

THE COST OF CANCELED SURGERIES & MITIGATING THEIR IMPACT

SURGIMATE on schedule.

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THE PROBLEM

Surgical cancellations are more than just a nuisance for physician-owned practices and hospitals; they're a financial drain and an obstacle for business growth. Surgeries are a significant portion of a practice's income, so any step to reduce the number of cancellations is an improvement to the practice's bottom line.

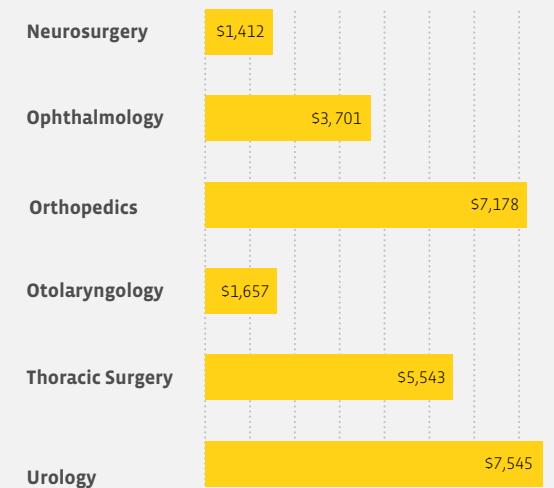
The magnitude of surgical cancellations is more significant than one may realize. This report investigates the scope of the problem, and proposes solutions that surgical practices can implement to mitigate the cancellation issues plaguing their business.

The Scope of the Cancellation Problem

A [study at Tulane University's hospital](#)¹ found a 6.7% cancellation rate for elective outpatient surgical procedures, which resulted in an estimated total loss of \$1,487,000, or \$4,500 per canceled operation.² While larger university systems might be able to absorb this loss, smaller practices do not have this luxury.

Costs can vary based on a number of factors, including location, surgical specialty, and other practice logistics. A [2005 study](#)³ by the Journal of Clinical Anesthesia showed that Operating Room (OR) charges averaged \$62 per minute. That means that a canceled 90-minute knee replacement could result in \$5,500 in potential lost revenue for the unused OR time, not to mention the cost of wasting a surgeon's time and anesthesiological fees. This [calculator](#) lays out and breaks down the different costs associated with same-day cancellations to help practices get a clear understanding of the real costs of a canceled operation.

POTENTIAL LOST REVENUE FOR A SURGEON PER CASE BY SPECIALTY



source: [Researchgate, 2011](#)

1. [The Financial Burden of Cancelled Surgeries: Implications for Performance Improvement](#)

2. [Another study](#) through the hospital of the University of Pennsylvania, found an almost identical cancellation rate of 6.6%. This case study focused less on cost and more on the reasons for the cancellation

3. <http://ether.stanford.edu/asc/documents/management2.pdf>

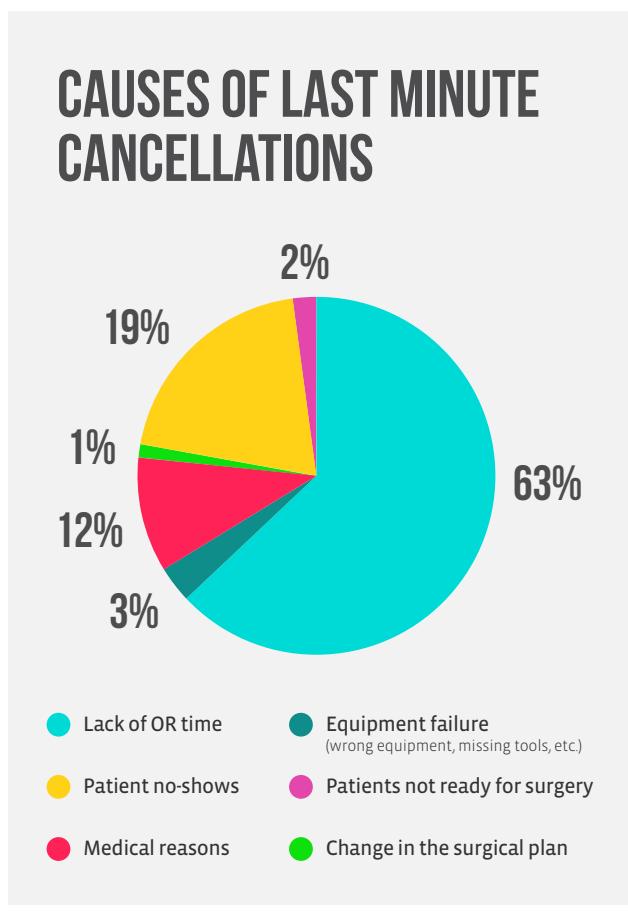
What Causes a Canceled Surgery?

In order to propose practical solutions that can reduce the number of cancellations, we first need to examine the causes of canceled surgeries. These causes can be broken down into three separate categories: OR-made cancellations, practice-made cancellations, and patient-made cancellations.

OR-Made Cancellations

Several studies have delved deeply into the issues around OR-made cancellations, due to their mounting cost on the healthcare system.

A study in the [Journal of Anaesthesia Clinical Pharmacology](#) found that in 1 year, 17.6% of elective surgeries were canceled on the day of surgery, amounting to an estimated loss of over \$3.5 million⁴. Over 66% were due to problems at the facility, including lack of OR availability and equipment issues.



Another 10-year [study](#)⁵ of ASCs found that the biggest causes of canceled surgeries (53%) were administrative issues such as missing paperwork or a double-booked OR. The majority of these cancellations were preventable.

The lack of OR time is the chief cause of canceled surgeries, and it's largely due to administrative or logistical errors. A majority of OR time is wasted because of "late starts, time between cases, preparation and cleaning ORs, and delayed transportation of patients to the OR."⁶ Surgical schedules should be coordinated and optimized in order to accommodate everyone's needs and prevent these cancellations.

Practice-Made Cancellations

It's convenient for practices to blame outside factors for canceled surgeries, but often the biggest issue isn't the patients or the OR logistics - it's the preoperative workflow. Preoperative administrative responsibility often falls on the practice to ensure everything is prepared for the surgery.

A primary cause for cancellations are administrative issues, including inadequate preoperative preparation and scheduling. Many cases fall between the cracks due to lack of proper case management. To keep scheduled surgeries running smoothly, a number of additional tasks need to take place. These include pre-surgery tests and paperwork, reminders, informing patients about the details of the surgery, post-surgery checkups, etc. They need to take care of their preoperative testing, sign the necessary paperwork, and obtain clearances from other

4. [Another study](#) that tracked scheduled surgeries in a general hospital, also found that 60% of cancellations were either due to lack of hospital resources or deficiencies of the medical team.

5. [Cancellations in ambulatory day surgery: Ten years observational study](#) - This study followed an ASC

6. [Reasons for cancellation of operation on the day of intended surgery in a multidisciplinary 500 bedded hospital](#)

providers. Although a lot of this work falls on the patient, it is the responsibility of the practice to ensure this is completed.

Patient-Made Cancellations

Practices fear patient-made cancellations because they lack control over them. [In the study mentioned above \(by the Journal of Anaesthesiology Clinical Pharmacology\)](#), 32% of cancellations were due to patients simply not showing up, or arriving unprepared or unfit for surgery. When this happens, it is very easy to blame the patient. However, patient non-arrival can be caused by a number of factors, including patient anxiety or not knowing the correct surgery date.

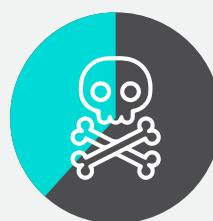
Patient anxiety ranks highly as a cause for a no-show. [A study](#)⁷ by BMC Surgery found that over 70% of patients had “significant preoperative anxiety.” This included nearly 40% of those patients with fear of death. Interestingly, this affects patient recovery rate as well as the rate of cancellations. [The Journal of Arthroplasty](#)⁸ found the cost of a total knee replacement increased for patients with measurable anxiety or depression, due to longer hospital stays and more complications during the recovery process.

This anxiety is often due to a lack of communication and information from the practice staff. The patient is under a tremendous amount of stress. Procedures may feel routine to the practice, but they aren’t for the patient. Lacking clear communication and instructions will only amplify their stress and anxiety, leading to patients not showing up at the right time, not showing up at all, and/or arriving without the proper paperwork.

Patients also frequently arrive for surgery only to be found medically unfit. [One study](#)⁹ found that 10% of the surgeries canceled in the OR were due to changes in medical conditions of the patients; patients would show up for the surgery not knowing that their new medical condition would

cause complications. Some were unaware of the need to fast pre-surgery (NPO), or that changes in their medication could cause a problem. Lack of communication is also often the root of this issue, with patients unaware of the steps they must take for a surgery beyond showing up.

**SIGNIFICANT PREOPERATIVE ANXIETY
WAS SEEN IN
70% OF
PATIENTS**



**38%
FEAR OF DEATH**



**24%
FEAR OF UNKNOWN ORIGIN**

source: [BMC Surgery, 2014](#)

7. [Predictors of preoperative anxiety among surgical patients in Jimma University Specialized Teaching Hospital, South Western Ethiopia](#)

8. [Direct Cost and Complications Associated With Total Joint Arthroplasty in Patients With Preoperative Anxiety and Depression](#)

9. [Journal of Anesthesia & Clinical Research](#)

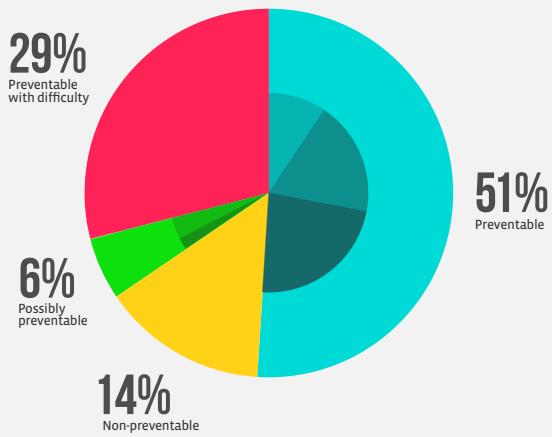
Managers Don't Even Know How Big the Problem Is

What contributes to the problem is that most practice managers don't have the quantifiable data they need to track canceled surgeries or measure their impact on the business. They are running a business with a huge blind spot. Without accurate data, these practices end up making uneducated business decisions to try to correct the problem, leading to even further damage.

Part of the problem is a lack of coordination between schedulers and managers. The surgical schedulers work to schedule surgeries with patients, but the managers are the ones who oversee the bigger picture of cancellations and wasted OR time. Surgical schedulers are neither concerned with why a patient needs to cancel a surgery, nor motivated to fill every canceled slot. The manager needs to know why a patient canceled their surgery, but the scheduler hasn't been trained to record this data, or even to ask the questions that will deliver the answers. At best, managers are forced to comb through stacks of paperwork to discover the reasons for cancellations. At worst, the information is nowhere to be found.

The most vital step in reducing cancellations is to arm practice managers with the data they need to drive practical, informed business decisions.

PREVENTABILITY OF CANCELLATIONS IN AN ASC



Category	Percentage
Preventable	51%
Preventable with difficulty	29%
Possibly preventable	6%
Non-preventable	14%

Preventable categories:

- Acute medical reasons the day before operation (9%)
- Personal decision of patients the day before operation (19%)
- Pre-operative work-up not followed (23%)

Possibly preventable categories:

- Personal decision the day of operation (4%)
- Non-attendance of patients (2%)

Non-preventable category:

- Non-preventable (acute medical conditions the day of operation) (14%)

source: [Elsevier, 2006](#)

SOLUTIONS

OR-Made Cancellations: Managing Block Time More Effectively

While not all cancellations are preventable, there are some practical steps both an OR and practice can take in order to increase efficiency and minimize cancellations. They must examine their inefficiencies to know which tweaks and improved workflow can have an impact on cancellation rates¹⁰, but here are some suggestions which are likely to aid both.



Block-Time Optimization

One of the main causes of cancellations was lack of OR time. To correct this, OR schedulers need to implement a system that avoids overbooking and allows enough buffer time in-between surgeries for the OR to be prepared for the next operation.

Block time allotment is often negotiated between the practice and OR due to its value and high demand. Surgeons are prone to overbooking their block time and underestimating the time it takes to perform the surgery so they can fit more surgeries in. Improved block time management

requires better communication between the practice's schedulers and OR schedulers to have the actual case length of each type of surgery for each surgeon. That way, the practice's schedulers can schedule the case accurately across the calendars for all required resources, including surgeons, PAs, and equipment vendors.

The OR schedulers also need to know how much extra time to add as a buffer between procedures. Tasks such as wheeling patients in and out of the OR, cleaning between cases, and other procedural tasks can add up, leading to surgeries that overrun their allotted slot, delay the next operation, and result in "lack of OR time."

OR schedulers and administrators should monitor the timing of the pre-op and post-op processes over the course of several months to get an accurate understanding of the length of each operation. These numbers can then be applied to the scheduling of OR time. If the OR schedulers notice a discrepancy in the average case length and the estimate from the surgeon, they need to communicate their concerns with the practice schedulers so it can be adjusted accordingly.

It's important these numbers are updated regularly, especially when new staff are onboarded. Testing and retesting these numbers will keep a surgical facility up-to-date and help cut down on surgical cancellations due to lack of OR time.

AI-Powered Scheduling

AI algorithms employ information such as industry benchmarks, studies, and practice-specific details to surgical block time optimization. Using this information, a scheduler will open a calendar to find options for the next available appointment, and after entering the patient's details, the

10. [One study](#) showed that proper pre-op work, such as mentally preparing a patient for anesthesia and surgery, decreased cancellation by more than 50%.

procedure code, and the surgeon performing the surgery, the program will automatically show the scheduler the best available slot and allocate the necessary time needed for the procedure.

In 2012, the [Mayo Clinic developed](#)¹¹ their own scheduling algorithm to cut down on OR overtime, which was costing the hospital millions of dollars. During the pilot program, the clinic increased utilization for spine surgeries by 19% and reduced overtime by 10%.

Most small surgical facilities or even larger ones don't have the resources to build such an algorithm. However, there are systems available that employ AI for block time optimization that can be calibrated based on the specific practice.

Mayo Clinic developed their own scheduling algorithm to cut down on OR overtime... increasing utilization for spine surgeries by 19% and reduced overtime by 10%

Practice-Made Solutions: Optimized Scheduling & Workflow

Practices shouldn't solely rely on the OR to improve processes to reduce cancellations. There are solutions the practice can implement on their end.

More Efficient Surgical Workflows

Creating an optimized surgical workflow starts with tracking and transparency. Even in 2018, over 50% of practices reviewed nationwide¹² processed surgeries using paper-based systems, with paperwork filled out by hand and placed in a drawer or filing cabinet. Additionally, paper calendars were often used to record and update the surgeons' schedules. This would lead to cases falling between the cracks (literally), and surgeons failing to know when and where they were on call. Tracking these surgeries involved combing through a pile of papers or referencing sticky notes and was extremely challenging - if any tracking was taking place at all.

The first step to improving this manual workflow is to create a digital tracking system. There are numerous ways this can be done:

- A simple Microsoft Excel spreadsheet on the practice's server. Every scheduler would have access to it and need to update it as cases come in. However, this manual process can slow down the workflow.
- A Google Sheet is easily shareable and can be accessed from anywhere. However, this is not always a HIPAA compliant option¹³.

11. [Optimization and Simulation of Orthopedic Spine Surgery Practice at Mayo Clinic](#)

12. Over the last ten years, Surgimate has worked with hundreds of surgical practices across the country and conducted dozens of workflow analyses to assess surgical workflow.

- A fully integrated surgery management solution that handles all surgical events, like Surgimate Practice™, has a far more sophisticated and powerful level of tracking. Staff are able to easily see what items need follow up from the patients, and track authorizations and pre-op items in one dashboard.

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We use Surgimate's dashboard to quickly access information needed for surgery & prioritize the preauthorization process, leading to fewer cancellations

According to Ellen College, practice manager at [Augusta Orthopedic & Sports Medicine Specialists](#)¹⁴, “We use Surgimate's dashboard to quickly access information needed for surgery and prioritize the preauthorization process, leading to fewer cancellations.” [The staff at The Orthopedic Group of New Haven](#)¹⁵ also use the dashboard in Surgimate to track surgical statuses and reduce cancellations due to workflow issues.

Patient-Related Cancellations: Improving Practice Communication

Improving communication with a patient can have a dramatic impact on patient anxiety, patients not fasting pre-surgery, and patients missing the scheduled date.

Improved Communication to Reduce Patient Anxiety

Managing communication falls on the shoulders of the practice's schedulers. It is their job to ensure that patients understand what is expected of them, when they need to arrive at the surgical facility, and what instructions they need to follow prior to surgery. During the scheduling process, both nurses and coordinators should review all the information about the surgery with the patient and walk him/her through all the steps of the surgery.

Ensuring that relevant, personalized information (preferably in writing) is given to each patient prevents them from being misinformed through online searches and reduces their anxiety. If a patient understands the procedure and everything involved, then they will feel more confident about going through with it. Meeting with patients face-to-face and discussing all related issues can pay big dividends for cancellation rates.

Improved Pre-Surgery Communication to Reduce NPO Violations & Mixups

Surgical schedulers should make sure all the necessary paperwork and directions are given to the patient before they leave the practice.

13. Unless the practice is subscribed for G Suite and has signed a Business Associate Agreement (BAA) with Google.

14. [Case Study: Augusta Orthopedic & Sports Medicine Specialists](#)

15. [Case Study: The Orthopedic Group](#)

For example:

- Customized patient letters give patients clear and concise pre-op instructions for them to read at home.
- Highlighting the important dates and times will prevent mixups.
- Following up with the patient closer to the surgery date will reinforce previous communications and is surprisingly critical in increasing the number of patients who turn up for surgery.

One [hospital](#)¹⁶ implemented a policy where perioperative nurses called patients three business days before the surgery was scheduled. During the call, the nurses would use a script to communicate important preoperative information and to address any questions or concerns. They would also communicate any new information from the patient to the appropriate staff member.

One hospital implemented a policy where perioperative nurses called patients 3 business days before the surgery.

This simple method reduced cancellation rates by 53%

This simple method reduced cancellation rates by 53%, improved patient satisfaction scores, and maximized OR usage. Information obtained from the phone calls enabled schedulers to anticipate cancellations and find patients to fill any empty slots.

These steps to improve communication with patients may be time consuming, but they play an important role in decreasing surgical cancellation rates and increasing revenue for the practice.

To Implement a Cancellation Fee or Not?

One of the more debated methods for preventing cancellations is implementing a cancellation fee. For some practices, this is a no-brainer. Last-minute cancellations due to no-shows doesn't only cost the practice money but also time spent in preparation for the surgery. This is frustrating for all members of the staff, especially the surgeons.

There haven't been a lot of studies that follow the impact of implementing a cancellation fee system. However, several practices have tracked the effect of implementing such a fee and shared them below.

In Favor of Cancellation Fees

At Willamette ENT in Salem, Oregon, a cancellation policy was implemented after a lot of deliberation and exasperation from years of cancellations. The practice now charges a \$100 cancellation fee, rising to \$250 if a patient cancels their surgery less than 24 hours in advance. However, the practice does not charge for cancellations that are caused by reasons out of the patients' control (sickness, weather, etc.). Even a patient who cancels their procedure due to anxiety is not charged.

The practice did not take the cancellation/ change fee decision lightly. "We had many conversations about this before we finally wrote and implemented a policy," explains Teresa Bailey, R.N. Surgery Scheduling/Pre-authorization Manager at Willamette ENT.

The practice found that cancellation rates dropped significantly after implementing the new policy. Often, just the mention of the charge was enough to get a patient to keep their originally-scheduled procedure.

16. [Using Nurse to Patient Telephone Calls to Reduce Day of Surgery Cancellations](#)

A Colorado based practice (that wishes to remain anonymous) also implemented a cancellation fee policy. They also made sure that patients who canceled for medical reasons or anxiety were not charged, as they did not want patients to feel overburdened with making a decision that could cost them money if they have to make changes.

“There is that line between patient relations and our inconvenience that we try to balance. However, it is not easy,” said the practice manager.

The Drawbacks of Cancellation Fees

There are several reasons why practices would be reluctant to implement a cancellation fee. One is considering how patients might view this fee after they cancel their surgery due to anxiety. Adding a fee will undoubtedly compound their anxiety, and may lead to a backlash whereby the patient may vent their frustration on social media or on a review site.

Another factor practices consider is how modern medical care is viewed. Patients are more willing to shop around to find a practice that fits with both their insurance and convenience. They may go through a review site or even see what policies are in place before deciding where to have their surgery.

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There is that line between patient relations and our inconvenience that we try to balance.

Instituting a Suitable Policy

Whatever decision a practice may make, one thing to keep in mind is that Medicare and Medicaid patients are [exempt from paying](#)¹⁷ a cancellation charge. If a practice services a high volume of Medicaid patients, then a cancellation fee policy won’t be as compelling. Instituting a cancellation fee policy requires a lot of deliberation on the possible unintended consequences. Allowing for flexibility within the policy can give the practice the deterrent they need while helping patients navigate the stress of a surgical procedure.

17. [Alabama Medicaid Management, Information System, Provider Manual, January 2017](#)

CONCLUSION

Last-minute surgical cancellations were once considered part of the cost of doing business. Now, with data and solutions available, practices can take proactive steps to mitigate cancellation rates. Studies have shown that increasing the efficiency of practice workflows and improving patient communication can increase available OR time, reduce patient no-shows, and help ensure patients arrive medically fit and fully prepared for their surgery. This increases practice revenue, and cuts down on wasted equipment, OR time, and staff hours on surgeries that don't happen.

To address surgical workflow kinks, the following methods have proven to be most effective in optimizing processes and reducing cancellations:

- Improve system efficiency by using a digital scheduling platform that is shared across the entire practice.
- Incorporate pre- and post-op OR preparation time into the case length to ensure the appropriate OR time is allocated for each surgery.
- Provide patients with custom patient letters displaying all their surgery-related information in a clear and organized fashion.
- Call patients three business days before their surgery to remind them of the details of the surgery location, pre-surgery requirements, and start time.

It is imperative that managers take a critical look at their own internal processes to understand what might be causing their cancellation issues. Based on this information, a practice must decide what the best approach for their business is based on their resources and time.

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