



ORIGINAL RESEARCH PAPER

ENT

REASONS FOR CANCELLATION OF SURGERIES IN A NIGERIAN TERTIARY HOSPITAL

KEY WORDS:

Gabriel Toyé Olajide*	MBBS, FWACS, ENT Department, Federal Teaching Hospital Ido-Ekiti, Nigeria *Corresponding Author
Shuaib Kayode Aremu	MBBS, FWACS, ENT Department, Federal Teaching Hospital Ido-Ekiti, Nigeria
Timothy Adewale Olajide	MBBS, FWACS, Surgery Department, Federal Teaching Hospital Ido-Ekiti, Nigeria
Waheed Atilade Adegbiji	MBBS, FWACS, ENT Department, Ekiti State University Teaching Hospital, Ado Ekiti, Nigeria
Mohammed Mustapha Raji	MBBS, ENT Department, Federal Teaching Hospital Ido-Ekiti, Nigeria
Ahmad Ali	FMCORL, ENT Department, Federal Teaching Hospital, Gombe, Nigeria

ABSTRACT

Background/Aim: High rates of cancellation of surgical procedures are common in hospital settings which may subsequently lead to economic loss to hospital besides burden given to patients, their families and medical teams. The aim of this study is to determine the incidence and causes of cancellation of surgical operations in our centre and made suggestions to reduce it to the minimum level.

Materials and Methods: It is a prospective study carried out over a period of 18 months at Federal Teaching Hospital, Ido Ekiti between January, 2016 and June, 2017. All patients booked for emergency and elective surgical procedures were enrolled in the study. Data were retrieved from emergency/elective scheduled operating lists and operation theatre registers were entered into data sheet. The age, gender, diagnosis, proposed surgery and reasons for cancellation were documented. Data were analyzed using SPSS version 20.0.

Results: A total of 380 elective and planned emergency surgeries were booked during the study period. Cancellations occur in 97(25.5%) cases. There were 60 (61.9%) males and 37 (38.1%) females with a male: female ratio of 1.6:1. The highest category of cancellations was as a result of administrative related factors in 76.3% of cases and lack of essential theatre facilities was the commonest cause of cancellation.

Conclusion: From this study, lack of essential theatre facilities, which are preventable factors, are mainly responsible for cancellation of surgeries. A proper administrative structure with introduction of theatre manager, proper pre-operative assessment and preparation of patients, improvement in communication between medical teams and patients would reduce the rate of cancellation of booked surgical procedures.

INTRODUCTION:

Cancellation of surgeries refers to the practice whereby scheduled surgical procedures are not done on the intended day of surgery for various reasons¹. Cancellations and delays of surgical procedures are not uncommon occurrences throughout the world². The overall rate of cancellation of elective operations on the day of surgery varies significantly in the literature, ranging from 5% to 40% of planned elective operations³⁻⁹. Different reasons might have been accounted for cancellation of surgeries. Adobamen et al¹⁰ noted that a high rate of cancellation of surgeries is indicative of inadequate utilization of the operating room resources, prolongs the waiting list, depreciates the resources of fee-paying patients, waste manpower resources and impacts negatively on the overall health care delivery. Other effects of surgical cancellation are psychological, social and financial implications for patients and their families⁶. There could be economic loss to hospital, disappointment, frustration and loss of training opportunities. It is also stressful for patients and their families or relative to get permission once they missed the first granted to them^{6, 11-17}. Cancellation of emergency surgical cases on the other hand can lead to deterioration of patient's general condition, inconveniences to the patient and relatives, increase in patient expenses when such patients are referred to another center, and patient may eventually die. A variety of studies have examined the reasons for late cancellations. The aim of this study is to know the incidence and causes of cancellation of surgical operations in our centre, and this in turn will assist in formulating a policy and making appropriate recommendations for optimum utilization of manpower and resource which may eventually reduce the rate of such cancellations and lead to a more efficient use of the operating theatres.

MATERIALS AND METHODS:

This prospective study was carried out over a 18 months periods at Federal Teaching Hospital, Ido Ekiti between January, 2016 and June, 2017. The Federal Teaching Hospital Ido Ekiti is located in south west Nigeria. It serves as a referral centre for the people of Ekiti and its environs. This tertiary centre serves over two million populations of the state and 4 neighbouring states of Ondo, Osun, Kogi and Kwara. All patients that were booked for emergency and elective surgical operations were enrolled in the study. Data were retrieved from emergency/elective scheduled operating lists and operation theatre registers. Additional information was retrieved from patient's case notes. Those patients that were booked for surgeries were given appointment for admission into the hospital at least a day before their supposed surgical procedures. They were reviewed in the clinic for further opinion/evaluation and those deemed fit after assessment were admitted into the ward. The operation list usually prepared by the surgeons and dispatched by attendants before 2:00pm a day prior to the planned surgery and delivered to the operating theatre, anaesthetist, and to various wards where the patient was to be admitted. For emergency cases, usually the patient is booked directly in the theatre and anaesthetists were informed in written through a consultation. Patients are usually reviewed on the ward by the anesthesiologist a day to surgery. A data sheet was designed for the study. Information collected with this data sheet included patients age, gender, surgical diagnosis, surgical specialty, surgical procedure proposed, whether the procedure was emergency or elective, date of surgery, whether the case was cancelled, as well as reasons for cancellation. The interviewer were in the operating theatre each day in collaboration with operating team in order to collect information on cancelled surgical procedures and entered them

into the data sheet. Data were analyzed using SPSS version 20.0.

The permission to carry out this study was granted by the research and ethical committee of the hospital.

RESULTS:

A total of 380 elective and planned emergency surgeries were booked during the study period. Cancellations occur in 97 (25.5%) cases, out of which 90 (92.8%) were elective and 7 (7.2%) were emergency. There were 60(61.9%) males and 37(38.1%) females given a male to female ratio of 1.6:1 (Table 1). Their ages ranged from 2 days to 85 years with a mean age of 36.9 ± 25.7 SD. The highest cancellations occurred within the age group 31-45 years accounted for 75 (27.8%) followed by age 0-15 years in 22 (22.7%) patients (Figure 1). General surgery has the highest number of booked cases for operation (89) followed by orthopedics in (68) cases. The highest cancellation among different surgery subspecialties was for orthopedics accounted for 38.2%, followed by Burns and Plastic 34.9%. Table 2. Open reduction with internal fixation and sequestrectomy were the mostly cancelled cases by orthopaedic unit. We classify the reasons for cancellation of surgical cases in this study into patients related, surgeon's related, administrative related and anaesthetists related factors. The most common category for cancellations was administrative related/factors in 74 (76.3%) patients, followed by patient's factors in 19(19.5%). Others are surgeons and anaesthetist related factors which accounted for 2.1% each. The commonest reason on the day cancellations in our study was lack of essential theatre facilities 34.0%, followed in decreasing frequency by faulty equipment 21.6%, lack of power supply 16.5%, patient did not turn up 9.3%, uncontrolled medical diseases 5.1%, patient not fit (URTI) 3.0%. Others are shown in **Table 3**.

DISCUSSION:

Cancellations of surgical procedures are not uncommon occurrences throughout the world². Therefore the elective and to some extent the emergency surgical operations require a major organization effort between surgical team, theatre staff and hospital administration¹⁸. Repeated cancellations result in increased costs for hospitals, frustration and anxiety to the patients and their families^{4,6,7,19}. The overall cancellation incidence in our study was 25.5%, which was higher than the reported incidence in other studies^{2,15,16,20,21}, although the number of surgical cases in our study are fewer and the duration of the study is shorter than those previous studies. High cancellation rate represents poor planning strategies and sub-optimal utilization of facilities in a country with very poor health indices²². In our study cancellation cut across all the age group, but the age groups 31-35 years and by 0-15 years were mostly affected and accounted for 27.8% and 22.7% respectively. There was male preponderance in our study. Other studies also recorded male preponderance^{10,23}. We could not identify why there was male preponderance in this study. The commonest reason for cancellation on the day of surgery at our hospital was administrative related factors accounted for 74 (76.3%) of cases. Some of the factors identified were inadequate essential theatre facilities like gowns, linen, water supply, oxygen supply. Others were erratic power supply, faulty equipment, lack of anaesthetic drugs, inappropriate anaesthetic materials (endotracheal tube) and strike by health workers. Most administrative cancellations were due to poor communication and lack of coordination between different departments involved in the efficient functioning of the operating theatre. Poor maintenance culture may also contribute especially where faulty medical instruments and equipment's are not rectified early enough by biomedical engineers and technicians.

The approach to deal with the problem of cancellation as a result of administrative related factors especially where theatre essential facilities are lacking, is to put proper administrative measures/structures on ground by introducing the concept of theatre manager who will oversee the day to day running of the theatre. This should be backed up with policy formulation. The manager among other things will liaise with relevant departments/units and stake holders, will monitor the biomedical engineers for follow up repairs of faulty equipment, the central sterile services department (CSSD) to ensure regular supply of sterile instruments and linen,

the works department /plant house for regular power and water supply, the pharmacy department to supply correct drugs and other surgical material especially where operation pack system is been operated like in our centre. Visitations by works and maintenance department to various units to identify and service faulty equipment's before they break down are necessary. Ebirim et al²⁰ noted that such challenges may also be minimized if the administrators in individual hospitals respond promptly whenever the need for equipment replacement or repair arises. As to the striking health workers, surgeons should try to avoid preparing operation list when there is pending or imminent strike of any form by the union in the hospital. Also the management should respond promptly to the demand of health workers before it leads to disruption of services.

The second commonest reason for cancellations in our hospital was patient's factors and was reported in 19 (19.5%) of cases in this study. Reasons identified included failure of patient to turn up, patients not fit, uncontrolled medical diseases and abnormal laboratory results.

Likely cause of patients not turning up for surgery are poor communication gap, social and personal issues, financial constraint and belief towards and medical care, fear and anxiety in patient's condition or change of mind^{4,8,24}. One possible solution to this problem is to establish a good communication and information protocol. An elective patient should be seen a week and at least a day to surgery for review. Haana et al¹¹ suggested communication with the patients a day before the operation by telephone, text message(s) or e-mail in order to remind them regarding their appointment and confirm their willingness to attend¹¹. Patients should also be adequately counselled.

For patients with abnormal laboratory results, they should be adequately investigated and reviewed before been booked for surgery, this will prevent patient with deranged parameters from been booked and fit patients would have opportunity of having their surgeries done/ performed¹⁰. Dufek et al recommended improvement of protocol for preoperative patients' evaluation improving the timeliness response by physician¹⁷. The establishment of outpatient pre-anaesthesia clinic for pre-anaesthetic evaluation of the patients by anaesthetists which are common in most western countries but uncommon in developing ones has been suggested by various authors²⁵⁻²⁸. Our hospital does not have such a clinic, and many a times, patient are seen by anaesthetists for evaluation a day before surgery or in the morning of operation day. This problem can also be minimized by maintaining good communication between the anaesthetists and the surgeons²⁹. A similar situation is also recommended for patient not fit for surgery, where by the establishment of pre-assessment clinic may reduce the rate of cancellations. Although, Pollard et al³⁰ showed that early patient pre-assessment before operation, may not necessarily translate to reduction in the number of cancellation compared to pre-assessment 24 h before the operation because patients that had early pre-assessment may have their health status changed before the planned surgical procedures likewise a patient that had late pre-assessment done may have limited time to do necessary corrections before planned surgery. Therefore if a patient is deemed not fit to have the operation at a late pre-assessment clinic, there is no sufficient time to make the appropriate changes to the operative list, hence compromising the effectiveness of surgical service provision⁸.

The third reason for cancellation of surgery in our study was change in treatment plan by surgeons. Previous studies show significant number of operations, especially emergencies, was cancelled on the day of surgery because the intervention was not necessary^{11,31}. In our study 2 patients had their operation cancelled because of change in treatment plan by surgeons. One had change in diagnosis and the other have his condition improved. Usually due to long waiting lists, the condition requiring the operation might have improved or resolved and the operation is no longer necessary. Dimitriadis et al¹², noted operations been booked by junior staff or by a different consultant as reasons why intervention was not necessary for some of their patients. This can be resolved by better communication between the surgeons involved in the

care of the patient so that they can harmonize their treatment plan.

The fourth reason was related to anaesthetic factor in which failed intubation by anaesthetists was the reason for cancellation. In our study 2 patients had their operation cancelled because of failed intubation by anaesthetists. Possible explanations for this phenomenon can be that patient with trauma or lesion involving the mandible, oral cavity, cervical spine and short neck. Outpatient pre-anaesthesia clinic for pre-anaesthetic evaluation of the patients by anaesthetists will proffer solution and reduce the cancellation rate as earlier stated. Also there should be a good communication between the anaesthetists and Surgeons.

In other studies reasons identified for cancellation of surgeries were insufficient theatre time, overrun of previous surgery, over booking, unavailability of beds, patients not compliant with pre-operative instructions, emergency operation ^{2,3,10,12,19}.

There was no cancellation of surgery in this study as a result of non-availability/absent of surgeon. Ebirim et al¹⁹ in their study recorded that surgeon was sick or too tired to do all of the surgical operations booked for the day. Some social/environmental factors may be out of control of the surgeon or management especially for instances when there is unexpected/sudden crisis in the local community making the environment where the hospital is located unstable /unfavourable for it to function, in this situation already booked cases may have to be postponed.

CONCLUSION:

From this study, the overall cancellation incidence was 25.5%. Lacks of essential theatre facilities, which are preventable factors, were mainly responsible for cancellation of surgeries.

RECOMMENDATION:

1. A proper administrative structure with good policy formulation and introduction of theatre manager, proper pre-operative assessment and preparation of patients
2. Improvement in communication between medical teams and patients would reduce the rate of cancellation of booked surgical procedures.
3. Adequate counselling for the patients should be encouraged
4. Introduction of public, private, partnership (PPP) in some essential units will allow some essential theatre facilities readily available.
5. Implementation of universal health coverage will enhance access to health care

CONFLICT OF INTEREST: None

FINANCIAL SUPPORT: None

Table 1: Showing demographic characteristics

Category	Frequency	percentage
Gender		
Male	60	61.9
Female	37	38.1
Booked cases	N =380	
Performed	283	74.5
Cancelled	97	25.5
Type of surgery		
Elective	90	92.8
Emergency	7	7.2

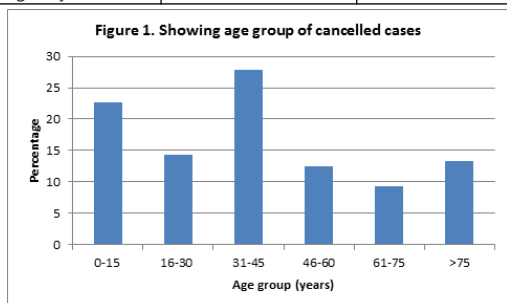


Table 2: Showing cases cancelled as a percentage of booked cases

Specialty	No of booked cases (n)	No of cases cancelled (n)	Percentage (%)
General surgery	89	20	22.5
Orthopedics	68	26	38.2
Pediatric Surgery	46	10	21.7
Burns & plastic	43	15	34.9
Urology	38	12	31.6
ENT	35	9	25.7
Obstetrics & Gynecology	41	3	7.3
Ophthalmology	14	1	7.1
Maxillo facial	6	1	16.6
Total	380	97	

Table 3. Reason for cancellation of surgical cases

Categories	Cancellation reasons	Frequency (n)	Percentage (%)
Hospital/ administrative factors	Lack of essential theater facilities E.g Inadequate Gowns/ linen, no water supply, no oxygen supply	33	34.0
	No electricity in the operating theater/ no diesel	16	16.5
	Faulty equipment e.g Autoclave machine, operating lamp etc...	21	21.6
	Non availability of appropriate size endotracheal tubes and Anaesthetic drugs	2	2.1
	Strike by health workers	2	2.1
	Subtotal	74	76.3
Patient's factors	Patient did not turn up	9	9.3
	Patient not fit (URTI)	3	3.0
	Abnormal laboratory results	2	2.1
	Uncontrolled medical diseases	5	5.1
	Subtotal	19	19.5
Surgical factors	Change in treatment plan	2	2.1
Anesthetists factors	Failed intubation	2	2.1
	Total	97	100.0

REFERENCES:

1. Lemos P, Regalado AM. Patient outcomes and clinical indicators for ambulatory surgery. In: Lemos P, Jarrett P, Phillip B. (eds). Day surgery Development and Practice. International Association for ambulatory surgery. 2006; pp. 257 – 80
2. Jonnalagadda R, Walrond ER, Hariharan S, Walrond M, Prasad C. Evaluation of thereasons for cancellations and delays of surgical procedures in a developing country. Int J Clin Pract. 2005;59(6):716-720
3. Karnalkar A, Karnalkar P. Causes of cancellation for elective orthopedic procedures on the day of surgery. International journal of Scientific Reports. 2015;1(5): 235-238
4. Kolawole IK, Bolaji BO. Reasons for cancellation of elective surgery in Ilorin. Niger. J Surg. Res. 2002; 4(1-2):28-33
5. Schofield WN, Rubin G, Piza M et al. Cancellation of operations on the day of intended surgery at a major Australian referred hospital. Medical J Australia.2005;182(12):612-5
6. Nasr A, Reichardt K, Fitzgerald K, et al. Impact of emergency admissions on elective surgical workload. Ir J Med Sci 2004;173(3): 133-135.
7. Zafar A, Mufti TS, Griffin S, Ahmed S, Ansari JA. Cancelled elective general surgical operations in Ayub teaching hospital. J Ayub Med Coll Abbottabad 2007;19(3):64e6.
8. Singh GC, Agha R, Roberts DR. Cancellations in day-case ENT surgery. AmbuSurg2005;12(2):57e60
9. Ojo E.O., Ihezue C.H. An Audit of Day Case Cancellations In A Nigerian Tertiary Hospital Based Day Case Unit East and Central AfricanJournal of Surgery 2008; 13 (2); 150-153
10. Adobamen PO, Imarengiaye C. Reasons for cancellation of ENT, Head and Neck surgeries in a Nigerian Teaching Hospital. Gomal Journal of Medical Sciences. 2012;10(2):190-193
11. Haana V, Sethuraman K, Stephens L, Rosen H, Meara JG. Case cancellations on the day of surgery: an investigation in an Australian paediatric hospital. ANZ JSurg 2009; 79(9):636e40
12. Dimitriadis PA, Iyer S, Evgeniou E. The challenge of cancellations on the day of

- surgery. *International Journal of Surgery*. 2013;11:1126-1130
13. Marriott J, Purdie H, Millen A, Beard J. The lost opportunities for surgical training in the NHS. *Ann R Coll Surg Engl* 2011;93(6):202e6.
 14. Tait AR, Voepel-Lewis T, Munroe HM et al. Cancellation of pediatric outpatient surgery: economic and emotional implications for patients and their families. *J Clin Anesth* 1997; 9: 213-9.
 15. Lacqua MJ, Evans JT. Cancelled elective surgery: an evaluation. *Am Surg* 1994; 11: 809-11.
 16. Venkataraman S, Sriram K. Cancelled elective surgery: study in Indian Corporate Hospital. *Indian J Surg* 1997; 59(12): 372-6.
 17. Dufek S, Gaucher E, Gialanella J. The total quality process applied to operating rooms and other clinical processes. *Surgery* 1993; 113: 255-9.
 18. Chalya PL, Gilyoma JM, Mabula JB, Simbila S, Ngayomela IH, Chandika AB, Mahalu W. Incidence, causes and pattern of cancellation of Elective surgical operations in a university Teaching Hospital in the Lake Zone, Tanzania. *African Health Sciences* 2011;11(3):438-443
 19. Miller GG. Waiting for an operation: parent's perspectives. *Can J Surg* 2004;47(3):167-169
 20. Ebirim LN, Bouwari DY, Ezike HA. Causes of cancellation of elective surgical operations at a University Teaching Hospital. *J. Med. Med.Sci.* 2012;3(5):297-301
 21. El-Dawlatly A, Turkistani A, Aldohayan A, Zubaidi A, Ahmed A. Reasons of cancellation of Elective Surgery in a teaching hospital. *The Internet Journal of Anesthesiology*. 2007;15(2):1-5
 22. Shehu U. The millennium development goal, women's health and HIV/AIDS. *Nig. Postgrad. Med J* 2008; 15(Suppl 1):2-6.
 23. Hampal S, Flood LM. Why patients fail to attend for ENT operations: a one year prospective audit. *Clin Otolaryngol.* 1991;17:218-22
 22. Basson WMD, Butler TW, Verma H. Predicting patient nonappearance for surgery as a scheduling strategy to optimize operating room utilization in a Veterans' administration hospital *Anesthesiology*.2006; 104(4) : 826-834
 23. Anderson RP, Guyton SW, Paul DL, Tidwell SL. Selection of patients for same-day coronary bypass operations. *J. Thorac. Cardiovasc. Surg.* 1993;105:444-451
 24. Jones AR, Sandison AJ, Owen WJ. The impact of pre-clerking clinics on surgical operation cancellations: a prospective audit. *Int J Clin Pract* 1997; 5: 294-5.
 25. Badner NH, Craen RA, Paul TL, Doyle JA. Anaesthesia preadmission assessment: a new approach through use of a screening questionnaire. *Can J Anaesth* 1998; 45: 87-92.
 26. Parker BM, Tetzlaff JE, Litaker DL, Maurer WG. Redefining the preoperative evaluation process and the role of the anesthesiologist. *J Clin Anesth* 2000; 12: 350-6.
 29. Shapiro JH. Raising eyebrows: problems that get anaesthesiologists attention. *Semin Pediatr Surg* 1999; 8:45-8
 30. Pollard JB, Olson L. Early outpatient preoperative anesthesia assessment: does it help to reduce operating room cancellations? *Anesth Analg* 1999;89(2):502-5.
 31. Rai M, Pandit J. Day of surgery cancellations after nurse-led pre-assessment in an elective surgical centre: the first 2 years. *Anaesthesia* 2003;58(7):692-9.