

Trends in Childhood Deaths in Eleta Hospital Ibadan, Oyo State, Southwestern Nigeria

F.F. Fadero, M.A. Onigbinde and O.A. Oyedeji
Department of Paediatrics and Child Health,
Ladoke Akintola University of Technology, Ogbomoso, Oyo State, Nigeria

Abstract: A study of the trend in an institution's childhood death is one of the means by which one can find out if the institution has made improvement in the Millennium Development Goals (MDG) as at 2015. There were 1,132 admissions into the St. Mary General Hospital, Eleta, Ibadan, Southwestern Nigeria between January and December 2009. There were 659 males and 473 females giving a ratio of Male:Female is 1.4:1. The 119 (10.5%) children during the admission died. The childhood deaths consisted of 63 (9.6%) males and 56 (11.8%) females; a ratio of Male:Female is 1.1:1. Among the neonates, 36 (36.3%) deaths were recorded infants up to 5 years, 73 (61.3%) deaths were recorded and above 5 years, 10 (8.4%) deaths were recorded, respectively. The childhood mortality in hospitalized patients remains high especially, among the neonates and children of 1-5 years. Most deaths were due to birth asphyxia and malaria. It appears that the Millennium Development Goals (MDG), set by the World Health Organization (WHO) in relation to mortality will be difficult to meet.

Key words: Childhood mortality, birth asphyxia, malaria, Millennium Development Goals (MDG), Nigeria

INTRODUCTION

Death is a final chapter in a child's life and illnesses. Some symptoms especially vomiting, fever, diarrhoea and surface sores are often treated by some parents and guardians without resorting to medical personnel. The parents take the symptoms as ordinary whereas many of the symptoms are events inviting preventive actions without which they result in deaths of the children. The magnitude of childhood mortality can be truly assessed by evaluating the health care of the children in the given community (Fetuga *et al.*, 2007).

About 10.6 million children aged below 5 years die annually in Africa from preventable causes and in 2000 and 2003, children died from pneumonia, diarrhoea, malaria, neonatal pneumonia/sepsis, preterm delivery and birth asphyxia (Bryce *et al.*, 2005). Childhood deaths are also concentrated in areas of poverty, ignorance and social instability such as wars, diseases and poor education especially in the third world (Fetuga *et al.*, 2007).

In Southwestern Nigeria, rates of childhood deaths were determined, respectively at the University College Hospital (UCH), Ibadan which is not a general hospital but a tertiary hospital and a referral centre (Adeyokunnu *et al.*, 1980; Bamgboye and Familusi, 1990).

Consequently, University College Hospital (UCH), Ibadan might not have captured a complete array of the common diseases and possible deaths seen in that community. In Nigeria and many developing nations of the world, hospital-based records such as the ones studied in UCH, Ibadan are still often used to estimate childhood deaths and therefore, there are limitations to the accuracy of the estimates (Adeyokunnu *et al.*, 1980).

The purpose of the present study is to assess the trends in childhood death in a General Hospital, Eleta, Ibadan an urban area of Ibadan in South Western Nigeria, especially when Millennium Development Goals (MDGs) draw to its last third course ending in 2015.

MATERIALS AND METHODS

St. Mary's Catholic General Hospital, Eleta, Ibadan, Nigeria has a Children's Department which is made up of a Children's Unit and a Newborn Unit. The hospital serves as a primary and a secondary care centre catering for the people of the surrounding environs. It also caters for patients who are referred from other private hospitals because they have been filled up or cannot provide the services that the patients require.

The case records of all the children who were admitted between in January 1, 2009 and December 31,

2009 were examined retrospectively. The names, hospital numbers, sexes, ages, weights, diagnoses and duration of stay were extracted from the case files of the patients. The dates of death and discharges or Discharges Against Medical Advice (DAMA) and referrals to the tertiary centre of University College Hospital, Ibadan were also obtained. The data were entered into the computer and analysed using the Software Statistical Package for Social Sciences (SPSS) Version 15.

RESULTS AND DISCUSSION

During the 1 year period (January to December 2009) a total of 1,148 patients were admitted into the Children's Department of St. Mary's General Hospital, Eleta, Ibadan. In all these patients, 16 were excluded because of incomplete information with regards to sex and diagnoses. Therefore, 1,132 patients had acceptable data for this study.

There were 659 males and 473 females admitted into the ward giving a ratio of Male:Female ratio of 1.4:1. There were 119 (10.5%) overall total deaths consisting of 63 (9.6%) deaths in the males and 56 (11.8%) deaths in the females; a Male:Female ratio of 1.1:1.

Age distribution of the children that died: The deaths in the neonates were 36 (30.3%); infants and up to 5 years, 73 (61.3%) and children aged above 5 years, 10 (8.4%). Table 1 shows the age distribution of the children who died. The 67 (56.3%) of the deaths occurred within 24 h of admission; most of the deaths were due to anaemia and severe dehydration.

Causes of deaths among the neonates: Table 2 shows the distribution of causes of deaths among the neonates. The neonates who died were 36 (30.3%) of the total deaths. The leading causes of death were birth asphyxia: 12 (33.3%) followed by neonatal jaundice: 10 (27.8%) and sepsis: 6 (16.7%). Other causes of death were prematurity: 5 (13.9%) and neonatal tetanus: 3 (8.3%).

Table 1: The age distribution of the children that died

Ages of children who died	No. of children	Percentage
Neonates	36	30.3
Infants up to 5 years	73	61.3
Above 5 years	10	08.4
Total	119	100.0

Table 2: Causes of deaths in the neonates

Causes of death in neonates	Number	Percentage
Birth asphyxia	12	33.3
Neonatal jaundice	10	27.8
Sepsis	6	16.7
Prematurity	5	13.9
Neonatal tetanus	3	08.3
Total	36	100.0

The causes of deaths in infants and up to 5 years of age children: Table 3 shows the distribution of causes of deaths in infants up to 5 years old. Malaria accounted for 42 (57.5%) of the deaths, gastroenteritis, 9 (12.3%) broncho pneumonia, 8 (10.9%) and meningitis, 5 (6.8%). Others are septicaemia: 2 (2.7%); bleeding disorder: 1 (1.4%); tetanus: 1 (1.4%); asthma: 1 (1.4%); burns: 1 (1.4%); measles: 1 (1.4%); marasmus: 1 (1.4%) and road traffic accident: 1 (1.4%).

Causes of deaths in children above 5 years of age: The 10 (8.4%) of the 128 children age over 5 years old died. Two deaths were due to malaria while one each died of Hb SS, enteric fever, tetanus, burns, meningitis, gastroenteritis, septicaemia and pulmonary tuberculosis.

The diagnoses of serious conditions like cancer, kidney and heart failures do not feature in this review because the affected children are usually referred to the University College Hospital (UCH) where they can be properly investigated and managed.

The overall childhood mortality rate at St. Mary's Catholic General Hospital, Eleta, Ibadan from January to December 2009 is 10.5%. This percentage is comparable to the childhood mortality of 9.5% seen in University College Hospital (UCH) between 1996 and 2000 and 11.6% reported in Ilorin (Ayoola *et al.*, 2005; Fagbule and Joiner, 1987). It is however lower than the childhood mortality rate of 12.6% from Sagamu and the mortality rate of 16.4% reported from the Congo (Fetuga *et al.*, 2007; Lintermans, 1972). The most probable reasons were that the health status of children seen in the late 1970's up to the mid-1980's had improved and also the services in UCH had also improved because of the employment of trained staff in UCH and the acquisition of equipment for the hospital (Dawodu and Effiong, 1985).

Additionally, hospital admissions, investigations and drugs were freely available to children in Southwestern Nigeria at the time. However, in the last 25 years in Southwestern Nigeria and up till now conditions have declined due to downward trend because of corruption

Table 3: Causes of deaths in infants up to 5 years

Cause of deaths	No. of children	Percentage
Malaria	42	57.5
Gastroenteritis	9	12.3
Bronchopneumonia	8	10.9
Meningitis	5	6.8
Septicaemia	2	2.7
Bleeding disorder	1	1.4
Burns	1	1.4
Measles	1	1.4
Asthma	1	1.4
Marasmus	1	1.4
RTA	1	1.4
Tetanus	1	1.4
Total	73	100.0

and the current deteriorating global economy. The children who died within 24 h of admission in this study constituted 56.3% of the total deaths, this is high. If the children had reported earlier, early management would have been instituted to avert many of the deaths (Fagbule and Joiner, 1987; Menge *et al.*, 1995).

Presently, hospital admissions are not free except for children who are diagnosed with Human Immunodeficiency Virus (HIV) or Acquired Immunodeficiency Disease Syndrome (AIDS).

In the present analysis, 30.3% of the deaths occurred amongst neonates. This is comparable to 30.8% of deaths among neonates in 1991 to 2000 in UCH, Ibadan (Oladokun *et al.*, 2004). However, the mortality rates reported in this Eleta study and the Ibadan study were significantly lower than the neonatal mortality rate of 43% in Ethiopia (Oladokun *et al.*, 2004; Andersson *et al.*, 2002). Even in 1977, it had been shown that increased neonatal survival and reduced neonatal mortality in a UCH study in Ibadan were due to improved neonatal care (Dawodu and Effiong, 1985). The present study has again re-affirmed that in recent years and up till now this downward trend in the economy has probably continued to take its toll and reversed the previously noticed improvement in childhood mortality.

The majority of neonatal admissions and deaths were babies delivered outside the St. Mary General Hospital. It is worrying that birth asphyxia, neonatal jaundice, sepsis, prematurity and neonatal tetanus are still prominent causes of neonatal deaths even though they are preventable conditions. It was observed that a large number of mothers attended the Ante-Natal Care (ANC) clinics in the hospitals where they booked but delivered their babies at home or in the Mission houses rather than in the hospitals where they had ANC records or data (e.g., hypertension, SS diseases, short statures, etc.). Poverty was the important reason which made them to deliver at home or the Mission houses where delivery charges were minimal but unfortunately, skilled and knowledgeable staff and appropriate equipment are not available (Petit and van Ginneken, 1995).

In children up to 5 years, malaria was responsible for the majority of deaths followed by gastroenteritis, pneumonia and meningitis. In earlier studies done over two decades ago, pneumonia, gastroenteritis, measles and tetanus were then the leading causes of childhood deaths in Nigeria (Adeyokunnu *et al.*, 1980; Fagbule and Joiner, 1987). This finding in the present study that malaria is now the foremost cause of childhood death is consistent with findings in a 2005 study in Ibadan (Ayoola *et al.*, 2005).

The drugs used to treat malaria then were mostly Chloroquine and Sulphadoxine Pyrimethamine (SP) at the time of the studies (Adeyokunnu *et al.*, 1980; Fagbule and Joiner, 1987). These drugs are no longer adequate in treating malaria because of resistance to them (Federal Ministry of Health, 2009). Artemisinin has been developed for the treatment of malaria. Unfortunately, Artemisinin Combination Therapy (ACT) as recommended for malaria therapy in Nigeria is relatively expensive in treating malaria. Many parents cannot afford them. Such parents still resort to chloroquine and Sulphadoxine Pyrimethamine (SP) in treating malaria rather than ACT because they are relatively cheaper. Drug resistance was probably one of the reasons why the parents presented later with complications in the present study. In addition, many of the children that died in the present study did not have Insecticide Treated Nets (ITN) to protect them from mosquito bites (Oyedeji *et al.*, 2009).

Gastroenteritis was the next common cause of childhood deaths after malaria in children below 1-5 years in the present study. But in the earlier study of childhood deaths carried out the proportion of deaths due to gastroenteritis was higher than that due to malaria. (Fagbule and Joiner, 1987). Although, gastroenteritis was still common amongst the children in the present study, the number of deaths due to gastroenteritis was far lower. The introduction of the Oral Rehydration Therapy (ORT) in the 1990s for the management of diarrhoea had decreased the number of childhood deaths due to gastroenteritis. Most mothers now have become more enlightened to use oral rehydration solutions when their children develop diarrhoea.

Concerning tetanus and measles in the age group of infancy to 5 years in 2009 at Eleta Hospital there was a much smaller percentage of childhood deaths caused by them when compared to the study conducted about two decades earlier (Bamgboye and Familusi, 1990). The National Program on Immunization (NPI) is gradually taking root in Nigeria and this may have exercised preventive effect resulting in lower tetanus and measles deaths than before.

CONCLUSION

The childhood mortality in hospitalized patients in Eleta remains high especially among the neonates and children aged 1-5 years. The Eleta Hospital childhood mortality figures may not be representative of Nigerian childhood mortality figures since Eleta does not admit cases like cancer, major organ failures and so on. Nigerian

childhood mortality figures may therefore be higher. The country may therefore, not meet the MDG goals set for 2015 regarding childhood mortality.

ACKNOWLEDGEMENTS

Researchers are grateful to the management of St. Mary's General Hospital, Eleta, Ibadan, Oyo State, Nigeria for allowing us to publish this manuscript. Also, researchers thank Professors Oyediji and Owa for suggestions and corrections.

REFERENCES

- Adeyokunnu, A.A. O. Taiwo and A.U. Antia, 1980. Childhood mortality among 22,255 consecutive admissions in the University College Hospital Ibadan. *Nig. J. Paediatr.*, 7: 7-15.
- Andersson, T., Y. Berhane, S. Wall and U. Hogberg, 2002. The impact of neonatal mortality on subsequent survival in rural Ethiopia. *Ann. Trop Paediatr.*, 22: 25-32.
- Ayoola, O.O., A.E. Orimadegun, A.K. Akinsola and K. Osinusi, 2005. A five-year review of childhood mortality at the University College Hospital, Ibadan. *West Afr. J. Med.*, 24: 175-179.
- Bamgboye, E.A. and J.B. Familusi, 1990. Mortality pattern at a children's emergency ward, University College Hospital, Ibadan, Nigeria. *Afr. J. Med. Sci.*, 19: 127-132.
- Bryce, J., C. Boschi-Pinto, K. Shibuya and R.E. Black, 2005. WHO estimates of the causes of death in children. *Lancet.*, 365: 1147-1152.
- Dawodu, A.H. and C.E. Effiong, 1985. Neonatal mortality: Effects of selective interventions. *Pediatrics.*, 75: 51-57.
- Fagbule, D. and K.T. Joiner, 1987. Pattern of childhood deaths at the university of Ilorin teaching hospital. *Nig. J. Paediatr.*, 14: 1-5.
- Federal Ministry of Health, 2009. Strategic plan 2009-2013, National Malaria Control Programme, Abuja, Nigeria. <http://nmcpnigeria.org/f/STRATEGIC%20PLAN%202009-2013.pdf>.
- Fetuga, B., T. Ogunlesi, F. Adekanbi, D. Olanrewaju and A. Olowu, 2007. Comparative analyses of childhood deaths in Sagamu, Nigeria: Implications for the fourth MDG. *SAJCH.*, 1: 106-111.
- Lintermans, J.P., 1972. A survey of childhood mortality in a congolese university hospital. *J. Trop. Pediatr.*, 18: 21-24.
- Menge, I., F. Esamai, D. van Reken and G. Anabwani, 1995. Paediatric morbidity and mortality at the Eldoret district hospital, Kenya. *East Africa Med. J.*, 72: 165-169.
- Oladokun, R.E., A.E. Orimadegun and J.A. Olowu, 2004. A ten-year review of neonatal death in the special care baby unit at the university college hospital, Ibadan. *Nig. J. Paediatr.*, 31: 119-125.
- Oyediji, O.A., P.O. Elemile, A.A. Adepoju and G.A. Oyediji, 2009. An evaluation of the use of insecticide treated bed nets among children presenting with malaria at a Nigerian health facility. *Int. J. Med. Medical Sci.*, 1: 501-504.
- Petit, P.L. and J.K. van Ginneken, 1995. Analysis of hospital records in four African countries, with emphasis on infectious diseases. *J. Trop. Med. Hyg.*, 98: 217-227.