

## A Quality Improvement Project on Evaluating Factors For Cancellation Of Ophthalmic Surgery

Amir Zeb<sup>1</sup>, Zainab Nazneen<sup>\*2</sup>, Wishal Saleem<sup>1</sup>, Zainab Ilyas<sup>1</sup>, Usman Ameen<sup>1</sup>, Zarnam Ashfaq Shah<sup>1</sup>, Hassan Sajid Kazmi<sup>1</sup>

<sup>1</sup>Department of Ophthalmology, Ayub Medical College Abbottabad, Pakistan

<sup>2</sup>Department of Community Medicine, Ayub Medical College, Pakistan

\*Corresponding author's email address: [zainabnazamc@gmail.com](mailto:zainabnazamc@gmail.com)

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**Abstract:** Ongoing challenges with surgery cancellations impose pressure on the healthcare system, necessitating systematic reforms to enhance efficiency, resource allocation, and patient care. Consequently, this audit aimed to assess the extent of cancelled cases and identify the underlying causes for their cancellation in a tertiary care hospital. **Objective:** To assess the frequency of cancelled surgical cases and identify the contributing factors in a tertiary care hospital. **Methods:** This study was carried out from January 1, 2023, to December 31, 2023, over two sessions. During this timeframe, a comprehensive census was conducted of all cases on the operating theatre (OT) list. Data from both sessions were collected using a structured proforma and analysed with SPSS version 23. **Results:** 81 (11.80%) cancellations were recorded from the total cases on the OT list. The median age with the interquartile range was 27 (52.5) years. In the first cycle, 17 (43.6%) of the cancellations occurred due to medical reasons, 15 (38.5%) did not show up, 1 (2.6%) experienced a change in plan, and no case was cancelled due to equipment malfunction. In the second cycle, out of the cancelled cases, approximately 17 (40.5%) were due to medical reasons, 6 (14.3%) did not show up, 08 (19%) experienced a change in plan, and 2 (4.8%) was due to equipment failure, with a statistically significant difference noted between the reasons in the first and second cycles ( $p=0.01$ ). **Conclusion:** This study indicates that many of the factors contributing to the cancellation of surgeries are preventable, and adhering to guidelines can substantially decrease the number of cancelled cases.

**Keywords:** Cancellation Reasons Postponement, Eye Surgeries

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### Introduction

Cancelling a scheduled surgery on the day it is scheduled can be a challenging and disruptive experience for both the patient and the medical staff (1). Persistent challenges related to surgery cancellations put pressure on the healthcare system, highlighting the need for systematic reforms to enhance efficiency, resource allocation, and patient care (2,3). Ongoing issues with cancellations prompted us to review and modify policies, refine scheduling processes, and invest in improved management techniques (4). Tackling these challenges necessitates effective management approaches and clear communication to reduce disruptions and uphold quality care.

Therefore, the aim of this audit was to assess the extent of cancelled procedures and identify the underlying reasons for their cancellations. Without clear and established guidelines, we referenced findings from the study by Kumar R. and Gandhi R. on the reasons for cancellations on the day of planned surgeries in a 500-bed multidisciplinary hospital (5).

There is no documented evidence of a similar audit conducted in the region, making this study essential for providing local insights into the reasons behind cancellations of ophthalmic surgeries and for improving the quality of care in other facilities that may face similar challenges. The data obtained will aid in formulating strategies and recommendations to modify existing protocols to alleviate unnecessary stress on patients, healthcare staff, and administration.

### Methodology

This clinical audit occurred in the Ophthalmology Unit B at Ayub Teaching Hospital Abbottabad from January 1, 2023, to December 31, 2023, after obtaining approval from the Institutional Ethical Review Board. The audit was conducted in two sessions, each lasting six months.

During this timeframe, a comprehensive census of all cases on the operating theatre (OT) list was carried out. In the first session, the number of cancelled operations and the reasons for those cancellations were recorded weekly, including on public holidays, using the final OT lists sent to the operating theatres on the intended surgery date, which were then cross-checked with OT and ward registers. Cancellation on the day of surgery was defined as any operation scheduled on the final OT list (produced at 11:00 PM the previous night) or added later but did not occur that day. The reasons for cancellation analysed included patient absence (when the patient failed to show up for surgery for any reason), change in surgical plan (when the surgery was either replanned or deemed unnecessary during rounds), equipment failure (when equipment malfunctioned, including the absence of a vitreous cutter, intraocular lens, or sutures); and medical issues (such as the undiagnosed case of hypertension, non-compliant to antihypertensive medications or diabetes, chest infection, cough, low haemoglobin levels, or cardiac problems). In the first week of the second session, several meetings were held to establish guidelines based on the study by Kumar R et al., which served as a standard reference. Subsequently, strategies were formulated to minimize future cancellations based on the data collected from the first session. All data from both sessions were gathered using a structured proforma that included details such as the patient's name, age, gender, diagnosis, intended procedure, whether the operation was cancelled, and the reasons for cancellation. The data was analyzed using SPSS version 23, calculating frequencies and percentages for categorical variables and Mean $\pm$ SD for quantitative variables like age. The reasons for cancellation of operations between the first and second audit sessions were compared using the Chi-square test at a 5% significance level.



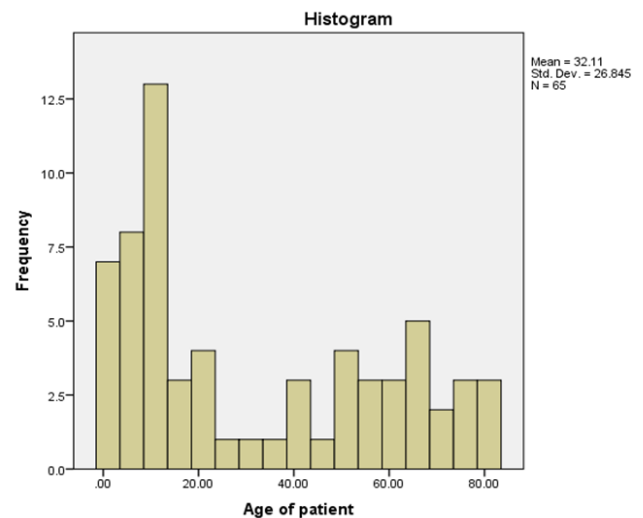
**Results**

The overall count of patients on the operating theatre (OT) list during both audit sessions totalled 686, with 81 (11.80%) cases being cancelled. The participants' ages did not follow a normal distribution, leading to a median age of 27 years, with an interquartile range of 52.5 years. A significant number of patients were from remote areas, totalling 55 (67.9%), while 26 (23.1%) were from Abbottabad and its surrounding vicinity.

First cycle of audit: There were 311 patients on the OT list, of which 39 (12.54%) cases were cancelled. Of these, 17 (43.6%) were due to medical issues, 15 (38.5%) did not show up, 1 (2.6%) had a change in plans, and no case was cancelled due to equipment malfunction.

Second cycle of audit: The total number of patients on the OT list was 375, with 40 (11.2%) cases cancelled. Among those cancelled, 17 (40.5%) were due to medical reasons, 6(14.3%) did not attend, 08 (19%) had changes in plans, and 2 (4.8%) were due to equipment failure.

A comparison of the reasons for cancellations between the first and second audit cycles revealed a statistically significant difference (p=0.01).



**Table No. 1: Comparison of reasons for cancellation of cases**

Reasons for cancellation	Category of Audit		Total	P value
	1 <sup>st</sup> cycle	2 <sup>nd</sup> cycle		
Medical	17(43.6 %)	17(40.5%)	34(42.0%)	0.01
Long OT Time	02(5.1%)	07(16.7%)	9(11.1%)	
The patient didn't Show up	15(38.5%)	6(14.3%)	21(25.9%)	
Patient not prepared	4(10.3%)	2(4.8%)	6(7.4%)	
Change in Plan	01(2.6%)	8(19%)	9(11.1%)	
Equipment failure	0(0.0%)	2(4.8%)	2(2.5%)	
Total	39(100.0%)	42(100.0%)	81(100.0%)	

**Discussion**

Surgery can be cancelled at the last moment in various hospitals across different departments worldwide for several reasons. Nonetheless, a low cancellation rate is essential for the effective operation of surgical services. Cancellations can adversely affect patients by deteriorating their condition, causing complications, increasing pain or discomfort, inducing stress and anxiety, leading to disappointment, creating uncertainty, necessitating rescheduling, resulting in financial impacts, affecting daily life, and impacting families as well.

Simultaneous surgery cancellations can also substantially affect the healthcare system, influencing multiple aspects of hospital operations and the broader health services landscape. These results include inefficient resource utilisation, heightened workloads, revenue loss, patient flow and access issues, and adverse effects on staff morale.

In this audit, the primary reason for last-minute surgery cancellations was medical issues, with uncontrolled hypertension being the most prevalent. A total of 17 patients (43.6%) fell into this category. Pai, Aruna et al. (4) reported an overall cancellation rate of approximately 2.65% over a three-year study. Among the patients whose surgeries were cancelled, 34.3% had systemic illnesses, marking it the leading cause for cancellations on the scheduled day—a survey by Bamashmus et al. (5).

Found similar results, with 234 cases (12%) being cancelled due to various reasons on the day of surgery, with poor control of systemic hypertension as the primary reason. This aligns with our audit's findings. Consequently, comprehensive preoperative evaluations and suitable referrals to internists should be conducted.

The second most frequent reason for surgery cancellations was the patient's absence on surgery day. Fifteen patients (38.5%) were categorised under this reason. The causes remain unclear as these patients neither returned to the hospital nor answered phone calls. Fernando et al. (6) conducted a related study where the no-show rate accounted for 11.4% of total cancellations on the day of surgery. A noteworthy study by Basson and colleagues (7) assessed predictors for patient nonappearance for

scheduled procedures and discovered that psychiatric or substance abuse issues were significant predictors of patient no-shows. However, this audit differs as preoperative psychiatric evaluations were not performed. Therefore, enhancing patient communication and encouraging compliance with scheduled procedures should be prioritised.

One cause for surgery cancellation in many studies was equipment failure. However, there was no such case at the start of our research. This included situations where surgical instruments were unavailable and operating room equipment malfunctioned. A study by Kumar R et al. 8 indicated that 4.1% of surgical procedures were cancelled due to equipment issues. Operating theatre staff should be encouraged to ensure surgical instruments' availability and inform maintenance staff in case of equipment malfunctions. Changes in the surgical plan represented a small fraction of 2.6% (1 patient). This was caused by junior doctors presenting a surgical plan without any consultation from a senior. This small percentage also aligned with the study's findings conducted by Kumar R et al. (8).

Following the first audit cycle, several recommendations were provided:

- To reduce the number of patients who left against medical advice, proper counselling should occur in outpatient departments before admission and during the patient's hospital stay; if a patient refuses, their name should not be included on the operating theatre list.
- For patients with established hypertension and diabetes, it was recommended that a proforma be created that includes a 6-hourly blood pressure record from the past week, HbA1c levels, and random blood sugar. Patients will not be admitted without this proforma showing expected results.
- A pre-anaesthesia assessment should evaluate patients' fitness for general anaesthesia and manage stress the day before surgery.
- There should be a clinical assessment for cough and anaemia.
- All postgraduate residents are directed to do orthoptical assessments for squint before admission, and it is further emphasised to document and sign everything properly. A record of counselling should even be in the files.

6. All staff members must manage registers to avoid long OT lists. The subsequent audit cycle was performed six months after the initial audit, revealing that 42 surgeries were cancelled during this period. The surgeries of 17 patients (40.5%) were postponed for medical reasons, indicating an improvement compared to the previous cycle, when systemic illnesses accounted for 43.6% of cancellations.

The percentage of patients who failed to arrive on the day of surgery also fell, decreasing from 38.5% to 14.3%. Additionally, only two patient (4.8%) had their surgery cancelled due to equipment failure.

However, there was a noteworthy rise in operation cancellations attributed to changes in the surgical plan, increasing from 1 to 23 patients (from 5.6% to 48.9%). This unexpected rise was due to newly appointed junior residents proposing unsuitable surgical plans without senior consultation, which resulted in the cancellation of surgeries on the intended day. In the previous cycle, cancellation due to this reason affected just one patient; therefore, the recommendations made after the first audit did not mandate that junior residents discuss every case with their senior fellows. This issue must be carefully examined, and steps should be taken to establish an appropriate chain of command to prevent recurrence in the future.

This audit faced limitations, such as a lack of generalizability since it was carried out in a single tertiary care hospital and variations in medical management protocols across different centres. Moreover, the long-term implications were not assessed in this audit.

### Conclusion

This study concludes that many reasons for surgery cancellations were preventable, and adherence to established guidelines can considerably decrease the number of last-minute cancellations. Such improvements will enhance the quality of healthcare delivery and significantly alleviate stress for patients and healthcare professionals by reducing the strain on the healthcare system.

### Declarations

#### Data Availability statement

All data generated or analysed during the study are included in the manuscript.

#### Ethics approval and consent to participate

Approved by the department concerned. (IRBEC-MMCAB-03-24)

#### Consent for publication

Approved

#### Funding

Not applicable

### Conflict of interest

The authors declared the absence of a conflict of interest.

### Author Contribution

**AZ, ZN,**

*Manuscript drafting, Study Design,*

*Review of Literature, Data entry,*

**WS, ZI**

*Data analysis and drafting article.*

**UA, ZAS, HSK**

*Conception of Study, Development of Research Methodology Design,*

*Study Design, manuscript review, critical input.*

*All authors reviewed the results and approved the final version of the manuscript. They are also accountable for the integrity of the study.*

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