Factors Influencing Cancellation of Scheduled Elective Paediatric Operations in Benin City

[1]*Osifo OD;* [2]*Odion-Obomhense H*

Abstract:

Background: Cancellation of scheduled elective paediatric cases can be distressing to both parents/caregivers and surgeons. The negative impacts on utilization of operating theatre space and the additional cost of hospitalization have been stressed in many reports.

Aim: The aim of this study is to determine factors influencing the cancellation of schedule elective paediatric cases at the University of Benin Teaching Hospital.

Methods: A one-year (October 2012-September 2013) prospective study was undertaken. Records of all children on scheduled elective list, those cancelled and reasons for the cancellation were documented using a structured pro-forma. Data were entered into Microsoft Office Excel Spreadsheet 2007 and analyzed.

Results: Of a total 469 children booked for elective surgery during the period, 89 (18.9%) comprising 78 males and 11 females with a male/female ratio 7:1 had their operation cancelled. Groin hernias/hydrocele 38 (42.6%), hypospadias/post circumcision urethrocutaneous fistula 21 (23.5%), undescended testis 18 (20.2%) and colostomy closure 3 (3.4%) were the major indications for elective surgeries that were cancelled. Inability of parents/caregivers to pay operation fees in 62 (70%) cases was the major reason for cancellation. This was followed by sudden onset of intercurrent pathologies such as URTI in 8 (8.9%), malaria fever 6 (6.7%) and anaemia/non availability of blood 5 (5.6%) in children who were earlier certified fit. Ten (11.2%) children had their surgery at a later date; one was discharged against medical advice while four were lost to follow-up.

Conclusion: Financial constraint was the major factor influencing cancellation of elective operations. We advocate that NHIS should cover all citizens and government should provide free surgical treatment for indigent children.

Keywords: *Influencing factors, Cancellation, Schedule, Elective, Paediatric operations*

1. Paediatric Surgery Unit, Department of Surgery, University of Benin Teaching Hospital, Benin City, Nigeria.

Correspondence: *Osifo OD, Paediatric Surgery Unit, Department of Surgery, University of Benin Teaching Hospital, Benin City, Nigeria. E-mail: Leadekso@yahoo.com, Tel: 234-8033380188.*

Introduction:

An elective surgical procedure is said to be cancelled when a patient's name has appeared on the operation list but the operation could not be performed on the scheduled date and time due to unforeseen circumstances [1,2]. Cancellation of scheduled elective paediatric cases can be distressing to both parents/caregivers and surgeons [3]. The negative impacts on utilization of operating theatre space and the additional cost of

hospitalization have been stressed in many reports [1-4]. Cancellation of planned surgical operations reflects inefficiency in human, material and time management especially when the operation is cancelled on the day scheduled for the surgery[3,4].

The cost of healthcare delivery, particularly in Nigeria, is increasing as the financial resources of the patients dwindle due to global economic recession. It has been stressed in an earlier research that the physician who fails to take the economic consequences of his/her practice on patients into consideration does not protect the welfare of the patients [3]. Moreover, cancellation of scheduled elective paediatric operations is a cause of major inconveniences to parents/ caregivers and family members which results in their dissatisfaction with healthcare delivery services as well as a colossal waste of time for the surgeons [3,5-7]. There is, therefore, a very important need for healthcare providers to encourage effectiveness in every aspect of patients' care. Although the negative impacts of cancellation of schedule elective paediatric operations have been stressed in many reports, not many publications have drawn attention to the possible factors influencing it in this African subregion[3,5-7].

This study was conducted to determine the possible factors influencing cancellation of scheduled elective paediatric operations in a Nigerian centre so as to make recommendations to improve efficient healthcare delivery in the subregion.

Materials and Methods:

Study design: This one year prospective study was conducted at the University of Benin Teaching Hospital, Benin City, Nigeria between October 2012 and September 2013.

Inclussion: All children scheduled for elective surgery in the Paediatric Surgery Unit of the hospital were enrolled in the study after ethical approval was granted by Local Ethics Committee of the hospital.

Methods: The Paediatric Surgery Unit which has three elective operating theatre sessions per week (excluding circumcision sessions) was run by three Consultant Paediatric Surgeons and seven Residents Surgeons during the period. Elective operation lists were submitted to the theatre at least a day before the scheduled operation to enable the anaesthetists review and certify the children fit for anaesthesia. Work up for surgery included routine haematogram and blood chemistry and only those booked and certified fit were finally operated on. Also, the parents/ caregivers were asked to pay operation fees and present the invoice or evidence of National Health Insurance Scheme (NHIS) coverage at the theatre waiting room. Similarly, those without evidence of payment were not operated. The age, sex, indication for surgery and reasons for case cancellation were documented at the end of each operation session using a structured pro-forma.

Post booking follow up: The list of children scheduled for surgeries were subject to consultants' heading the unit approval. Thereafter, the parents/caregivers were asked to and given slips for payment for operation and addmission for those who are not enrolled with NHIS. The hospital policy was such that payment of these bills were not prerequisite for inclusion of children in elective operation list during the period. All the children on the list were reassessed three days before the scheduled operation for those booked for daycare and admission for those requiring in-hospital care.

Cancellation of surgery: Those who were unfit and/or unable to pay operation fees on the day of operation had their case cancelled at the close of the theatre session for the scheduled date. The parents/caregivers were then reassured, their children/wards were discharged on pass to

follow up in out patient's clinic and their cases were rescheduled whenever they were certify fit for surgery or the parents/caregivers were financially ready to pay the bills.

Data analysis: The data collated were entered into Microsoft Office Excel Spreadsheet 2007. They were analyzed as counts, frequency and percentages, and are presented in simple tables and figures.

Results

Of a total 469 children booked for elective surgery during the period, 89 (18.9%) comprising 78 males and 11 females with a male: female ratio 7:1 and a mean age 4 ± 2.5 years (range 15 days - 16 years) had their operation cancelled on the day of surgery. As shown in table 1, groin hernias and hydrocele 38 (42.6%), hypospadias repair and post circumcision urethrocutaneous fistula closure 21 (23.5%), undescended testis 18 (20.2%) and colostomy closure 3 (3.4%) were the major indications for elective surgeries among those that were cancelled.

Financial constraint was a major influencing factor of cancellation of scheduled elective paediatric operations during the period as shown in table 2. This occurred only among indigent families who had no NHIS coverage. Consequently, inability of parents/caregivers to pay operation fees in 62 (70%) cases was the major reason for case cancellation. This was followed by sudden onset of intercurrent pathologies such as acute upper respiratory tract infection (URTI) in 8 (8.9%), malaria fever in 6 (6.7%), and anaemia/non availability of blood in 5 (5.6%) children. Other non-patient related factors such as industrial action, bereavement of a family member and non-availability of required surgical facilities resulted in cancellation of three (3.3%) scheduled elective cases. Additional but uncommon contributory factors to scheduled elective cases cancellation during the period are as depicted in table 2.

However, the parents/caregivers of 10 (11.2%) children were able to raise the operation and hospitalization fees over the period of study and their children/wards subsequently had their surgeries at a later date. Children with URTI, malaria fever, anaemia and electrolyte derangement who responded to treatment were rescheduled and operated on subsequent lists. A child (1.1%) was discharged against medical advice on account of financial constraints while four (4.4%) children whose parents/caregiver could not afford operation fees were lost to follow-up. Of the 62 cases cancelled due to financial constraints, 47 (75.8%) of them are still being followed up in surgical outpatient clinic pending when their parents/caregivers are able to raise the treatment fees.

Table 1: Indication for operations that were cancelled

Indication	Number of children	percentage
Hernias/hydrocele	38	42.6
Hypospadias/urethrocutaneous fistula	21	23.5
Undescended testis	18	20.2
Colostomy closure	3	3.3
Pull through	2	2.2
Ventral hernia	1	1.1
Clitoral cyst	1	1.1
Thyroglossal duct cyst	1	1.1
Wilm's tumour	1	1.1
Others	3	3.3
Total	**89**	**100**

Table 2: Reason for scheduled elective paediatric cases cancellation

Indication	Number of children	percentage
Financial constraint	62	69.6
Respiratory tract infection	8	8.9
Malaria fever	6	6.9
Anaemia	4	4.4
Urea/electrolyte derangement	2	2.2
Elapsed operation time	2	2.2
Unavailable blood	1	1.1
Discharge against medical advice	1	1.1
Others	3	3.3
Total	**89**	**100**

Discussion

The associated psychological trauma and socioeconomic impacts of cancelling surgical cases on the day of surgery have been emphasized by many authors [1,3-5]. These are even more so in paediatric surgery where the children are dependent on adults and other family members who may have taken some days off work or school to attend to the child after operation. The high rate of scheduled paediatric surgical case cancellation on the day of surgery recorded in this study tallies with earlier reports from this African sub-region where a similarly high incidences were recorded [8,9]. This was found to be at variance with report [1] from western countries where the incidence recorded was quite low. Also in other similar studies [1,8,10,11], shortage of theatre space was a leading cause of elective case cancellation which was not encountered during this study period. Unavailability of theatre space was not recorded perhaps because the paediatric surgery unit in the study centre has three operating theatre spaces per week. In addition to the minor operation theatre devoted to circumcision and other minor procedures, they were found adequate for the paediatric surgical workload.

In none of the other earlier similar studies [1,2,8,9,13,14] was financial constraints recorded as a main cause of cancellation of scheduled surgeries. Financial constraint was observed to be a leading influencing factor to cancellation of scheduled elective paediatric operations during the period of this study. This was noticed to be a direct consequence of the fact that parents/ caregivers were made to pay for all elective surgeries and present the invoice at the theatre waiting room. Failure to do this resulted in their children/wards not being admitted to operating suites with the case subsequently cancelled if they are unable to pay before closure of the allotted theatre time. This financial constraint occurred only among indigent family who were not covered by NHIS. The NHIS was available only to a few government employees who were not asked to pay operation fees for their children/wards directly before admission into operating suites. Consequently, all cases of inability of parents/caregivers to pay operation fees which contributed 70% to cancellation of scheduled paediatric operations occurred among these indigent families with none recorded among government employees. Other authors [8,9,13] emphasized that payment for operation by none government employees before inclusion of their child's/ward's name in operation list will help to reduce cancellation of cases on the day of surgery. This is however seen as discriminatory against the poor in this setting and will only result in many discharges against medical advice and defaulters from clinic visit if payment before inclusion in the list is enforced. Hence the hospital policy during the period was that all children requiring elective surgery should be included in operation list while the parents/ caregivers are given payment slip and encouraged to pay the required operation bill.

Sudden onset of intercurrent pathologies such as URTI and acute febrile illness as well as non availability of surgeons for scheduled cases and non availability of blood for possible transfusion contributed mainly to case cancelation in earlier studies in other centres [2,8,9,15,16]. URTI and acute febrile illness similarly occurred suddenly on the day of surgery in children who were earlier certified fit for surgery during this study. The endemic malaria fever and adenoviral airway infection in this African subregion were mainly implicated. Reactive airways due to URTI and fever have been reported as major anaesthetic contraindications to general anaesthesia. The affected children in this series consequently had their surgery deferred to a later date when they had responded to antibiotics and antimalaria.

It is concluded from this study that financial constraints which was recorded exclusively

among indigent family who have no NHIS coverage was the leading influencing factor of cancellation of scheduled elective paediatric cases in Benin City. This was followed by URTI, malaria fever and anaemia in descending order. We advocate that NHIS be extended to cover every citizen irrespective of employment status and that free surgical services be made available to children whose parents/caregivers cannot afford the regular routine payment of insurance premium.

References

1. Bathla S, Mohta A, Gupta A, Kamal G. Cancellation of elective cases in pediatric surgery: An audit. J Indian Assoc Pediatr Surg 2010; 15: 90-92.
2. 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 J Surg 2009; 79: 636-640.
3. Tait AR, Voepel-Lewis T, Munro HM, Gutstein HB, Reynolds PI. **Cancellation of pediatric outpatient surgery: economic and emotional implications for patients and their families.** J Clin Anesth 1997; 9: 213-219.
4. Yoon SZ, Lee SI, Lee HW, Lim HJ, Yoon SM, Chang SH. **The effect of increasing operating room capacity on day-of-surgery cancellation.** Anaesth Intensive Care 2009; 37: 261-266.
5. Knox M, Myers E, Hurley M. **The impact of pre-operative assessment clinics on elective surgical case cancellations.** Surgeon 2009; 7:76-78.
6. Argo JL, Vick CC, Graham LA, Itani KM, Bishop MJ, Hawn MT. **Elective surgical case cancellation in the Veterans Health Administration system: identifying areas for improvement.** Am J Surg. 2009; 198: 600-606.
7. Schuster M, Neumann C, Neumann K, Braun J, Geldner G, Martin J et al. The effect of hospital size and surgical service on case cancellation in elective surgery: results from a prospective multicenter study. Anesth Analg 2011; 113: 578-585.
8. 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.** Afr Health Sci 2011; 11: 438-443.
9. Ezike H, Ajuzieogu V, Amucheazi A. **Reasons for elective surgery cancellation in a referral hospital.** Ann Med Health Sci Res 2011; 1:197-202.
10. Sultan N, Rashid A, Abbas SM. **Reasons for cancellation of elective cardiac surgery at Prince Sultan Cardiac Centre, Saudi Arabia.**J Saudi Heart Assoc 2012; 24: 29-34.
11. Gandhi R. **Reasons for cancellation of operation on the day of intended surgery in a multidisciplinary 500 bedded hospital.**J Anaesthesiol Clin Pharmacol 2012; 28: 66-69.
12. Pohlman GD, Staulcup SJ, Masterson RM, Vemulakonda VM. **Contributing factors for cancellations of outpatient pediatric urology procedures: single center experience.** J Urol 2012; 188: 1634-1638.
13. Chamisa I. **Why is surgery cancelled? A retrospective evaluation.** S Afr J Surg 2008; 46: 79-81.
14. Boudreau SA, Gibson MJ. **Surgical cancellations: a review of elective surgery cancellations in a tertiary care pediatric institution.** J Perianesth Nurs 2011; 26: 315-322.
15. Nasr A, Reichardt K, , Arumugusamy M, Keeling P, Walsh TN. **Impact of**

emergency admissions on elective surgical workload. Ir J Med Sci 2004; 173: 133-135.

16. Hussain AM, Khan FA. **Anaesthetic reasons for cancellation of elective surgical inpatients on the day of surgery in a teaching hospital.** J Pak Med Assoc 2005; 55: 374-8.

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