


Research Article

Evaluation of the Quality of Care Related to Anesthesia in Pediatric Surgery at the Gabriel Touré University Hospital (CHU), Mali, 2024

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Abstract

Pediatric anesthesia is a sensitive area of medicine, particularly in low-resource countries where infrastructure, staff qualifications, and care organization challenges are significant. This study aimed to assess the quality of anesthesia care in pediatric surgery at the Gabriel Touré University Hospital (CHU) in Bamako, Mali. A cross-sectional, mixed-methods descriptive study was conducted from January 2022 to February 2023. It included 70 patients aged 0 to 15 years who underwent surgery under anesthesia and 7 anesthesiologists from the department. The tools used included closed-ended questionnaires, semi-structured interviews, and direct observations. The analysis focused on adverse events, companion satisfaction, pain management, and organization of care. The results revealed a male predominance (63%). Emergency interventions accounted for 94% of cases, highlighting gaps in planning. Urological surgery and neurosurgery were the most frequent specialties (21.4% each). Intraoperative complications were noted in 44% of children, reflecting organizational vulnerability. Despite this, 73% of accompanying persons reported overall satisfaction with anesthesia care. However, postoperative pain management and infrastructure hygiene remained insufficiently satisfactory (40% and 36% respectively). These results highlight major structural and human challenges. Improving quality requires strengthening staff skills, improving communication with families, and sustained investment in infrastructure and equipment. A patient-centered approach, incorporating ongoing assessment and professional training, is essential for safe and effective pediatric anesthesia in Mali.

Keywords

Pediatric Anesthesia, Quality of Care, Patient Satisfaction, Intraoperative Complications, Gabriel Touré University Hospital

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1. Introduction

Pediatric anesthesia requires specialized expertise and optimal conditions to ensure the safety of children undergoing surgery. In resource-poor countries, such as Mali, material and human constraints affect the quality of care [1-4]. Pediatric perioperative mortality is up to 100 times higher than in Europe [5].

The assessment of quality of care, according to Donabedian, is based on structures, processes and outcomes [6]. Patient satisfaction - or that of their representatives - is a key indicator of this quality [7, 8]. The World Health Organization (WHO) emphasizes the need for a patient-centered approach, where safety, effectiveness, accessibility and acceptability are integrated [9].

Studies conducted in sub-Saharan Africa have shown that adverse events related to anesthesia are frequent, particularly in children under one year of age [10, 11]. Approximately 30-45% of patients experience intraoperative complications, the origin of which is often multifactorial: lack of qualified personnel, absence of protocol, or inadequate equipment [12-14].

In Mali, pediatric anesthesia remains a little-studied field despite its clinical importance. The Gabriel Touré University Hospital, the main reference center, faces major constraints: lack of pediatric anesthesiologists-resuscitators, absence of continuing education, low family involvement, poor hygiene, and a near absence of regular quality assessment systems [15-20].

It is in this context that we undertook this study to assess the quality of care related to anesthesia in pediatric surgery at Gabriel Touré University Hospital. The objective was to provide evidence to guide improvement efforts.

2. Objectives

2.1. General Objective

To assess the quality of care related to anesthesia in pediatric surgery at Gabriel Touré Hospital in Mali.

2.2. Specific Objective

- 1) Analyze quality of care indicators related to anesthesia, including the occurrence of adverse events, patient and/or parent satisfaction.
- 2) Identify factors influencing the quality of anesthesia care.
- 3) To formulate recommendations to improve the quality of anesthesia-related care in the pediatric surgery department.

3. Methodology

3.1. Framework and Location of the Study

The study The procedure was performed in the anesthesia-resuscitation department of the Gabriel Touré University Hospital (CHU), located in Bamako, the capital of Mali. This leading institution primarily serves patients from the Bamako district and surrounding regions.

3.2. Period of Study

Data collection was carried out over a 14-month period, from January 1, 2022 to February 28, 2023.

3.3. Collection Techniques and Tools

A mixed quote was used, combining:

- 1) quiz closed for those accompanying children undergoing surgery under anesthesia.
- 2) Semi-structured interviews with anesthesiologists.
- 3) Direct observations of operating room practices.

The tools used included standardized questionnaires, interview grids, and observation checklists.

3.4. Sampling

The sampling method was non-probabilistic by exhaustiveness. It included:

- 1) 70 children anesthetized in pediatric surgery, and/or their companions.
- 2) 7 anesthesiologists work in the department.

3.5. Inclusion Criteria

- 1) Patients aged 0 to 15 years, operated on under anesthesia at the Gabriel Touré University Hospital during the study period.
- 2) The companions of these patients agree to answer the questionnaire.
- 3) Anesthesiologist-resuscitator having given their free and informed consent.

3.6. Non-inclusion Criteria

- 1) Patients over 15 years old.
- 2) Patients under 15 years of age operated on without anesthesia.
- 3) Refusal of participation by patients, companions or staff.
- 4) Non-anesthetist healthcare personnel.

3.7. Operational Definitions

- 1) Quality of care: Degree to which anesthesia services increase the chances of achieving desired health outcomes.
- 2) Patient satisfaction: Subjective perception of patients and their families regarding the care received.
- 3) Adverse event: Any unforeseen complication occurring in connection with anesthesia.
- 4) General anesthesia: Total loss of consciousness induced by a drug, allowing surgery to be performed without pain.

4. Results

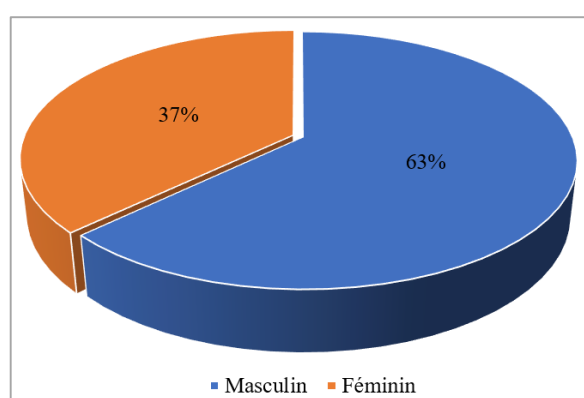


Figure 1. Patient sex.

Male predominance of 63%. The sex ratio was 1.7.

Table 1. Distribution of patients according to type of surgery.

Type of surgery	Frequency	Percentage
Urology	15	21.4
Neurosurgery	15	21.4
Visceral	12	17.1
Digestive	10	14.3
ENT	6	8.6
Trauma	1	1.4
Others	11	15.7
Total	70	100.0

Urology and neurosurgery were the most commonly performed types of surgery with 21.4 %

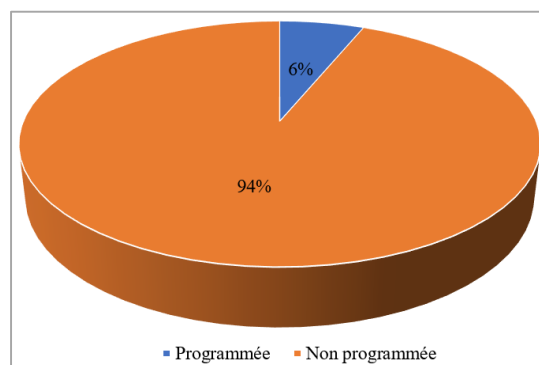


Figure 2. Distribution of patients according to admission method.

Unplanned surgery was predominant in 94% of cases.

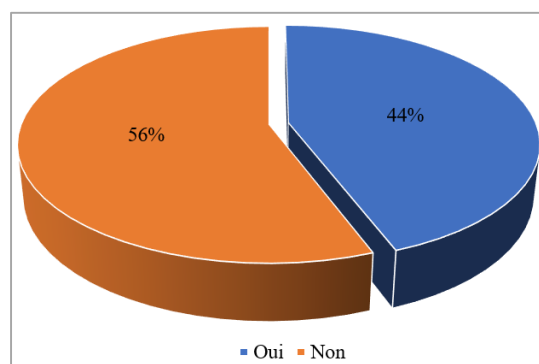


Figure 3. Distribution of patients according to complications during intraoperative anesthesia.

Anesthetic complications during surgery in the operating room were noted in 44% of cases.

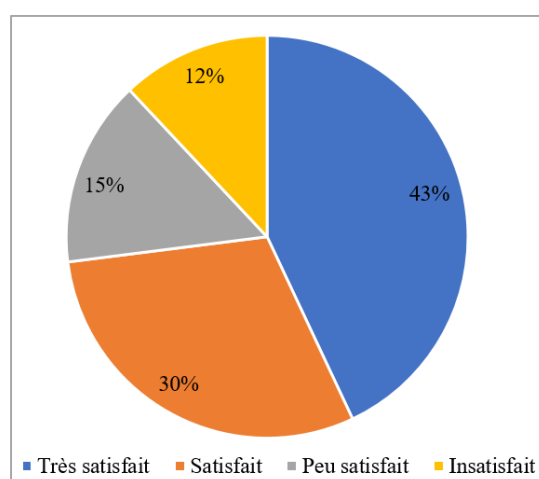


Figure 4. Overall satisfaction of escorts with the quality of care.

Overall escort satisfaction increased to 73%.

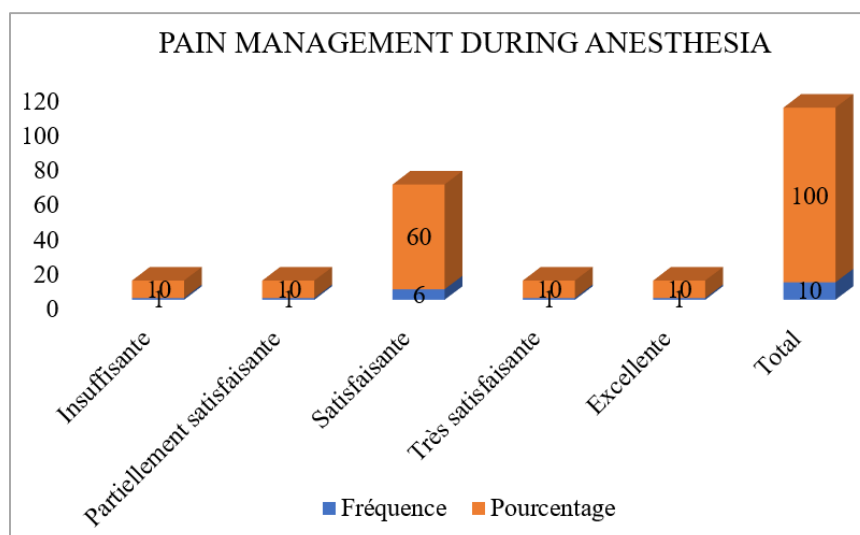


Figure 5. Distribution of stakeholders according to pain management during anesthesia.

The majority of our respondents, 60%, were satisfied with the management of intraoperative pain.

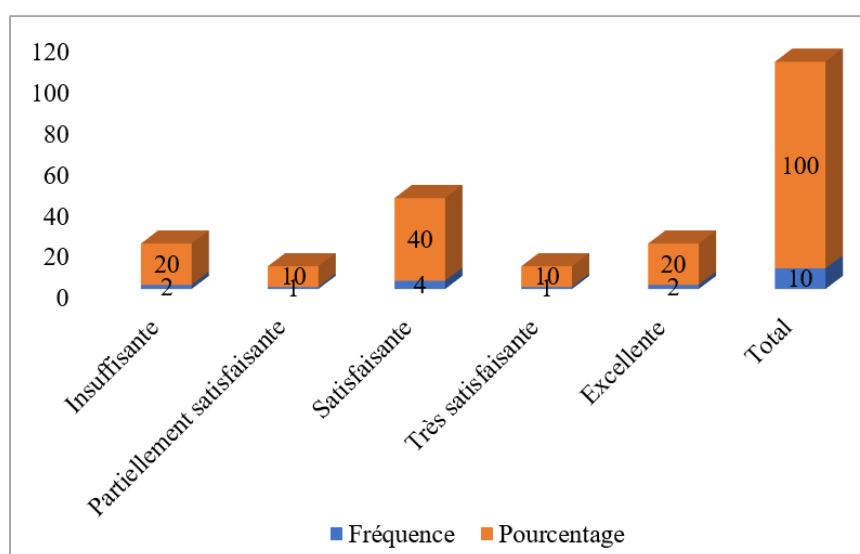


Figure 6. Distribution of providers according to patient pain management after anesthesia 40% of our respondents reported being satisfied with pain management.

5. Discussion

This study reveals a male predominance among the operated children, which is similar to the results of Adamou et al. in Niger, who noted a male proportion of 65% [21]. The over-representation of urgent cases (94%) confirms the conclusions of Tientcheu in Cameroon, who attributes this situation to the poor organization of the referral and counter-referral system [22].

The high rate of intraoperative complications (44%) is of

concern. Hines et al. in the United States reported a rate of less than 10% in well-equipped post-anesthesia units [23]. In a Beninese study, Zoumenou et al. also highlighted high complication rates in pediatrics, correlated with lack of training and insufficient monitoring [24].

Regarding satisfaction, our rate of 73% is similar to that reported by Traoré et al. in Burkina Faso (71%) [25]. However, specific dimensions such as postoperative pain management (40% satisfaction) remain low, comparable to the 38% reported by Mouzou et al. in Togo [26]. Dissatisfaction with hygiene was also reported by Niang et al. in Senegal [27].

The identified deficiencies in pain management, communication, planning and professional skills point to an urgent need for continuing education and standardized protocols, as recommended by the Anesthesia Society of French-speaking Africa [28].

6. Limitations of the Study

- 1) Indefinite strike by hospital staff reducing sample size.
- 2) Financial limitations prevent further analysis.

Conclusion

This study shows that despite significant efforts, the quality of care related to anesthesia in pediatric surgery at Gabriel Touré University Hospital remains improvable.

Overall satisfaction of the accompanying staff is encouraging, but intraoperative complications and organizational problems (waiting times, hygiene, post-anesthesia communication) require corrective actions.

Abbreviations

CHU	University Hospital Center
EIG	Serious Adverse Event
ENT	Ear, Nose and Throat
WHO	World Health Organization

Conflicts of Interest

The authors declare no conflicts of interest.

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