

# Reasons for Elective Surgery Cancellations in a Senegalese Pediatric Surgery Department

Cheikh Tidiane Mbaye<sup>1,2\*</sup>, Cheikh Diouf<sup>2</sup>, Florent Tshibwid A Zeng<sup>3</sup>, Faty Balla Lô<sup>4</sup>,  
Lissoune Cissé<sup>4</sup>, Doudou Gueye<sup>5</sup>, Ibrahima Bocar Wellé<sup>5</sup>, Souleymane Camara<sup>6</sup>,  
Papa Alassane Mbaye<sup>5</sup>, Oumar Ndour<sup>1</sup>, Gabriel Ngom<sup>5</sup>

<sup>1</sup>Department of Pediatric Surgery, Aristide Le Dantec University Teaching Hospital, Université Cheikh Anta Diop, Dakar, Senegal

<sup>2</sup>Department of Pediatric Surgery, Ziguinchor Regional Hospital Center, Université Cheikh Anta Diop, Ziguinchor, Senegal

<sup>3</sup>Department of Pediatric Surgery, El Hadj Ibrahima Niass Regional Hospital Center, Kaolack, Senegal

<sup>4</sup>Department of Pediatric Surgery, Pikine National Hospital Center, Dakar, Senegal

<sup>5</sup>Department of Pediatric Surgery, Albert Royer National Children's Hospital Center, Université Cheikh Anta Diop, Dakar, Senegal

<sup>6</sup>Unit of Pediatric Surgery, Department of Pediatrics, Dalal Jamm National Hospital Center, Dakar, Senegal

Email: \*mbayecheikhtig@hotmail.fr

**How to cite this paper:** Mbaye, C.T., Diouf, C., Zeng, F.T.A., Lô, F.B., Cissé, L., Gueye, D., Wellé, I.B., Camara, S., Mbaye, P.A., Ndour, O. and Ngom, G. (2024) Reasons for Elective Surgery Cancellations in a Senegalese Pediatric Surgery Department. *Open Journal of Pediatrics*, 14, 783-789.

<https://doi.org/10.4236/ojped.2024.145073>

**Received:** July 3, 2024

**Accepted:** August 18, 2024

**Published:** August 21, 2024

Copyright © 2024 by author(s) and Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

**Introduction:** Cancellation of elective surgery is common in developing countries. This decision is difficult to make as it generates economic and organizational consequences for the healthcare facility and an additional source of stress for patients and their caregivers. This study aimed to analyze the various aspects of this medical problem. **Patients and Methods:** We conducted a prospective and descriptive study over six months (from January 1st, 2017, to June 30th, 2017) at the pediatric surgery department of Aristide Le Dantec University Teaching Hospital in Senegal. **Results:** Ninety-one cases were collected. The cancellation rate was 20.8%. Infants were affected in 36.3% of cases. Among anesthesiologists, 83.5% were residents, and 16.5% were specialists. Cancellation in nephroblastoma children with an indication for extended nephrectomy represented 15.4% of cases. Concerning reasons for cancellation, comorbidities, dominated by respiratory infections, accounted for 28.5% of cases, patient absences for 24.2%, and issues related to the anesthesiologist for 17.6%. Cancellations were avoidable in 33% of cases. Patients were responsible for cancellation in 37.4% of cases, the healthcare system in 33%, and medical reasons in 29.7%. **Conclusion:** Our findings suggest that one-third of cancellations could have been avoided with improvements in the healthcare system. Actions should be taken to reduce the cancellation rate in our context.

## Keywords

Cancellation, Elective Surgery, Pediatric Surgery, LMICs, Senegal

## 1. Introduction

Cancellation refers to non-executing a scheduled surgical procedure for any reason. It has economic and organizational consequences for the institution. It has a particular psychological impact on the patient and their caregivers, causing additional stress and dissatisfaction, mainly when decisions are made without any prior explanation [1]-[3]. According to a study conducted in the main pediatric surgery departments in Senegal and Congo, the cancellation rate ranged from 29.7% to 15.6% [4] [5]. When the cancellation rate is high in low and middle-income countries (LMICs), it is much lower in high-income countries (HICs), being approximately 3% [6] [7]. A correlation has been established between global domestic production (GDP), the mastery of intervention programming, management, and the rate of elective surgeries' cancellation [2]. Although the causes of cancellation are many and varied, they can be divided into three categories: logistical causes linked to the system and hospital, individual factors related to the patient, and medical reasons [3].

This study aimed to report the causes of elective surgery cancellations in our university teaching hospital (UTH) so that solutions to address specific causes could be provided.

## 2. Patients and Methods

We conducted a prospective and descriptive study from January 1st to June 30th, 2017, at the pediatric surgery department of Aristide Le Dantec UTH in Dakar, the capital city of Senegal. All patients aged 15 years or younger, with an aptitude for anesthesia and whose surgical procedure was scheduled, were enrolled.

The parameters studied included socio-demographic aspects (number of cancellations, frequency, and patient age), the anesthesiologist's qualification, the diagnosis and indications for canceled patients, the reasons for cancellations, and the responsibilities of the various parties.

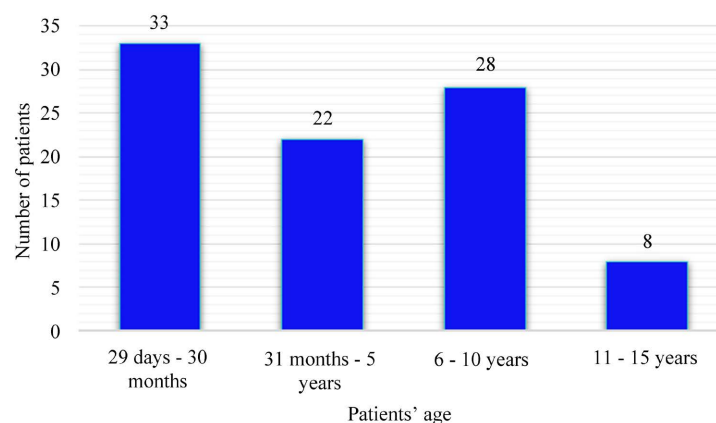
Classification of causes of cancellation as avoidable and unavoidable was based on the fact that avoidable causes could be suppressed with better administrative organization and planning, associated with coordination between the pediatric surgery, intensive care unit and pediatrics departments.

Data was collected using Sphinx Plus® software version 5 and analyzed Excel™ (Microsoft Office 2013). Results were presented as numbers and percentages for categorical variables.

Our study received authorization from our Institutional Ethics Committee, and informed consent was obtained from each patient's parents for each patient included.

## 3. Results

91 of 438 cases were canceled during the study period, representing a 20.8% rate. There was no neonate among the canceled cases; the 33 infants represented 36.3% of cases. **Figure 1** illustrates the distribution of patients by age.



**Figure 1.** Patient distribution by age group.

83.5% of anesthesiologists were residents, while 16.5% were specialists. Among planned surgeries, extended nephrectomy for nephroblastoma was canceled in 14 patients, 15.4% of cases. **Table 1** details canceled surgical interventions.

**Table 1.** Cancelled surgical interventions.

Surgical indication	Number	Percentage
Transanal pull-through	8	8.8
Osteosynthesis material removal	3	3.3
Gonadal biopsy	3	3.3
Cholecystectomy	2	2.2
Hernia repair	12	13.2
Hypospadias repair	2	2.2
Keloid excision	2	2.2
Feminizing genioplasty	2	2.2
Skin grafting	3	3.3
Right hemicolectomy	2	2.2
Exploratory laparotomy	4	4.4
Band Excision (hand, elbow, index finger)	9	9.9
Syndactyly repair	3	3.3
Nephrectomy	14	15.4
Palatoplasty	2	2.2
Osteosynthesis	3	3.3
Stoma reversal	3	3.3
Sequestrectomy	2	2.2
Other biopsies	3	3.3
Others	9	9.9
<b>Total</b>	<b>91</b>	<b>100</b>

Others: Colostomy 1, Postoperative ventral hernia 1, Z-plasty 1, Removal of rectal polyp 1, Laparoscopic removal of foreign body 1, Metaplasia 1, Stump regulation 1, Abutment resection 1, Anal transposition 1.

Among reasons for cancellation, comorbidities were found in 26 patients (28.5%), followed by patients' absence on the operative day, and reported in 22 cases (24.2%). Among the 26 patients with comorbidities, respiratory tract diseases were found in 15 patients (57.7%), fever and anemia in 5 each (19.2%), and cardiac instability in 1 (3.8%). Concerning the responsibility of actors in cancellations, a cause inherent to the patient was reported in 37.4% of cases, followed by causes related to the healthcare system in 33%, and finally, due to medical reasons in 29.7%. Avoidable cancellation reasons represented 37.4%, and unavoidable ones 62.4% (**Table 2**).

**Table 2.** Causes of cancellation by responsibility and possible avoidance.

Responsibility of cancellation	Reason for cancellation	Avoidable	Number	Percentage
Healthcare system	Anesthesiologist and intensive care unit issues	Yes	16	17.6
	Surgeon's unavailability	Yes	2	2.2
	OR unavailability	Yes	3	3.3
	Administrative mistake	Yes	9	9.9
Patient	Patient's absence	No	22	24.2
	Financial constraint	No	8	8.8
	Non-compliance with preoperative fasting	Yes	4	4.4
Medical reason	Comorbidity	No	26	28.6
	Death	No	1	1.1
<b>Total</b>			91	100

#### 4. Discussion

Surgical procedure cancellation is a fairly common phenomenon in hospitals across LMICs. They cause multiple disruptions for patients, their families, and the hospital's nursing and administrative staff [8]. Our study revealed a cancellation rate of 20.8% for elective surgical procedures. Their frequency varies between LMICs and HICs. In the first, it is reported from 15% to 38% [5] [8], while in HICs, it is reported from 1% to 3% [6] [7] [9]. These comparative data reveal a correlation between the level of development of these countries, the mastery of intervention programming management, and cancellation rates. Indeed, the sophistication and modernization of hospital facilities and the rigorous organization of the healthcare system allow these countries to have a significantly low surgical cancellation rate.

In our study, infants were affected the most. Our data are similar to those found in a study in the Congo [5], where infants exhibited a higher cancellation rate of 25.8%. In that study [5], upper respiratory airway infections were the leading cause of comorbidity. These are more frequent before seven years, especially in infants [10] [11]. In the Congolese report, all patients discharged for upper airway infec-

tion were under four years old [5]. We note that infants were more often involved due to the frequency of respiratory conditions at this age. Nephroblastoma surgery cancellations were the most frequent cases, with the indication of an enlarged nephrectomy accounting for a sixth of cases. In contrast, other authors said hernia cures were the most common [4] [5]. Our institution is Senegal's only pediatric oncology center, where nephrectomy procedures require meticulous preparation and intensive postoperative care. The postoperative period is crucial, requiring intensive care monitoring. Our study shows that patients scheduled for nephrectomy were often canceled due to a lack of place in the ICU. This reflects the inadequacy or lack of coordination between the departments of pediatrics, pediatric surgery, and ICU before this kind of surgery was scheduled.

Some surgical interventions, preeminent ones, require the presence of an experienced anesthesiologist. The majority of them in our study were residents in Anesthesia and Resuscitation. In addition, while professional and qualified anesthesiologists sometimes take responsibility for the patients' settling with specific comorbidities after assessing all the risks, residents, on the other hand, would instead make systematic postponements out of precaution. Comorbidities were the main reasons for cancellation, followed by the patient's absence on the day of the surgery and problems with the anesthesiologist and the intensive care unit. Our study is similar to another in Dakar, in which intercurrent illnesses (78.5%) were the leading cause [4]. The results of our work differ from those found in Mali, in which the patient's absence was the leading one at 37.4% [8]. According to studies in India [12] and Pakistan [13], insufficient time slots in the operating room were the leading cause of cancellation. In Canada [7], 36% of surgeries have been called off because patients who showed up at the emergency department became a priority over the scheduled ones due to their health condition, thus shifting the planned OR schedule and representing the leading cause of re-scheduling [7]. In LMICs, the reasons for cancellation, apart from medical reasons, are mainly linked to financial constraints or malfunctions in the internal organization of the hospital service. In contrast, in HICs, the reasons were often related to unforeseen events such as emergencies.

Responsibilities generally lie at three levels: the patient's responsibility, the responsibility of the healthcare system and the hospital, and medical reasons [3]. In our study and the one carried out in Dakar [4], it can be concluded that the responsibility lies mainly with the patients in 37.4% and 51.2% of cases, respectively. Most of them did not come to the department on the day scheduled for their surgery, which could be explained either by a lack or inaccuracy of information, by financial constraints forcing them to stay at home, or by psychological apprehensions regarding the operation, undoubtedly due to inadequate psychological preparation. Causes of cancellation can also be subdivided into two categories: avoidable and unavoidable. Preventable causes are those that optimal medical, organizational, or administrative preparations could have prevented. Unavoidable causes included cancellations that could not have been foreseen, no matter how carefully the intervention was organized [14]. In our study, avoida-

ble causes accounted for one-third of all cancellations, predominantly attributable to healthcare system issues. Although a zero rate of surgical cancellation is unattainable, the healthcare system-related causes can be drastically reduced by insisting on the revision of certain traditional practices. The surgical programming system should be computerized, and practices should be standardized to minimize human-induced mistakes. The surgeon, anesthesiologist, OR staff, and administration should jointly draw up the surgical schedule. Also, patients and their caregivers should be adequately educated, and the anesthesiologist should reassess their condition before their inclusion in the operative program to detect intercurrent illnesses.

To overcome causes of cancellation of elective surgeries in our department, some solutions can be suggested: a multidisciplinary preoperative assessment (including pediatric surgeons, anesthesiologists and pediatric oncologists) whenever patients from the pediatric oncology unit or those who needing intensive postoperative care are scheduled. Implementing a patient-education program would be helpful too, so that absence of patient on the scheduled day would be avoided.

## 5. Limitation of the Study

This study makes a significant contribution by highlighting how improvements in the healthcare system can reduce avoidable cancellations. However, it has limitations, such as its restricted six-month study period. Consequently, some of the observed causes of cancellations may not have been fully represented. Evaluating the financial costs associated with surgical procedure cancellations would improve the study.

## 6. Conclusion

This study revealed that surgery cancellations are a recurring phenomenon in our department. Although the causes vary, improving the technical platform and better scheduling coordination could prevent a third of these surgical cancellations. Implementing such improvements could lead to more efficient and reliable surgical services, ultimately enhancing patients' care and satisfaction.

## Acknowledgements

The author, FTAZ, is thankful to Foerdereverein UniKinshasa, which financed his specialization in pediatric surgery through the Excellence Scholarship System BEBUC.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- [1] Hatava, P., Olsson, G.L. and Lagerkranser, M. (2000) Preoperative Psychological

- Preparation for Children Undergoing ENT Operations: A Comparison of Two Methods. *Pediatric Anesthesia*, **10**, 477-486.  
<https://doi.org/10.1046/j.1460-9592.2000.00537.x>
- [2] Kindler, C.H., Harms, C., Amsler, F., Ihde-Scholl, T. and Scheidegger, D. (2000) The Visual Analog Scale Allows Effective Measurement of Preoperative Anxiety and Detection of Patients' Anesthetic Concerns. *Anesthesia & Analgesia*, **90**, 706-712.  
<https://doi.org/10.1097/00000539-200003000-00036>
- [3] Tait, A.R., Voepel-Lewis, T., Munro, H.M., Gutstein, H.B. and Reynolds, P.I. (1997) Cancellation of Pediatric Outpatient Surgery: Economic and Emotional Implications for Patients and Their Families. *Journal of Clinical Anesthesia*, **9**, 213-219.  
[https://doi.org/10.1016/s0952-8180\(97\)00032-9](https://doi.org/10.1016/s0952-8180(97)00032-9)
- [4] Sabounji, S.M., Fall, M., Seye, C., Diene, M.M. and Ngom, G. (2022) Cancellation Causes of Elective Surgical Procedures in a Major Pediatric Surgery Department. *Open Journal of Pediatrics*, **12**, 131-136. <https://doi.org/10.4236/ojped.2022.121014>
- [5] Mboutol-Mandavo, C., Okiemy-Niendet, C. and Otiobanda, G.F. (2014) Causes of Postponement of Pediatric Surgery at Brazzaville University Hospital. *Revue Africaine de Chirurgie et Spécialités*, **8**, 33-38.
- [6] Mesmar, M., Shatnawi, N.J., Faori, I. and Khader, Y.A. (2011) Reasons for Cancellation of Elective Operations at a Major Teaching Referral Hospital in Jordan. *Eastern Mediterranean Health Journal*, **17**, 651-655. <https://doi.org/10.26719/2011.17.8.651>
- [7] Duva, A. (2018) Postponed Surgeries: The Patient Responsible 1 Time out of 5. <http://ici.radio-canada.ca/nouvelle/767382/chirurgies-reportees-annulees-hopitaux-quebec-sante>
- [8] Niangaly, A.A. (2014) Causes of Surgical Cancellations in the Cold Operating Room of Gabriel Toure University Hospital. Thèse Médecine, Université des Sciences, des Techniques, et des Technologies de Bamako.
- [9] Trentman, T.L., Mueller, J.T., Fassett, S.L., Dormer, C.L. and Weinmeister, K.P. (2010) Day of Surgery Cancellations in a Tertiary Care Hospital: A One Year Review. *Journal of Anesthesia & Clinical Research*, **1**, Article 1000109.  
<https://doi.org/10.4172/2155-6148.1000109>
- [10] Coté, C.J. (2001) The Upper Respiratory Tract Infection (URI) Dilemma: Fear of a Complication or Litigation? *Anesthesiology*, **95**, 283-285.  
<https://doi.org/10.1097/00000542-200108000-00006>
- [11] Walker, T.A., Khurana, S. and Tilden, S.J. (1994) Viral Respiratory Infections. *Pediatric Clinics of North America*, **41**, 1365-1381.  
[https://doi.org/10.1016/s0031-3955\(16\)38876-9](https://doi.org/10.1016/s0031-3955(16)38876-9)
- [12] Kumar, R. and Gandhi, R. (2012) Reasons for Cancellation of Operation on the Day of Intended Surgery in a Multidisciplinary 500 Bedded Hospital. *Journal of Anaesthesiology Clinical Pharmacology*, **28**, 66-69.  
<https://doi.org/10.4103/0970-9185.92442>
- [13] Zafar, A., Mufti, T.S., Griffin, S., Ahmed, S. and Ansari, J.A. (2007) Cancelled Elective General Operations in Ayub Teaching Hospital. *Journal of Ayub Medical College Abbottabad*, **19**, 64-66.
- [14] Moret, V. (2001) Impact d'une consultation de pré-hospitalisation chirurgicale sur les annulations de dernière minute au bloc opératoire: Analyse médico-économique [Mémoire].