*Original Research Article*

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# Cancellation of Elective Cases on the Day of Intended Surgery in a Tertiary Care Paediatric Hospital: Is it a Concern?

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**Abstract**

*Background:* Cancellation of elective cases, which may be due to patient factors, administrative and surgeon related factors is an immense burden for all healthcare services economically and also in terms of inconvenience caused to both patients and their families, wastage of resource and loss of income and time to the patient and family members. *Materials and Methods:* Medical records of all the patients was collected from Indira Gandhi Institute of Child health, a tertiary care paediatric hospital in Bengaluru, India from Janaury 2016 to December 2017, who had their operations cancelled on the day of surgery in all surgical departments retrospectively. Number of cases cancelled and the reason for cancellation were noted and analysed. *Results:* 5,375 elective surgeries were performed of which 749 cases were cancelled on the day of surgery. The most common category for cancellation was time constraint or due to lack of OT time which accounted for 217 ( 28.97%) cancelled cases. Highest number of elective cases as well as cancelled cases were in the surgery department. This was followed by posting of emergency cases (n = 163 or 21.76 %), unexpected sudden infections like URTI, LRTI in children (n = 104 or 13.88 %). 76 cases were cancelled due to lack of instruments or other equipments which accounts to 10.14% of elective cancellations. Most common reason for cancellation of orthopaedic surgeries was due to non-availability of implants. Most common reason for cancellation of ENT surgeries were due to chest infections. *Conclusion:* This study shows that the most of the causes for cancellation of operation are avoidable, with careful planning.

**Keywords:** Cancellation; Elective Cases; Avoidable.

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## Introduction

Cancellation of surgery is a burden for healthcare services, parents and the children in terms of wastage of resources, extended hospital stay and inconvenience to families [1].

A signicant efforts will be put by the staff working in the hospital to prepare the patient and the OT unit for the surgical procedure. This includes the casesheet written by the surgical residents, pre operative evaluations by the anesthetist, OT staff ensuring the correct surgical instruments are available, ward staff preparing the ward for the patient, secretarial staff preparing theatre lists, the patient preparing self for admission to hospital, and preparations for postoperative care and wastage of ICU beds reserved for elective cases [2].

Apart from this, child would be nil per oral for long hours which leads to irritability and anxiousness

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among children as well as parents. Cancellation on the day of surgery also causes financial burden to the parents because of extended duration of hospital stay, repetitions of pre-operative preparations, loss of income [3].

The incidence of cancellation in different hospitals ranges from 10% to 40%. The reasons for cancellation differ from hospital to hospital [4].

The reasons can be divided in to patient related factors (Not giving consent, discharge against medical advice, infections, abnormal investigations), administrative factors ( lack of equipments, lack of OR time) and surgeon related factors (change of plan, lack of time). They are traditionaly divided into avoidable and unavoidable causes. Most of the reasons are avoidable [4].

The objective of the study is to analyse the reason for cancellation of elective cases on the day of surgery in a 350 bedded paediatric hospital so that we can minimize the cancellations and also effective utilization ofthe resources.

## Materials and Methods

Indira Gandhi institute of child health is a 350 bedded tertiary care teaching hospital. The operation theatre has 5 modular rooms distributed among different specialities like paediatric surgery, paediatric urology, paediatric orthopedics, paediatric ENT, paediatric ophthalmology, paediatric plastic surgery, paediatric gastroenterology. Each speciality was allotted a OT room on particular days of the week. There was no separate OT reserved for emergency and elective cases.

The typical start time for elective surgery is set at 9:00am. Cancellation on the day of elective surgery is defined as any elective surgery that was either posted in the final OT list for that day or was subsequently added to the list but surgery was not done.

Retrospective data was collected from the register from jan 2016 to 2017 december (2 years). For the purpose of study the following data were collected: number of elective cases posted, number of emergency cases, number of cases cancelled and reason for cancellation of cases. The reasons for cancellation can be divided into following headings:

1. Administrative factors,
2. Patient related factors,
3. Surgeon related factors.

They were further divided into avoidable causes and unavoidable causes. Avoidable cancellations are defined as those cancellations that can be avoided with proper planning and preparation before the day of surgery.

*Causes of cancellation were divided into three categories*

1. Patient related factors which included "no show," patient's refusal to sign consent, infection, need for further optimization, further investigation, abnormal tests, not following fasting guidelines .
2. Administration related factors including lack of OR time, no elective or ICU beds, unavailability of equipment, implants, or staff administrative errors such as incorrect booking, posting of emergency cases.
3. Surgeon related factors including lack of time, Surgeon not available, change of plan or procedure.

We calculated the total number of elective cases posted, total number of emergency cases, total number of cancelled cases. We calculated the percentage in each group to know the most common reason for cancellation.

## Results

During the study period, 5,375 elective surgeries were performed of which 749 cases were cancelled on the day of surgery. The most common category for cancellation was time constraint or due to lack of OT time which accounted for 217 cancelled cases (or 28.97 % of all elective surgical cancellations). This was followed by posting of emergency cases (n = 163 or 21.76 %), unexpected sudden infections like URTI, LRTI in children (n = 104 or 13.88 %). 76 cases were cancelled due to lack of instruments or other equipments which accounts to 10.14% of elective cancellations; patients not turning up resulted in 55 cancellations (7.34%); patients not following fasting guidelines resulted in 38 cancellations (5.07%); child not fit due to abnormal investigations or comorbidities not stabilized resulted in 32 cancellations (4.27%); parents not giving consent and going DAMA resulted in 19 (2.53%) and 17 (2.26%) cancellations respectively. 12 (1.6%) cases were cancelled by surgeons due to sudden change in plan or procedure and 6 (0.801%) cases were cancelled due to patient settling with conservative management. 9 (1.2%) cases were cancelled as the surgeons were not available (Table 1, 2).

**Table 1:** Reason for cancellation

| **Administrative problems** | **N=254 (33.9%)** |
|---|---|
| Lack of equipment | n=76 (10.14%) |
| Addition of emergency cases | n=163 (21.76%) |
| Anaesthetist dint come | n=1 (0.13%) |
| **Patient related** | **n=265 (35.39%)** |
| Infections | n=104 (13.88%) |
| Patients not turning up | n=55 (7.34%) |
| Not following fasting instructions | n=38 (5.07%) |
| Comorbidities /investigations abnormal | n=32(4.27%) |
| Consent not given | n=19 (2.53%) |
| Discharge against medical advice | n=17 (2.26%) |
| **Surgeon related** | **n= 230 (30.707%)** |
| Time constraint | n=203 (28.97%) |
| Change of plan /procedure | n=12(1.6%) |
| Surgeon not free | n=9(1.2%) |
| Patient managed conservatively | n=6(0.8%) |

**Table 2:** Speciality wise distribution of cases (Scheduled and cancelled)

| | **No. of cases cancelled** | **No. of cases posted** |
|---|---|---|
| Total | 749 | 6180 |
| Paediatric surgery | 585 | 4938 |
| Paediatric orthopaedics | 127 | 728 |
| Paediatric ENT | 34 | 480 |
| Paediatric plastic surgery | 1 | 30 |
| Paediatric Dental | 1 | 4 |

## Discussion

Cancellations on the day of surgery is a world wide problem with reported incidences ranging from less than 1% to 23% [5,6]. The percentage of cancellations on the day of surgery at our hospital was found to be 13.9% which is with in the range of worldwide incidences. It is recommended that the Cancellation rate should be less than 5 % so that there will be less wastage of resources, burden to children, parents and the staff working in the hospital [7]. However, DOS cancellations of less than 2 % have been reported in some hospitals which is ideal [8] .

A good surgical service should have a low rate of cancellation of operations. If elective cases are cancelled on the day of surgery, OTs will be underutilized; efficiency is hampered, waiting list of elective surgeries increases unnecessarily, and cost rises to the parents and hospitals [9]. If resources are not properly utilized, the general population suffers, especially the lower income groups who are dependent on government services for their healthcare needs. The cost of facility and equipment which is not utilized properly adds to the cost of its services, which is ultimately passed on to patients and hospitals. Avoiding cancellation is a very important step to reduce these problems [9].

The most common reason for cancellation was time constraint or due to lack of OT time which amounted to 28.97% of all elective surgical cancellations. A lot of OT time is wasted due to late start, time between cases, preparation and cleaning the OTs, and delayed transportation of patients to OT. Avoidance of late starts can be accomplished by cooperation between anaesthesiologists and surgeons. Unplanned lenthy OT list prepared by surgeons, in the anticipation of unexpected cancellations. Unexpected surgical complications or anaesthetic complications like delayed recovery, bronchspasm can prolong the duration of one case thus leading to cancellation of the other cases.The time taken for surgery also depends on the skill of operating surgeon. Less experienced surgeons and trainees take more time than the expected.

The second most common cause for cancellation was addition of emergency cases which contributed to 21.76%. Since our institute is paediatric tertiary care centre with huge patient load, addition of emergency cases with huge elective OT list leads to cancellation of few elective cases. This problem can be solved by properly planned OT list leaving some time for emergency cases or addition of extra OT room with manpower which is reserved for emergency cases.

The third most common cause was unexpected sudden infections like URTI, LRTI in children which contributed to 13.88%. Children are more prone for URTI and LRTI especially in the hospital where cross infections are common. All the patients were evaluated one day before surgery by anaesthesiologists and those who require medical optimization are referred to paediatrician but surgeons schedule their patients for surgery immediately after paediatrician opinion without optimizing the condition of the child. Child who was normal during admission can suddenly develop infection on the day of surgery leading to cancellation. This can be avoided by proper hygiene and advice to the parents and establishing a formal liaison with paediatricians.

The next common cause was lack of instruments or equipments needed for surgery (10.14%). This reason was more common in orthopaedic surgeries due to lack of implants. Also in surgical cases when the equipments were not made ready for the surgery due to lack of communication between the doctors and nurses. This issue can be prevented by properly arranging the instruments and equipments needed for surgery and good communication between doctors, nurses and anaesthesiologists.

Patients not turning up on the day of surgery lead to 7.34% cancellations. Patients not following fasting guidelines resulted in 5.07% cancellations. In our hospital we ask the parents to give plain milk 4 to 5 hours before surgery in case of smaller children and 8 hours of fasting in older children for solids. Inspite of advising strictly on the fasting guidelines, parents or other attenders tend to give some food or milk to the child to pacify a crying child, violating the guidelines resulting in cancellations. This can be prevented by having one attendor who is constantly with the child, in case of emergency they should give other person strict instructions about not feeding the child with anything before allowing them to take care. Having NPO boards on the patient's bedside.

Child not fit due to abnormal investigations or comorbidities, not stabilized resulted in 4.27%. These issues can be addressed by having preanaesthetic evaluation done few days prior to the surgery, investigations done 1 day prior to the surgery and any comorbid conditions should be properly evaluated by taking prior opinion from the respective specialists.

Parents not giving consent and going DAMA resulted in 19 (2.53%) and 17 (2.26%) cancellations respectively.

It may be due to the parent's last minute doubts and fears. This problem is difficult to resolve but may be improved by better communication between the parents and the doctors and a counsellor could be employed to allay the anxiety of the parents. 12 (1.6%) cases were cancelled by surgeons due to sudden change in plan or procedure and 6 (0.801%) cases were cancelled due to patient settling with conservative management. These are unavoidable situations. 9 (1.2%) cases were cancelled as the surgeons were not available.

Most common reason for cancellation of orthopaedic surgeries was due to non availability of implants. This can be prevented by posting the case after arrangement of implants. Reason for cancellation of ENT surgeries was because of chest infections. These cancellations could be avoided by proper evaluation of the child prior to scheduling of case.

Absence of separate facilities for day-care surgery was another contributing factor to cancellation of elective operations because same OT was used for both in- and out-patient surgery [9]. Shortage of beds due to mass casualties and addition of emergency surgeries during elective list resulted in cancellation of a number of operations [9]. Although in our hospital emergency OT works 24 hrs a day, permitting uninterrupted elective operations, sometimes, the senior surgeon is called for help in emergency OT thereby delaying or wasting routine OT time leading to postponement of elective case [9].

## Conclusion

This study shows that, most of the causes for cancellation of elective cases on the day of surgery are avoidable, with careful planning. We should keep in mind the local constraints in human and material resources before scheduling of cases. The necessary instruments / drugs / other equipments which are required for scheduled surgery must be discussed among surgeons, nursing staff and anaesthesiologist one day prior to the planned OT list.

The medical causes for cancellation can be avoided by establishing a formal liason with paediatrician and by improving the communication between patients and doctors. Day care patients must be counselled properly about fasting guidelines and the importance of reporting on time. All the patients meeting the adequate post anaesthesia discharge criteria must be promptly discharged to prevent delay in shifting out of patients.

Such a study must be frequently carried out at regular intervals in every hospital to find out the effective functioning of the operation theatre and also

to provide appropriate solutions to all the problems which are addressed so that the efficiency of the whole team involved in surgical theatres increases.

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