

## Neonatal and Infant-Juvenile Morbidity in African Hospitals: The Case of Commune II of the District of Bamako

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### Abstract

### Original Research Article

**Introduction:** Neonatal and child morbidity is a threat to socio-economic and health progress in sub-Saharan Africa. In paediatric in-patient practice, knowledge of morbidity is important for health care personnel to ensure optimal patient management. The frequency of these pathologies varies between countries. **Objective:** The objective of our study was to identify the main morbidities in children hospitalised in the paediatric ward of the commune II health centre. **Methods:** This was a retrospective descriptive study from 1 January to 31 December 2017. We included all children aged 01 month to 15 years hospitalized in the pediatric ward. The study included 418 children aged 0 to 15 years hospitalized in the department during the study period. **Results:** Children aged 0 to 5 years were the most represented 89.4% with a majority in the 0 to 1 month age group (39%). Males were the most represented with 58%, i.e. a M/F sex ratio of 1.4. ). The children's mothers were not in school in 78% of cases and were housewives in 70%, and 95% of the parents were married. Socioeconomic status was very low in 34% of families. The patients consulted after 1 to 2 days in 47.1% of cases. Admission to the service was direct in 84% and hospitalisation was more frequent between July and November in 66.3%. The reasons for hospitalization of children were dominated by fever 39% followed by respiratory difficulties 29% and convulsions 10%. Malaria was the first cause of hospitalization with 30%.

**Keywords:** Morbidity, Child, Commune II, Bamako, Mali.

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## INTRODUCTION

Neonatal and child morbidity is a threat to socio-economic and health progress in sub-Saharan Africa (Akoto EM *et al.*, 1998). In 2003 Carol Bellamy stated "the well-being of children must become the most important measure of individual achievement for African leaders". (UNICEF Workshop Report 2010) According to the World Bank in 2021, children aged 0-14 years represent 37% of the world's population, they are a dominant population and constitute a very fragile social stratum in developing countries (World Bank) Because of this fragility and the defective environmental conditions, several pathologies threaten

these children. In intra-hospital paediatric practice, knowledge of morbidity is important for health care personnel to ensure optimal patient care. The frequency of these pathologies varies from country to country. In a study conducted in Côte d'Ivoire, Ake-Assi and found that the infant and child population represented 75% of patients hospitalised in paediatrics (Aké-Assi MH 2009). In Tunisia in 2021, the main diagnoses notified were diseases of the respiratory system (37%) including acute bronchiolitis, and diseases of the genitourinary system (28%) including urinary tract infections. (Chokri Zoghliami *et al.*, 2021) According to UNICEF, in Mali the main fatal diseases affecting children are

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pneumonia, diarrhoea and malaria: all common and entirely preventable (UNICEF 2020). Beyond paediatric practice, morbidity information plays an important role in a country's development planning. The objective of this study was to identify the main morbidities among children hospitalised in the paediatric ward of the reference health centre in commune II of the Bamako district.

## MATERIAL AND METHODS

This study was conducted in the pediatric department of commune II of the district of Bamako, Mali. The commune II covers an area of 17 km<sup>2</sup>, i.e.  $\approx$  7% of the total area of the district of Bamako 267 Km<sup>2</sup> with a population of 201842 inhabitants in 2016. The health district of commune II is divided into 9 health areas: 1 CSRéf, 8 CSComs. It is the first reference health structure of the commune. This was a retrospective descriptive study from 1 January to 31 December 2017. We included all children aged 01 month to 15 years hospitalised in the paediatric ward. Pre-elaborated data sheets were filled in from the medical records. The variables retained were: Socio-demographic variables (age, sex, origin, consultation time, consultation period, admission mode, socio-economic level, mothers' level of education and profession, parents' marital status) Clinical variables (consultation time, reason for consultation, duration of hospital stay, diagnosis). The data were entered and analysed on IBM SPSS Statistical software version 20 and processed on Word 2007 and Excel 2017.

## RESULTS

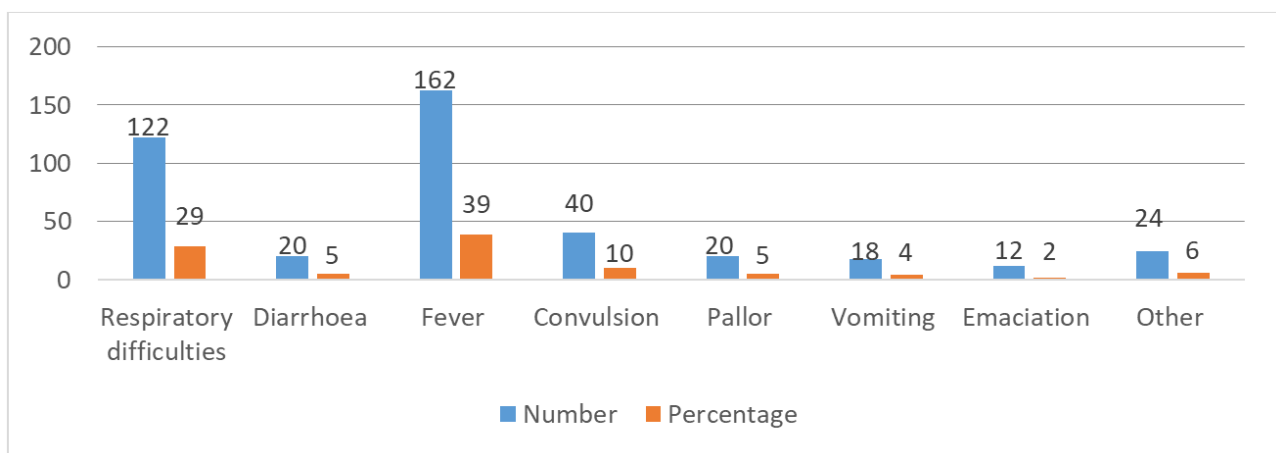
Out of 418 children aged 0 to 15 years hospitalised in the paediatric department, the 0 to 1 month age group was the most represented, i.e. 39%, followed by the 2 to 11 month age group 26% and the 12 to 59 month age group 23%. The parents of the children were married at the time of the survey in 95%

of cases and the socio-economic conditions were very low in 34% of families (Table 1). The children's mothers were not in school in 78% of cases and were housewives in 70% of cases.

**Table 1: Distribution according to socio-economic characteristics**

Variable	Workforce	Percentage
<b>Age</b>		
0 - 1 month	164	39
2 - 11 months	115	26
12 - 59 months	95	23
6 years - 10 years	35	8
11 years - 15 years	9	2
<b>Sex</b>		
Male	242	58
Female	176	42
<b>Marital status</b>		
Married	395	95
Single	22	4
Widowed	1	1
<b>Mother's education</b>		
Not in school	325	78
Primary	59	14
Secondary	24	6
Higher	10	2

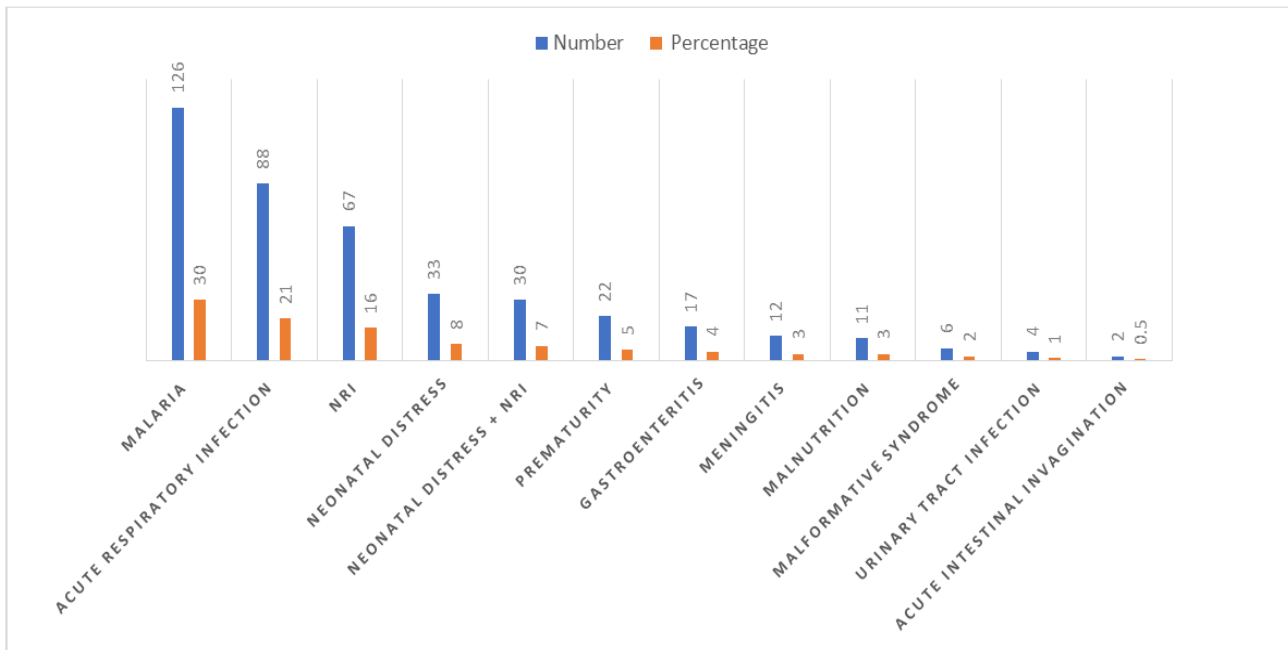
In our study 47.1% of patients consulted after 1 to 2 days of disease progression. The children who were hospitalised came directly to the hospital in 84% and had a referral in 16%. A medical history was found in 10% of patients, and hospitalizations were more frequent between July and November (66.3%). The reasons for consultation of hospitalised children were dominated by fever (39%), followed by respiratory difficulties (29%) and convulsions (10%). Fig. I. Clinically, 2% of hospitalised children were acutely malnourished.



**Fig. I: Distribution by reason for consultation**

In our study, malaria was the first cause of hospitalisation with 30% of all hospitalisations. It is

followed by acute respiratory infection and neonatal infection respectively 21% and 16%. Fig. II.



**Fig. II: Distribution according to diagnosis**

## DISCUSSION

The main limitation of this study is that the different diagnoses of hospitalisation were only presumptive based on clinical findings with the exception of malaria. It is therefore not a question of definitive diagnoses based on paraclinical elements, given that many of the patients were not able to carry out the requested check-ups due to lack of resources. Our study of 418 files from January to December 2017 showed a predominance of hospitalisations in the 0 to 5 age group, 89.4%, with the majority in the 0 to 1 month age group (39%). This predominance of 0 to 5 years was also found in (Nsagha DS *et al.*, 2015) 80.5%. On the other hand, the age group of 10 to 15 years was the most represented (73.58%) in the study by Fatoumata Binta DIALLO 2022. The male sex was predominant in our series (58%). This male predominance was found in (Abdala AK *et al.*, 2021) 57.1%, (Nsagha DS *et al.*, 2015) 52.11% and in Niger by (Kangaye S *et al.*, 2019). The over predisposition of the male sex to morbid phenomena during childhood would be justified by a genetic phenomenon (Aké-Assi MH *et al.*, 2019) (Abdala KA *et al.*, 2019). Authors have found that the XY male genotype is more susceptible to infections than the XX female genotype. This was explained by the fact that the X chromosome is thought to play a determining role in the defence against infections (Hodges GR *et al.*, 1975). In our series, 95% (93.5%) of the parents lived together, and the socio-economic conditions were low in 80% of the families. The children's mothers were not in school in 78%. Our result is similar to that of (Aimé K. Abdala 2021) who found that parents lived together in 93.5% of cases. Some authors believe that these sociogenetic characteristics have a strong influence on morbidity in paediatric settings (Onana NA. 2018), (Mabiala-Babela JR 2009). In our study 47.1% of patients consulted after 1 to 2

days of disease progression. Our result is similar to that of (Bah A *et al.*, 2021) who found a majority of patients consulted after 2 days, i.e. 83.50%. This situation could be explained by the very low social and economic conditions of the parents. Hospitalizations were more frequent between July and November (66.3% in our series). This trend was found in (Bah A *et al.*, 2021), August, September and October 46%. The most frequent reason for consultation in our study was fever followed by respiratory difficulties and convulsion, respectively 39%, 29% and 10%. This result is similar to those of Aimé K. Abdala (2021), Doumbia Ak (2016) and Coulibaly A *et al.*, (2008), who found fever to be the primary reason for consultation, respectively 34.1%, 36.1% and 51%. This situation of predominance of fever and respiratory difficulties could be explained by the high susceptibility of children to infections (especially respiratory) and the endemicity of malaria in sub-Saharan Africa. (EDSM VI 2018) In our series, acute malnutrition was found in 2% of patients. Our result is lower than (Aimé K. Abdala 2021) 17%, (Doumbia AK 2016) 15%. This situation could be explained by the target population of 0 to 15 years and the absence of a unit for the management of acute malnutrition with complications at the CSRéf of commune II. Malaria followed by acute respiratory infections and neonatal infections were the most frequent pathologies in hospital with respectively: 30%, 21%, 16%. Our study is superimposable with those of (Nsagha DS *et al.*, 2015) in which malaria occupies the first place with 51.87%, followed by neonatal period affections and respiratory infections 22.19% as dominant pathology and (Doumbia AK *et al.*, 2016) which found malaria 45%, ARI 20.30% as majority pathology.

## CONCLUSION

Child morbidity in commune II remains dominated by malaria, neonatal diseases and acute respiratory infections. These results show that preventive measures against malaria, pregnancy monitoring and routine vaccination of children should be improved.

## CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

## REFERENCES

- Aimé, K. A., Gustave, J. K., Don Dieu, N. B., Augustin, M. M., Joseph, L. O., Etienne, M. S., & Stanis, O. W. (2021). Morbidité infanto-juvénile en milieu hospitalier africain : cas de la ville de Kindu, République Démocratique du Congo. *Journal of Medicine, Public Health and Policy Research*, 1(1), 14-19.
- Aké-Assi, M. H., Eboua, F., Koffi, H., Adonis-Koffy, L., & Timité-Konan, M. (2009). Evolution de la morbidité et de la mortalité dans le service de pédiatrie médicale du CHU de Yopougon de 1999 à 2003. *Rev Int Sc Méd*, 11(1), 7-12.
- Aké-Assi, M. H., Eboua, F., Koffi, H., Adonis-Koffy, L., & Timité-Konan, M. (2009). Evolution de la morbidité et de la mortalité dans le service de pédiatrie médicale du CHU de Yopougon de 1999 à 2003. *Rev. Int. Sc. Méd. Vol. 11(1)*, 7-12.
- Akoto, E. M., & Allan, G. H. (2010). Morbidité, malnutrition et mortalité des enfants in TABUTIN D. Population et Sociétés en Afrique au sud du Sahara ». Ed par, Paris Harmattan, 309-334.
- Bah, A., Bagayoko, T. B., Kassogué, A., Dramé, B. M., Haber, B., Thiéro, A., Guindo, M., Coulibaly, M., SOW, S., Koné, S. I., Samaké, B., Traoré, T., Keita, M., Coulibaly, D. S., Coulibaly, A., Togo, M. A., Fofana, A. I., Sanogo, A., Diallo, M., & Diakité, L. (2021). Morbidité et mortalité des enfants au service de pédiatrie de l'hôpital Nianankoro Fomba de Ségou. *MALI SANTE PUBLIQUE*, XI(01), 81.
- Banque mondiale (2020): Statistiques sur le développement dans le monde <https://donnees.banquemondiale.org/indicateur/SP.OP.0014.TO.ZS> consulté le 01/04/2023 à 20 h 35 mn
- Chokri, Z., Imen, H., Mohamed, K., Sarra, N., Dhekra, C., Taoufik, J., & Ahmed Ben, A. (2021). Typologie de la morbidité accélérée dans un service de Pédiatrie d'un hôpital secondaire (Msaken, Sousse, Tunisie). *Tunis Med.*, 99(1), 106-119.
- Coulibaly, A. (2008). Morbidité et mortalité à l'unité de réanimation pédiatrique du CHU GT. A propos de 975 cas. Thèse de Doctorat, Université du Mali. Faculté de Médecine Bamako.
- Doumbia, A. K., Togo, B., Togo, P., Traore, F., Coulibaly, O., & Dembele, A. (2016). Morbidité et mortalité chez les enfants de 01 à 59 mois hospitalisés au service de pédiatrie générale du chu Gabriel Toure de janvier à décembre 2013. *Rev Malienne D'infectiologie Microbiol*, 8, 54-62.
- EDSM VI 2018: Enquête Démographique et de Santé du Mali.
- Fatoumata, B. D., Ibrahima, C., Kaba, B., Mohamed, L. D., Salématou, H. C., & Mamadou, C. B. (2022). Morbidité et mortalité chez les enfants de 0 à 15 ans hospitalisés au service de pédiatrie de l'hôpital préfectoral de Dubréka. *Rev int sc méd Abj -RISM*, 24(2), 139-144.
- Hodges, G. R., & Perkins, R. L. (1975). Acute bacterial meningitis: an analysis of factors influencing prognosis. *Am J Med Sci.*, 270(3), 427-40.
- Kangaye, S., Moumouni, K., Ibrahim, A., Soumana, A., Ousman, M., Moumouni, H., & Sadou, H. (2019). Correlation Entre les Motifs d'hospitalisation et l'état Nutritionnel chez les Enfants Âgés de 6-59 Mois Hospitalisés en Urgence Pédiatrique dans deux Hôpitaux de Référence de Niamey, Niger. *European Scientific Journal, ESJ*, 15(9), 214.
- Kingwengwe, A. A., Ndjadi, A. K., Lukusa, P. M., Ilunga, P. M., Ibeki, E. K., Kyanga, P. A., ... & Okitotsho, S. W. (2019). Epidemiology of pediatric medical emergencies at the Kindu reference General Hospital (HGRK): state of affairs and perspectives. *Open Access Library Journal*, 6(9), 1-9.
- Mabilia-Babela, J. R., & Senga, P. (2009). Consultations de nuit aux urgences pédiatriques du CHU de Brazzaville, Congo. *Médecine Trop.*, 69(3), 281.
- Nsagha, D. S., Kamga, H. L. F., Verla, V. S., Assob, N. J. C., Njunda, A. L., Mpei, E., Njouendou, A. J., & Ngowe, N. M. (2015). La Morbidité au Service de Pédiatrie de L'hôpital Régionale de Nkongsamba au Cameroun entre 2007 et 2011. *Afr. J. of Integ Health*, 5(1), 6-13.
- Onana, N. A. (2018). Statut nutritionnel des enfants Baka de 6 à 59 mois à Lomié dans la région de l'Est-Cameroun. *J Med Health Sci*. <https://oa.mg/work/2887017374> consulté le 02/04/2023 à 02 h 42 mn
- UNICEF. « Rapport de l'atelier sur le suivi technique du forum vision 2010 » L'Harmattan, 1988. 2003
- UNICEF: Principale maladie chez les enfants au Mali. <https://www.unicef.org/mali/surviedelenfant#:~:text=Les%20principales%20maladies%20mortelles%20qui,maladies%20courantes%20et%20enti%C3%A8rement%20C3%A9vitables.> Consulté le 01/04/2023)