
	Total	\$30 Million	\$0

Appendix F: Management Comments

Department of Veterans Affairs Memorandum

Date: August 4, 2020

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

Subj: OIG Draft Report, VETERANS HEALTH ADMINISTRATION: Improved Oversight of Surgical Support Elements Would Enhance Operating Room Efficiency and Care (Project Number 2018-06039-R7-0098) (VIEWS 03168255)

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

Thank you for the opportunity to review the draft report on oversight of Veterans Health Administration operating room efficiency. Actions in response to the six recommendations are attached.

The OIG removed point of contact information prior to publication.

(Original signed by)

Richard A. Stone, M.D

Attachments

VETERANS HEALTH ADMINISTRATION (VHA)

Action Plan

OIG Draft Report: *VETERANS HEALTH ADMINISTRATION: Improved Oversight of Surgical Support Elements Would Enhance Operating Room Efficiency and Care*

Date of Draft Report: July 13, 2020

Recommendations/Actions	Status	Target Completion Date
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Recommendation 1. The OIG recommended the Under Secretary for Health consider developing an oversight mechanism that includes the VISN Surgery Integrated Clinical Community Chair in the monitoring of medical facility operating room efficiency and surgical support element problems and ensures VISN Directors hold medical facilities accountable when these problems persist and reduce operating room efficiency.

Comments: Concur

The VHA Surgery Integrated Clinical Community/National Surgery Office (NSO) will define the requirement for Veterans Integrated Service Network (VISN) Surgery Integrated Clinical Community review of operating room efficiency data and provide oversight for each VISN facility surgery program. VISN Surgery Integrated Clinical Communities are responsible for identifying and sharing effective practices to support continuous performance improvement at each surgery program. The VISN Surgery Integrated Clinical Community Chairs will report operating room efficiency performance and recommended improvement strategies through VISN Healthcare Delivery Councils to VISN Directors. The initial organization of VISN Surgery Integrated Clinical Communities has been completed. VHA provided the charter and duties of VISN Integrated Clinical Communities under separate communications

Status: In Progress Target Completion Date: January 2021

Recommendation 2. The OIG recommended the Under Secretary for Health consider periodically analyzing two to three years of operating room efficiency data to identify medical facilities that have not consistently met National Surgery Office efficiency goals and assess surgical support element problems impacting patients and operating room efficiency.

Comments: Concur

NSO modified quarterly reports in February 2020 to provide additional trended operating room efficiency data. These data are available to existing facility and Veterans Integrated Service Network (VISN) Surgery Workgroups to supplement continued reporting of quarterly and rolling 12-month efficiency data. Two-year trended data for operating room efficiency are discussed at annual VISN Surgery Summits by NSO. Separate communications to the OIG audit team provided documentation of modified NSO Quarterly Reports.

Status: Completed

Recommendation 3. The OIG recommended the Under Secretary for Health consider requiring the National Surgery Office clarify the intent of the current utilization measure and assess other utilization measures other than staffing.

Comments: Concur

NSO will review language in its Quarterly Report Interpretation Document to confirm clarity of intent for operating room utilization. The NSO will assess feasibility of additional or alternate measures of utilization.

Status: In Progress Target Completion Date: October 2020

Recommendation 4. The OIG recommended the Under Secretary for Health consider requiring the National Surgery Office gather as part of its capacity measure information about operating room closures or reduced usage, including the reasons for the closures or curtailment of surgeries.

Comments: Concur

Since February 2018, NSO has collected and reported information about operating room closures or reduced usage, including the reasons for the closures or curtailment of surgeries. VA medical facilities submit operating room closures with specification of effective stop and start dates, involvement of specific operating rooms, standardized reasons for closures, and whether closures are planned or unplanned. Information is entered using an online, permission-based data entry portal using the National Surgery Office Operating Room Resource Tool. Key facility and Veterans Integrated Service Network personnel have access to data for review and analysis. Under separate communications, the National Surgery Office provided the OIG audit team with modification of NSO reporting sites to include these data.

Status: Completed

Recommendation 5. The OIG recommended the Under Secretary for Health consider identifying surgical support element best practices used by efficient facilities and ensure less efficient medical facilities, where appropriate, implement these practices to address problems, reduce surgical cancellations and delays, and minimize patient risks.

Comments: Concur

Applicable VHA program offices will develop structures to define, identify, and communicate best practices for surgical support elements.

Status: In Progress Target Completion Date: July 2021

Recommendation 6. The OIG recommended the Under Secretary for Health consider requiring medical facility surgical work groups to discuss the National Surgery Office Efficiency goals and their facility's performance with support services, such as logistics, sterile processing service, and environment management service, at least quarterly and ensure they all work proactively and collaboratively to address surgical support element problems.

Comments: Concur

NSO will provide direction for existing facility Surgical Workgroups to review operating room efficiency data to include facility representatives from the departments of logistics, sterile processing service, and environmental management. The oversight role for VISN Surgery Integrated Clinical Communities will be defined consistent with current VISN Surgery Workgroup duties and Integrated Clinical Community charters.

Status: In Progress Target Completion Date: October 2020

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

OIG Contact and Staff Acknowledgments

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