

Profile of Deaths of Children Hospitalized in the Pediatric Surgical Clinic Jean Luc Mandaba of the Pediatric University Hospital Center of Bangui

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Abstract

In the Central African Republic, pediatric surgery is a recent specialty, and it is the only department that receives and treats all pediatric surgical conditions regardless of type. To date, no data has been reported on mortality among children hospitalized in this department. Objective: To describe the profile of deaths that occurred among children hospitalized in the Jean Luc Mandaba Pediatric Surgical Clinic at the Bangui Pediatric University Hospital Center (CHUPB). This is a descriptive retrospective study from January 1, 2023, to July 31, 2025 (31 months). Included were all files of children of both sexes, under 16 years of age, who died in the department regardless of the pathology. In total, 3913 children were hospitalized, among whom 233 cases of death were recorded, representing an overall mortality rate of 5.9%. The median age of the patients was 4.14 years. A male predominance was noted (n = 125, 53.6%). Infants had a higher mortality, 31.3%. Traumatological pathologies were the most frequent causes of death in 36% across all age groups. Congenital pathology was the main cause of death in newborns (laparoschisis 35.7%), whereas burns were the main cause of death in infants and young children, respectively 42.5% and 48.3%. The death profile reveals a significant weight of trauma and neonatal surgical malformations. Improving the referral and triage system, strengthening emergency pediatric resuscitation, and creating units or protocols for burn management are targeted interventions that prove necessary.

Keywords

Profile, Death, Child, Bangui

1. Introduction

In the Central African Republic, pediatric surgery is a relatively new specialty, and it is the only department that admits and treats all types of pediatric surgical conditions. To date, no data on mortality among children hospitalized in this department have been reported. In this context, it is crucial to document local mortality patterns in order to identify the main preventable causes, improve management strategies, and guide health programs. The objective of our study was to describe the epidemiological and diagnostic profile of deaths among children hospitalized in the Jean Luc Mandaba Pediatric Surgical Clinic at the Bangui University Pediatric Hospital (CHUPB).

2. Materials and Methods

This is a retrospective descriptive study covering a 31-month period, from January 1, 2023, to July 31, 2025. The study included all medical records of children of both sexes, under the age of 16, who died in the department, regardless of the underlying condition. The data were collected using a structured and validated data extraction grid. Data on the identification of cases and causes of death were extracted from the medical records of deceased children, hospitalization registers, surgical reports, as well as the intensive care records of the Jean Luc MANDABA Pediatric Surgical Clinic at CHUPB, entered into EPI-Data version 3.1, and then analyzed using SPSS (Statistical Package for Social Sciences) version 25.0. Descriptive results are expressed as percentages and means.

3. Ethical Considerations

The study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval was obtained from the Institutional Health Research Ethics Committee of the Faculty of Health Sciences of the University of Bangui. Informed and voluntary consent from the head of the department was obtained after he had been informed of the objective, purpose, and benefits of the study. Patient anonymity was maintained throughout the study, from data collection to the presentation of results.

4. Results

During this period, 3,913 children were hospitalized, representing the total number of admissions. There were 376 cases of death for all pathologies during the study period. Among them, 233 cases of death were included in the analysis, representing an overall mortality rate of 5.9%. The median age of the patients was 4.14 years, ranging from 0 to 15 years. There was a predominance of males, with

125 boys (53.6%) compared to 108 girls (46.4%), resulting in a sex ratio of 1.2 males to females. 58.8% of the children were from urban areas. Infants represented the largest share of deaths as shown in **Table 1**.

Table 1. Breakdown by age group.

Age group	n	%
Newborn	56	24
Infant	73	31.3
Toddler	29	12.5
Child	32	13.7
Adolescent	43	18.5
Total	233	100

Figure 1 shows that traumatic injuries were the most common.

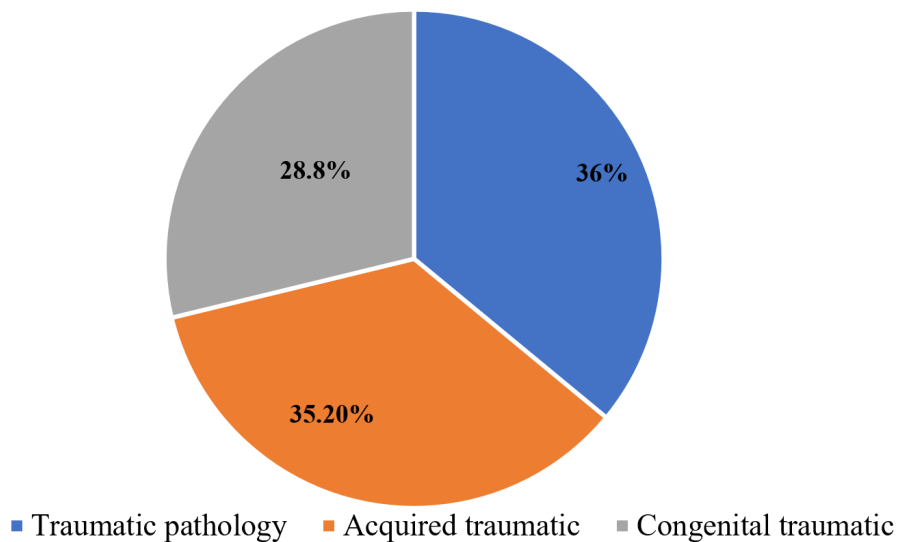


Figure 1. Breakdown by disease.

Table 2 shows that traumatic injuries were the most common in all age groups.

Table 2. Breakdown of disease types across all age groups.

Type of pathology	Age group					Total
	Newborn	Infant	Toddler	Child	Adolescent	
Traumatic	00	41	19	10	14	84
Acquired	00	29	8	19	26	82
Congenital	56	03	2	3	3	67
Total	56	73	29	32	43	233

Table 3 shows the different types of conditions across different age groups.

Table 3. Distribution of different types of conditions across different age groups.

Type of pathology	Age group					Total
	Newborn	Infant	Toddler	Child	Adolescent	
Traumatic	00	41	19	10	14	84
Acquired	00	29	8	19	26	82
Congenital	56	03	2	3	3	67
Total	56	73	29	32	43	233

The leading causes of death by age group are listed in **Table 4**.

Table 4. Leading causes of death by age group.

Newborn	Gastroschisis 35.7%	Anorectal malformation 25%	Intestinal atresia 3.6%
Infant	Burn 42.5%	Acute intussusception 17.8%	Fasciitis 13.7%
Toddler	Burn 48.3%	Acute generalized peritonitis 13.8%	Other 37.9%
Child	Acute generalized peritonitis 46.9%	Burn 12.5%	Traumatic brain injury 12.5%
Adolescent	Acute generalized peritonitis 30.2%	Traumatic brain injury 11.6%	Fasciitis 9.3%

Forty-four children died on the same day they were admitted to the hospital, 18.5% of the total, with septic shock being the leading cause of death (47.6%).

5. Discussion

This study has certain limitations due to its retrospective and single-center nature. The use of a retrospective document analysis may lead to the omission of some variables regarding the severity of the admission, the referral delay, or prehospital care.

Our study reports a mortality rate of 5.9%. This rate is nearly identical to that reported by Doumbouya N *et al.* [1] and significantly lower than those reported by Rakotoarison RCN *et al.* [2] and Ndour O *et al.* [3]. Pediatric surgical mortality remains particularly high in resource-limited settings, where emergency admissions and delays in care are common due to poverty, lack of awareness, and social conflicts.

Infants are the age group most affected, which is consistent with the literature describing increased vulnerability due to physiological immaturity and delayed orientation [2]-[4]. On the other hand, Ouédraogo SFM *et al.* [5] Nyanit BD *et al.* [6] report a predominance among young children. Among newborns, the high mortality rate is linked to congenital malformations (particularly gastroschisis), highlighting the fact that mortality rates for neonatal surgical emergencies can exceed 60% in centers lacking optimal surgical facilities [1] [7]. Trauma is the leading

cause of death in our series (36%). This confirms the findings of various studies, which show that burns and trauma account for an increasing proportion of deaths among infants and young children [5] [6] [8]-[10]. The high prevalence of burns in our study (42.5% and 48.3%) highlights the lack of specialized pediatric burn units, delays in initial resuscitation, and the high incidence of serious infections. Among older children and adolescents, acute generalized peritonitis was the leading cause of death, often associated with late perforations of appendicitis or infectious origin [11]. African literature reports that delayed presentation is the primary determinant of mortality in these cases, and thus a negative factor [1]. A striking feature is early mortality: nearly one in five deaths occurs on the day of hospitalization, primarily due to septic shock (47.6%). This is supported by several studies [1] [2]. This finding reflects the extreme severity at admission and the failure of the referral system.

6. Conclusion

The mortality profile at the Jean Luc MANDABA Pediatric Surgical Clinic of the CHUPB reveals a significant proportion of deaths due to trauma (particularly burns), neonatal surgical malformations, and severe infections such as peritonitis. The high neonatal mortality rate and the high proportion of early deaths point to major structural challenges. Targeted interventions are needed to significantly reduce mortality:

- Improvement of the referral system and triage
- Strengthening of pediatric emergency resuscitation
- Establishment of burn care units or protocols
- Optimization of the care pathway for neonatal malformations
- Regular mortality audits.

Conflicts of Interest

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

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