

Full Length Research Paper

Causes of cancellation of elective surgical operations at a University Teaching Hospital

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Abstract

Cancellation of elective surgery is a significant problem in many hospitals in that it may lead to dissatisfaction of patients, increased costs and prolonged patient stay in hospital. It also reflects inefficiency in the management of the operating theatre. This study was conducted to determine the rate and causes of cancellation of elective surgical procedures at the University of Port Harcourt Teaching Hospital and the aim was to suggest changes that can reduce such cancellations. Patients scheduled for elective surgeries from February 2011 through July 2011 were prospectively enrolled in this audit. Data were collected for operations not carried out on the scheduled dates. Information collected included patients' age, gender, surgical diagnosis, surgical procedure proposed, surgical specialty as well as the reasons for cancellation. Data collected were analyzed using descriptive statistics. Two hundred and eighty four (28%) of the 1015 elective surgical procedures were cancelled for various reasons. The two most frequent reasons for cancellation were insufficient theatre time (24.30%) and failure of booked patients to show up on the day of surgery (21.13%). Other important reasons for cancellation were: uncontrolled medical illness, abnormal laboratory investigation results and failure of patients to pay for surgery. The cancellation rate for elective surgical operations in this study was very high. Insufficient theatre time and failure of booked patients to show up on the day of surgery were the most frequent reasons found. These and the other causes should be addressed to avoid most cancellations of elective surgical operations.

Keywords: Elective, surgery, cancellation, teaching, hospital.

INTRODUCTION

An elective surgical procedure is said to be cancelled when a patient's name has appeared on the list for surgical operations but the operation was not done on the scheduled date. A cancellation rate of 23.15% for elective surgical operations has been found in a study at a teaching hospital in Nigeria (Kolawole and Bolaji, 2002). The reported rate of cancellation of elective surgery in other hospitals has ranged from 11.9 to 34% (Schofield et al., 2005; Pandit and Carey, 2006). Planned surgical operations that are cancelled reflect inefficiency in management, (Vinukondaiah et al., 2000). It increases the patients stay in the hospital with associated inconvenience and leads to waste of time for the surgeon

and other support staff as well as underutilization of operating theatre (Tait et al., 1997). It also causes emotional trauma to the patients as well as their families (Miller, 2004).

This study was conducted to determine the rate and causes of cancellation of elective surgical operations at the University of Port Harcourt Teaching Hospital. The aim was to suggest improvements that could reduce the rate of such cancellations and lead to a more efficient use of the operating theatres.

MATERIALS AND METHODS

This prospective observational study was conducted at the University of Port Harcourt Teaching Hospital after institutional research ethics committee approval. All patients scheduled for elective surgery in the operating

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Table 1. Reasons for cancellation of booked surgical cases

Reasons for cancellation	Number cancelled	Percentage
1 Insufficient theatre time	69	24.30
2 Patient did not show up	60	21.13
3 Uncontrolled medical disease	31	10.92
4 Abnormal laboratory test results	31	10.92
5 Patient has not paid	24	8.45
6 Surgeon's decision	24	8.45
7 Miscellaneous	19	6.69
8 No consent by patient	15	5.28
9 Needed blood not available	11	3.87
Total	284	100

rooms of the hospital from February to July 2011 were enrolled in the study. *'The hospital has three operating theatres. These are: The main operating theatre, the minor operating theatre and the obstetrics operating theatre. There are six operating rooms in the main operating theatre. One of these operating rooms is reserved for emergency operations, one is for gynaecological operations and two of them are for orthopaedic operations. The remaining two are shared between neurosurgery, cardiothoracic surgical unit, general surgery, paediatric surgery and urological surgery. The minor operating theatre has two operating rooms. One of the rooms is shared by maxillofacial surgical unit and the ear nose and throat surgical specialty, while the other one is used solely for ophthalmic surgery. Each of the surgical specialties using the theatres are usually required to submit a list of their elective surgical patients to the theatre before noon at least one day prior to the intended date of the surgical operation. This would enable the anaesthetist to visit the patients after their names have appeared on the operating room lists and evaluate their fitness for anaesthesia and surgery, at least one day prior to the date of the surgery. Most of the patients are admitted in the surgical wards many days before surgery to facilitate their preoperative preparation while a smaller number are admitted in the ward in the morning of the day of surgery. This latter group of patients usually complete their laboratory investigations on out-patient basis but are evaluated in the surgical wards and certified fit by the anaesthetist before they are wheeled to the operating theatre. Elective surgical operations are expected to commence by about 8.00 hours and end by about 16.00hours each day. However, the commencement of the operation lists is often delayed for various reasons. Also the interval of time between the end of one surgical procedure and the commencement of the next one is often prolonged.'* Cancellation was defined as the patient's name being on the published operating room list but the patient did not undergo surgery on the scheduled day.

Patients undergoing elective caesarean sections and

emergency surgical procedures were excluded from the study. A data collection form was designed for the study. Information collected with this data form included patients age, gender, surgical diagnosis, surgical procedure proposed, surgical specialty as well as the reasons for cancellation. The number of the booked cases at all the operating rooms except the ones used for emergency and obstetrics operations was also noted.

The authors were in the operating theatres each working day to note cancelled surgical procedures and entered these in the data collection form. Data collected were collated and analyzed using descriptive statistics.

RESULTS

A total of 1015 patients were scheduled for elective surgery during the study period while 284 (28%) of the patients had their surgery cancelled for various reasons. Reasons for cancellation are summarized in (table 1). The two most frequent reasons for cancellation were insufficient theatre time (24.30%) and booked patients not showing up on the day of surgery(21.13%). Miscellaneous (6.69%) causes of cancellation in this audit included patient not fasted, patient menstruating, or non availability of sterile surgical instrument pack. General surgery had the highest number (352) of booked cases and also the highest number, 103 (36.27%) of cancelled cases (table 2). However, paediatric surgery with the 4th largest number (92) of booked cases had the highest (44.57%) cancellation rate (table 3). The most common reason for cancellation of elective paediatric surgical cases, was insufficient theatre time (table 4) while for orthopaedic surgery it was failure of patients to show up for booked surgery (table 5).

DISCUSSION

This study showed that about 28% of elective surgical cases were cancelled. The most frequent reason for cancellation of these elective surgical cases was insuf-

Table 2. Specialty distribution of cases booked and cases cancelled

Specialty	Number booked	Number cancelled	Percentage of total cancellation (%)
General surgery	352	103	36.27
Gynaecological surgery	216	46	16.20
Orthopaedic surgery	116	45	15.85
Paediatric surgery	92	41	14.44
Plastic surgery	54	20	7.04
Neurosurgery	24	8	2.82
ENT surgery	20	7	2.46
Ophthalmology	62	5	1.76
Maxillofacial	28	4	1.40
Urology	44	3	1.06
Cardiothoracic	7	2	0.70
Total	1015	284	100

Table 3. Cases cancelled as a percentage of booked cases

Specialty	Number booked	Number cancelled	Cancellation rate (%)
Paediatric surgery	92	41	44.57
Orthopaedic surgery	116	45	38.79
Plastic surgery	54	20	37.04
ENT surgery	20	7	35.00
Neurosurgery	24	8	33.33
General surgery	352	103	29.26
Cardiothoracic	7	2	28.57
Gynaecological surgery	216	46	21.30
Maxillofacial	28	4	14.29
Ophthalmology	62	5	8.06
Urology	44	3	6.82

Table 4. Reasons for cancellation of paediatric elective surgical cases

Reasons for cancellation	Number cancelled	Percentage of total
Insufficient theatre time	23	56.09
Patient did not show up	8	19.51
Abnormal Laboratory investigation result	5	12.20
Respiratory tract infection	4	9.76
Failed intubation	1	2.43
Total	41	100

ficient theatre time. This was in conformity with some previous studies, (Kolawole and Bolaji, 2002; Schofield et al., 2005; Pandit and Carey, 2006; Zafar et al., 2007; Garg et al., 2009). Other studies have found upper respiratory tract infection in children (Tait et al., 1997; Bathla et al., 2010), non-availability of patient recovery bed (Jonnalagadda et al, 2005; Robb et al, 2004), and patient not showing up (El-Dawlatly et al., 2008), as the most common reasons for cancellation of elective surgery. It has been observed in a study that cancellations due to insufficient theatre time were mainly

caused by surgeons underestimating the time needed to do all the elective surgical procedures on their list for the day (Garg et al., 2009). Not starting the surgical operations early enough in the day can also be a contributory factor (Truong et al., 1996). Also prolongation of the intervals between the surgical procedures may contribute to inability to operate on all of the patients listed for surgery on any particular day. Commencing the operation list early and shortening the interval between surgical procedures on a particular operating day may be prevented by shortage of support

Table 5. Reasons for cancellation of elective orthopaedic surgical cases

Reasons for cancellation	Number cancelled	Percentage of total
Patient did not show up	15	33.33
Patient has not paid	12	26.67
Abnormal Laboratory investigation result	7	15.56
No consent from patient	5	11.11
Patient not fasting	4	8.89
No sterile orthopaedic instrument	2	4.44
Total	45	100

staff e.g. porters who convey patients to and from the operating theatres, cleaners who prepare the operating room floors in between surgical procedures, anaesthetic technicians, the quality of whose assistance to the anaesthetist can delay or hasten the induction of anaesthesia and the theatre nurse who by ensuring prompt availability of sterile surgical linens and instrument tray can make early commencement of surgery possible. Faulty or inadequate numbers of equipment (Garg et al., 2009), such as patients' trolleys, patient monitors, suction machines or laryngoscopes and sometimes the electrical lighting (Mypet, 2002), and air conditioning systems in the operating rooms may delay commencement of surgery. These challenges may be minimized if the administrators in individual hospitals respond promptly whenever the need for equipment replacement or repair arises.

Although general surgery had the highest number of booked cases (352), and the highest number of cancelled cases (103), the cancellation rate of 29.26% for this specialty occupied the 6th position. Paediatric surgery had the highest cancellation rate of 44.57%. The most frequent reason for cancellation of paediatric surgical cases was insufficient theatre time. This differs from the results of Tait et al. (1997) and Bathla et al. (2010) who found that respiratory tract infection was the most common reason for cancellation of elective surgery in paediatric patients. Assigning extra operating rooms or extra operating days each week to surgical units which regularly have long operation lists and high cancellation rates due to insufficient theatre time can minimize this problem. By using two operating rooms simultaneously, more work can be done by such surgical units on their operating days. Not only do surgeons sometimes underestimate the time needed to perform the surgical operations on their theatre lists, a retrospective analysis of 56,000 cases has found that 31% of surgical lists are predictably overbooked (Schofield et al., 2005). Surgeons generally add more patients to their theatre lists to reduce their waiting lists and in anticipation of unexpected cancellations (Garg et al., 2009). Overbooking of the surgical lists could be minimized where it is possible to assign extra operating days in a week to such surgical units.

Failure of patients to show up on the scheduled day

of surgery was the second most frequent reason for cancellation of elective surgery and the most frequent reason for cancellation of elective orthopaedic surgery in this audit. The study of EL-Dawlatly et al. (2008), found this to be the most frequent reason for cancellation of elective surgery. Reasons for patients not showing up may not always be known. Inability to raise the needed funds (Kolawole and Bolaji, 2002), last minute patient's doubts or fears or inadequate communication between the surgeon and the patient at the time of scheduling patients for surgery may contribute to this (Garg et al., 2009).

'Three patients scheduled for elective general surgery had their operations postponed because of their menstrual periods. This should no longer be accepted as a reason for cancellation of elective surgery (Kolawole and Bolaji, 2002).' Uncontrolled medical diseases such as hypertension and diabetes mellitus, and abnormal or incomplete laboratory investigation results were other important reasons for cancellation of elective surgery in this audit. These causes of cancellation can be avoided if only adequately prepared patients are listed for elective operation. Pre-anaesthetic assessment for most of the surgical patients in this audit was done on the day before surgery. Earlier pre-anaesthetic assessment of the surgical patient, at least three days prior to elective surgery can allow for more time to correct observed abnormal laboratory investigation results and to improve some uncontrolled medical conditions, and therefore reduce cancellations due to these factors (Farasatkish et al, 2009). This requires the establishment of outpatient pre-anaesthesia clinics which are common in most western countries (Anderson et al, 1993), but uncommon in developing ones. Pre-admission anaesthetic consultations at these clinics could not only improve efficiency of theatre use but also reduce the duration of hospital stay and hospital costs (Conway et al, 1992). Decisions to postpone surgery for twenty four (8.45%) of the patients in this audit were made by the surgeons. For some of the patients, the initial pathology necessitating surgery had improved and needed reassessment. For other cases the surgeon was either sick or too tired to do all of the surgical operations booked for the day. When the surgeon decides for any reason not to go ahead with a planned operation, this decision should if possible be

made early enough and promptly communicated to all staff involved with the surgical care of the patient.

CONCLUSION

Cancellation rate of 28% for elective surgery found in this audit was very high. Insufficient theatre time and failure of the patients to show up on the day scheduled for surgery were the most frequent reasons for cancellation of these elective surgical procedures. Appreciation of these and other important reasons for cancellation of elective surgery can improve operating theatre utilization by enabling administrators and providers to identify the main causes of cancellation in their respective hospitals so that additional attention can be paid to them. Case cancellation rate can be decreased by earlier preoperative patient evaluation and listing of only adequately prepared patients for elective surgery. Provision of adequate operating space for the surgical teams and improved communication between surgeons and the surgical patients can also reduce the rate of cancellation of elective surgical procedures.

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