



AN INVESTIGATION INTO THE FREQUENCY AND CAUSES OF LAST-MINUTE SURGICAL CANCELLATIONS

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ABSTRACT

Objective: This study aimed to investigate the frequency and causes of last-minute cancellations in scheduled surgeries. Key variables examined included operational plans, cancellation rates, patient demographics (age and gender), and the reasons for cancellations. **Methods:** Descriptive statistics were utilized to analyze data from 8,256 planned surgeries, of which 165 were cancelled. Data were processed using SPSS16 software. The reasons for cancellation were recorded and categorized accordingly. **Results:** A significant proportion (30.8%) of cancellations lacked documented reasons. The primary causes identified for surgery cancellations were high-risk underlying conditions (24.7%), patient non-compliance with medical instructions (12.8%), clinical changes in condition (9.11%), prolonged duration of previous surgeries (9%), patient dissatisfaction (7.1%), and insufficient Nil Per Os (NPO) time (7.7%). Non-cooperation from patients was highlighted as a major contributing factor to cancellations. **Conclusion:** Addressing patient non-compliance and cooperation is essential to minimizing surgery cancellations. Implementing targeted interventions could help reduce inefficiencies and the waste of healthcare resources in surgical settings.

Keywords: Surgical Operations, Patient Complaints, Surgical Procedures, Frequency, Financial Status.

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INTRODUCTION

Health care spending has escalated significantly, with approximately 50% of government expenditure currently allocated to hospital services [1]. This rise in costs highlights the need for hospitals to maximize their operational efficiency, particularly in operating rooms, to enhance both financial viability and service quality. Operational efficiency is a key determinant of hospital costs, and large hospitals often invest significant resources in managing their operating rooms effectively to attract skilled surgeons and support staff.

One of the main contributors to hospital inefficiency and resource waste is the last-minute cancellation of surgeries. Research conducted in

countries such as Hong Kong, Spain, Pakistan, India, and Australia reveals that surgery cancellation rates range from 4% to 16.6%. These cancellations often stem from factors such as prolonged previous surgeries, unavailability of operating rooms, patient no-shows, insufficient preparation, ICU bed shortages, and changes in the patient's clinical condition. In Iran, studies from hospitals in Uremia and Tehran show cancellation rates ranging from 10.9% to 18.6%, primarily due to high-risk underlying conditions, changes in surgical plans, and patient-related issues. Additionally, operations were frequently not scheduled during optimal work hours (morning slots), which further contributed to delays

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and cancellations.

The impact of surgery postponements is multifaceted. These cancellations increase costs for patients, health systems, and insurance providers, while simultaneously wasting valuable hospital bed capacity that could be used for patients requiring urgent care. Furthermore, patients may experience emotional distress and mental health issues due to delays in treatment. Extended fasting times, particularly for vulnerable groups like infants and elderly patients, also raise health concerns. The disruption caused by surgery cancellations leads to disorganized operating room schedules, wasted time, increased operational costs, and a higher risk of hospital-acquired infections. [5]

MATERIALS AND METHODS

166 cases (4%) were cancelled out of 8256 operations. Patients' files were analysed to extract all cancelled operations data. We investigated relevant studies around the world and performed primary categorization before designing the checklists. We then studied 25 profiles in order to develop the primary checklist. [6] At the beginning of the operation, 15

reasons for cancelling were listed in the checklist, and after the final merge, 6 reasons remained (Table 1). Five experts with relevant qualifications and at least one published paper on the subject were used to assess the validity of the questionnaire, as well as three professors of hospital administration, four members of the clinical governance hospital committee, and two staff members of the vice-rector of health at state universities. By independently entering 30 operations into the checklist simultaneously, two researchers tested reliability. The SPSS version 11.5, a statistical package, was used to extract and analyze the data (frequency, percent). A significance level of 0.05 was used for all tests. [7]

RESULTS

According to our study of patient files, the reason for cancellation hadn't been mentioned in 30.8% of cases.

Patient ages ranged from one month to 102 years for those whose operations were cancelled, with the average being 50.6. 67 patients were women (44%) and 96 were men (60%).

Table 1: Reason and percentage of cancellations of operations

Reasons of operations cancellation	Percent
High-risk underlying disease	24.7%
Patient's non-attendance	12.8%
Change in clinical status	9.11%
Lack of Operation Theater time	9%
Patient's dissatisfaction	7.1%
Patients' incomplete NPO time	7.7%

Table 2: Distribution of age and sex

Sex Age	Male		Female		Total
	Frequency	Percent	Frequency	Percent	
Under 20	34	63.55	22	40.48	56
21-50	60	58.33	47	45.70	105
51-80	63	59	48	45	111
Above 80	42	65.51	25	38.52	67
Total	199		142		339

DISCUSSION

High-risk underlying diseases accounted for 24.7% of all operations that were cancelled. Anesthesia-related reasons have been attributed to high-risk diseases in 68.9% of patients [8]. In addition to underlying diseases with a high level of risk, there are many reasons for canceling operations. If the physician schedules an operation without taking into account the patient's underlying illness or if the patient's condition prohibits the operation (13), this type of error will occur. [9] It is recommended that all patients whose surgery is recommended be evaluated for high-risk underlying

conditions in order to resolve this issue and minimize the frequency of cancelled operations. In addition to patient absence (10.6%), non-attendance is the second most frequent cause of cancellations. An estimated 24.7% of all cancelled operations were caused by high-risk underlying diseases. Sixty-eight percent of patients (12) had anesthesia-related reasons due to high-risk diseases. Many reasons can lead to a cancellation of an operation, in addition to underlying diseases that carry a high level of risk. Several types of errors can occur, including scheduling an operation without considering the patient's underlying illness or a condition that prevents the

operation [10]. This may explain the difference. Nurses should explain to patients all the complications that may arise from the cancellation of an operation. Studies conducted in Spain, Australia, (1, 4, 10), have found that the change of clinical status is a major factor in cancellations. The third most frequent reason (7.9%) in our study was this inevitable issue. Operation theater time is the fourth most common reason for cancellations (7%). [11] There have been similar findings reported in Yazd, Tehran, China, Spain, Australia and India (1, 4, 7, 10-12). All conducted studies consider the above-mentioned reason as one of the major causes of cancellation. When a surgeon's skill, speed, or type of surgery causes a high number of surgeries to be listed on the operating room waiting list, it may be caused by the type of surgery, the number of surgeries on the waiting list and the number of surgeries on the operating room waiting list. Teaching hospitals are often involved in operations as well as training assistants, which results in the operation being prolonged. [12] There is no precise way to predict the duration of operations. During operations, the surgical team may face problems due to the unpredictable nature of certain operations or the unpredictable nature of certain operations. Calculating the average duration of each operation allows us to avoid time shortages for other operations waiting in line. [13] A relatively high frequency (5.8%) of surgery cancellation was caused by patient dissatisfaction in the present study. It is important to note that this factor has not been discussed in other studies, possibly because it merges with similar factors such as non-attendance by patients.

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Nurses can reduce cancellation frequency by providing complete information about the operation, its conditions, and necessity, and informing the patient of the right to accept or reject the operation. [14] Unpreparedness among patients and incomplete Nil Per Os (NPO) time are other important causes of cancellations (5.5%). There are no other studies that mention this reason. As the present study investigated only one hospital specialty, this difference may be due to this. It will be possible to drastically reduce the number of cancellations of operations if the doctors pay attention to and remind their patients to do so. [15] Other than the above reasons for cancellation of operations, technical faults and equipment failures also account for 4.6%. In order to prevent these problems, the hospital's departments and paraclinical units need to be coordinated, the hospital and surgeons need to work together, and a list of the necessary documents for patients need to be provided and checked.

CONCLUSIONS

The findings of the current research suggest that a significant portion of cancellations can be avoided. By ensuring the availability of necessary equipment, minimizing technical issues, timely maintenance and calibration of medical equipment, enhancing collaboration between Para-clinical units and operating rooms, improving communication among physicians, patients, and nurses, and accurately documenting the reasons for cancellations by operating room staff, it is possible to decrease the number of cancellations and enhance the effectiveness of hospital operating rooms.

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