

Medical Reasons for Same-Day Cancellations in Ophthalmic Surgery at a VA Hospital

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Canceling surgery at the last minute wastes resources, time, and effort of all involved. Determining why late cancellations occur is the first step in remedying the problem.

Elective eye surgery, especially cataract extraction, is one of the most frequent types of operations performed in the United States.¹ Given the rising cost of health care, many institutions have been actively studying methods to improve patient care by decreasing waste and inefficiency while simultaneously maximizing reimbursement. Late (or same day) cancellations of elective surgery not only decrease the efficiency of the operating room (OR) and create significant cost for the hospital or ambulatory surgery center (ASC) but also disrupt the patients' daily lives.

A few studies in the medical literature have explored the causes behind last-minute cancellations and have proposed and evaluated methods of prevention.¹⁻³ Schofield and colleagues, for example, evaluated surgery cases in a public tertiary care Australian hospital across several specialties and found an 11.9% same-day cancellation rate, highest for otolaryngology and lowest for neurosurgery.³ The study authors felt 60% of the cancellation causes were avoidable, with the top reasons for cancellations stemming from no OR time (secondary to turnover of the previously scheduled case by the surgeon),

no postoperative bed availability, or patient clinical change.

Henderson and colleagues reported the incidence of elective eye surgery cancellation rates to vary between 9% and 20% in 1 ASC, depending on patient age, time of year, and procedure. They found that 41% had preventable causes.¹ The most preventable cause was "anesthesia denial" because 70% of patients presenting for surgery had cardiovascular issues, such as high blood pressure or newly identified or poorly controlled arrhythmia. Other causes, in order of prevalence, included the patient eating or drinking prior to surgery, the patient showing up on the wrong day or time, or weather issues preventing travel.

these studies are useful, they may not be applicable to the VA setting. For example, there may be differences between an ASC and a VA hospital, including patient population and method for preoperative workup, both of which could affect reasons for cancellation. A study focused on reasons for cancellations of ophthalmic surgery at a VA hospital is principally beneficial because the VA serves large populations of aging veteran patients, many of whom require elective eye surgeries, such as cataract extraction. Plus, the entire system is federally funded. Efficiency and conservation of health care resources are critical to ensure every patient served in the system receives adequate care within a limited operating budget. In addi-

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These representative studies suggest both administrative and medical reasons for same-day cancellations of surgery, as well as areas for improvement. Although the data reported in

tion, there may be a wait list for eye surgery; thus, late cancellations are more costly because other patients could have been scheduled in that particular time slot.

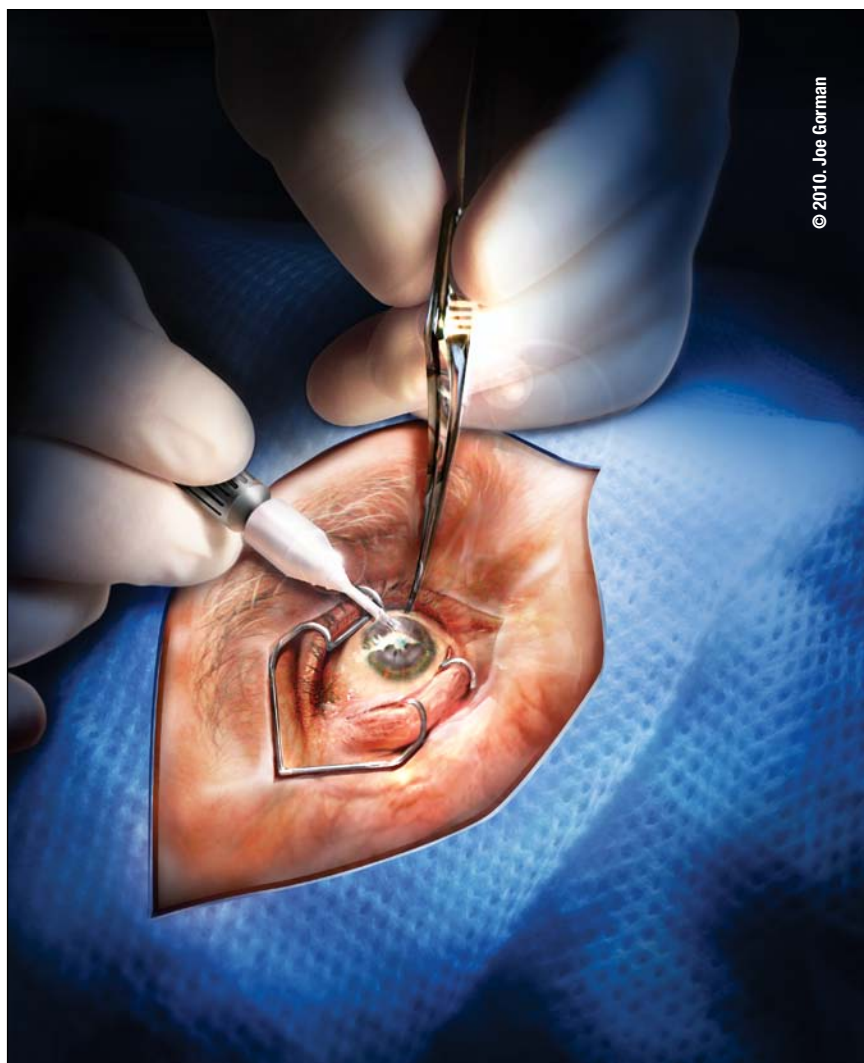
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Due to the limited data in the literature regarding medical cancellations of eye surgeries in a VA hospital, we attempted to better characterize these types of surgery cancellations at an urban VA medical center. The aim of our retrospective chart review was to evaluate the medical cause of cancellation, explore correlations between cancellation causes and types of eye surgery, and suggest methods for prevention. Our study focused specifically on medical reasons, as the primary surgeon has the greatest ability to prevent medical cancellations (as opposed to administrative issues, such as weather or number of beds).

METHODS

For the purposes of this study, a scheduled case is defined as a case planned in advance and posted for a specific day. A canceled case refers to a surgery that did not occur or was not completed on the posted day. A retrospective chart review identified all patients who were scheduled for elective ocular surgery at the Dallas VA Medical Center, Texas, from January 1, 2001, to December 31, 2006. Only patients whose appointments were canceled on the day of surgery for a medical reason (such as uncontrolled blood pressure, hyperglycemia, or anxiety) were included in the study. Patients were excluded if their surgery was canceled because of a nonmedical reason (such as the patient eating food on the day of surgery or the surgeon running behind schedule), their medical record contained insufficient documentation, or their surgery was canceled prior to the actual day of surgery (patient reschedules). The patient's age, gender, and race, as well as type of eye surgery, ophthalmic subspecialty, and medical reason for cancellation were recorded for each case. Statistical analysis (χ^2 testing) was performed



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using SigmaStat (Aspire Software International, Ashburn, Virginia) statistical software.

RESULTS

In the 5-year time period, a total of 2,416 surgical cases were scheduled, with 2,087 surgeries completed. A total of 329 patient surgeries were canceled on the day of surgery—95 (28.9%) for medical causes and 234 (71.1%) for nonmedical reasons. Of the 95 patient surgeries canceled for medical reasons, 17 had insufficient documentation in their patient record, leaving 78 patients eligible for

inclusion in the study. Of these patients, all but 1 were male, and most (60%) were white (Table 1).

During the designated 5-year time period, 3.9% (95 of 2,416) of all scheduled surgical cases were canceled on the same day for medical reasons. The reasons for cancellation were subdivided into 8 categories, with vascular causes responsible for the majority (35.9%) of the cancellations (Figure). These causes included myocardial infarction or arrhythmia, high blood pressure, stroke symptoms, and chest pain. About 12.8% of patients' surgeries were canceled due

Table 1. Demographic data for all patients with a same-day ophthalmic surgery cancellation at the Dallas VA Medical Center over a 5-year time span (n = 78)

Characteristic	Study population
Age in years, average (range)	70.1 (48–88)
Gender, no. (%)	
Male	77 (98.7)
Female	1 (1.8)
Race, no. (%)	
White	47 (60.3)
Black	19 (24.4)
Hispanic	3 (3.9)
Unknown	5 (6.4)
Not documented	4 (5.1)

to behavioral reasons, which included patient anxiety or refusal to continue with surgery or a urine drug screen positive for recent illicit drug use (usually cocaine). Anticoagulation reasons caused 11.5% of the cancellations and were related to the patient not stopping warfarin or aspirin appropriately prior to surgery. Pulmo-

eral patients had ophthalmic causes for their canceled surgery, including 1 case that was aborted intraoperatively due to the patient experiencing high intraocular pressure and increasing posterior pressure. One patient was found to have an acute hordeolum on the eyelid, another was found to have florid neovascularization of the

infection; and joint problems, including acute arthritis from gout.

Most of the ophthalmic surgeries canceled due to medical reasons were cataract extractions, followed by pars plana vitrectomy variants, eyelids/enucleation, trabeculectomy/tube shunt, penetrating keratoplasty, and pterygiectomy (Table 2). χ^2 analysis determined that no statistically significant correlation existed between the type of surgery, or ophthalmic subspecialty, and cancellation cause ($P = .19$).

DISCUSSION

Although none of the patients included in this study underwent routine preoperative physicals by their primary care physician, all patients had a formal history and physical examination performed by the operating ophthalmologists and a preoperative evaluation by an anesthesiology attending physician within 30 days prior to the scheduled procedure. During these evaluations, approximately 13.3% of the patients were felt to be high risk for surgery by the operating ophthalmologists. These high-risk patients underwent additional internal medicine consultation preoperatively, and only when an internist cleared these patients were they scheduled for eye surgery. Despite these clearance measures planned in advance of elective procedures, we found that 28.9% of all “day of surgery” cancellations were caused by medical reasons.

The cancellation rate due to medical reasons found in our study is higher than the rate found in previously published studies. Schofield and colleagues (who examined data from all elective surgeries performed at 1 major hospital) found 17.1% of all cancellation causes to be related to medical reasons, or “patient change in clinical status.” Henderson and

nary causes encompassed any reason for hypoxia, cough, or newly discovered lung mass and made up 10.3% of the cancellations. A few patients had hematologic issues not related to anticoagulation, such as anemia or polycythemia. Another small subset of patients had endocrine issues, the most common being elevated blood glucose levels in the 300 mg/dL to 400 mg/dL range. Interestingly, sev-

eral patients had ophthalmic causes for their canceled surgery, including 1 case that was aborted intraoperatively due to the patient experiencing high intraocular pressure and increasing posterior pressure. One patient was found to have an acute hordeolum on the eyelid, another was found to have florid neovascularization of the iris in the operative eye, and 1 patient developed a corneal abrasion from the use of a compressive balloon that obscured the surgeon’s view. Miscellaneous causes made up 15.4% of all medical cancellations and included inability to intubate the patient; electrolyte abnormalities; bone fractures from non-ophthalmic-related falls or trauma; hospitalization at an outside facility for leg amputation; systemic

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colleagues (who focused specifically on ophthalmic surgery) found that 24% of all cancellations were classified into the “patient ill” category, with 47% of those patients grouped as an “unpreventable” cause for cancellation. The disparity between our study and these other studies’ results may reflect administrative differences, such as surgery scheduling procedures, health of patient population, or preoperative workup.

While it is unknown how the patients in the other studies were evaluated prior to surgery, research suggests that preoperative clinics do reduce OR cancellations and delays.² Despite the preoperative workup in our study’s veteran patient population, many of the surgeries still were canceled for reasons that could be considered “preventable”—that is they would not have had to be canceled if the patients’ chronic medical conditions had been better controlled. Although all the history and physical examinations were performed within 30 days of surgery, and most within 2 weeks of surgery, data were not collected to study the relationship between timing of these evaluations and actual surgery date. Further study could be done to elucidate if increased interval of time from history and physical examination to surgery date could be a risk factor for same-day cancellations due to medical issues.

Similar to Henderson and colleagues’ report, the most common medical reason for cancellation in our study was related to vascular events. None of the patients in our study underwent evaluation and formal “clearance” by the medical center’s Cardiology Department prior to surgery but, as stated above, 13.3% of patients initially considered to be high risk were approved for surgery by internal medicine providers. Fu-

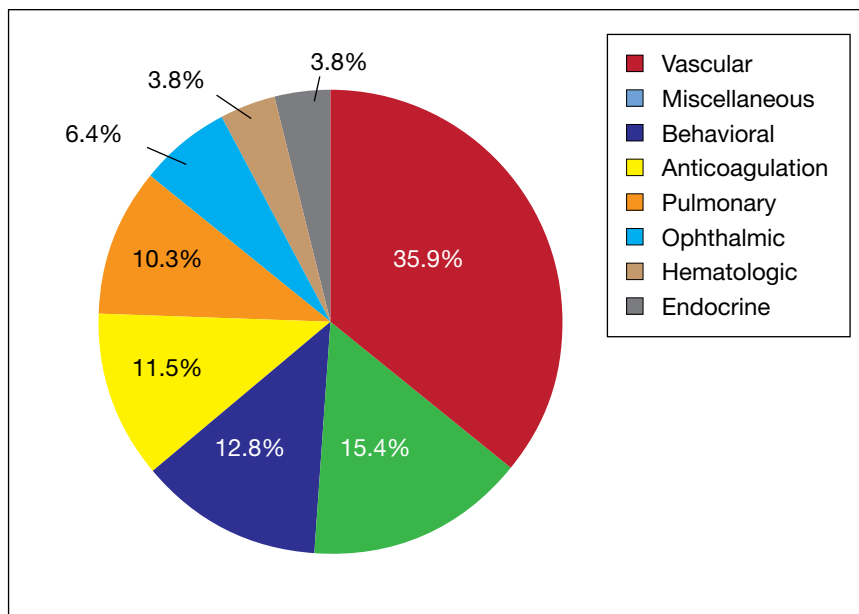


Figure. Medical causes for same-day ophthalmic surgery cancellations.

Surgery type	No. of cancellations
Cataract extraction ^a	54
Pars plana vitrectomy variants ^b	13
Eyelids/enucleation ^c	6
Trabeculectomy/tube shunt ^d	3
Penetrating keratoplasty, pterygiectomy ^e	2

^aComprehensive subspecialty. ^bRetina subspecialty. ^cPlastics subspecialty. ^dGlaucoma subspecialty. ^eCornea subspecialty.

ture study could explore whether those patients examined by internal medicine providers were at higher or lower risk of medical cancellation due to new or preexisting uncontrolled medical problems.

More than 50% of the canceled surgeries in our study were found to occur as a result of either pulmonary, cardiac, or anticoagulant causes. It may be speculated that routine internal medicine or cardiology consultations—rather than selective

consultation for high-risk patients—be appropriate for all patients under consideration for elective ophthalmic surgery. The referral of all patients for preoperative medical clearance potentially would be associated with a greater consumption of outpatient care resources, however, and further study would be needed to determine if this approach would reduce cancellations significantly.

Other than vascular events, this study did reveal several other promi-

ment causes for cancellation not mentioned in the existing medical literature, including patient behavioral issues. The relatively high rate (12.8%) of cancellations due to behavioral problems is interesting and previously unreported specifically for ophthalmic surgery. A large number of patient surgeries were canceled because of anxiety, where the patient refused surgery even after the initial incision already had been created. Nearly one-third (30%) of cancellations in the behavioral category involved illicit drug use prior to surgery, and 20% were secondary to delirium tremens. A possible association between preexisting psychological problems and same-day cancellations due to behavioral issues is beyond the scope of the current study but additional work is needed to further examine this relationship.

It should be pointed out that individual VA medical centers may have differing combinations of staff involved in the routine preoperative evaluation for elective eye surgery. In addition, the role these nurses, physician assistants, anesthesiologists, internists, or cardiologists have in the process may vary. This variation in practice patterns may limit the clinical relevance of the suggestions made herein. Nonetheless, from the results of this study, the diversity of medically related reasons for surgery cancellation support a multidisciplinary approach to reducing the number of same-day cancellations.

For instance, some veteran patients may require not only a thorough preoperative workup (given the number of comorbidities that afflict the elderly population) but also a

more thorough psychosocial evaluation. Anxiety symptoms may be more prevalent in a veteran patient population than in the general population; thus, counseling or improved patient education about the operation may contribute to reducing apprehension in the OR. In addition, counseling patients with known substance abuse issues prior to surgery not only could decrease same-day cancellations due to withdrawal or intoxication symptoms but also could identify those patients who are likely to continue using illegal substances. This information could be used to modify how these patients' surgeries are scheduled. For instance, Basson and colleagues studied predictors of patient nonappearance for scheduled operations at a VA hospital, and they found psychiatric or substance abuse problems to be statistically significant predictors of patient "no show" for surgery.⁴ These results suggest that scheduling patients with these types of conditions as last cases may thereby reduce disruption to the OR schedule should the patient not appear or their surgery need to be canceled for abuse-related concerns.

It is important to note that the prevention of cancellations was not a main outcome measure for our study. Thus, suggestions for reducing same-day medical cancellations are speculative.

CONCLUSION

The elective eye surgery same-day cancellation rate due to medical reasons in a 5-year period at a large VA hospital is higher than in other OR settings described in the medical literature. Furthermore, the data

suggest that the causes for these cancellations are diverse in the veteran patient population. A high proportion of cancellations are secondary to behavioral issues, suggesting that a thorough, multidisciplinary approach, including psychosocial evaluation, may aid to prevent a significant number of same-day cancellations in ophthalmic surgery. ●

Author disclosures

The authors report no actual or potential conflicts of interest with regard to this column.

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