

East African Medical Journal Vol. 87 No. 8 August 2010

ACUTE MEDICAL CONDITIONS IN UNDER FIVE YEAR OLD CHILDREN AT A PUBLIC HOSPITAL IN KENYA
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D. MAKWORO and A. M. R. LAVING

ABSTRACT

Objective: To determine the prevalence of childhood preventable and treatable medical conditions and the parent's/guardian's knowledge about the conditions and their management.

Design: A descriptive cross-sectional study.

Setting: Paediatric medical wards at Kenyatta National hospital

Subjects: All children aged 0-60 months with preventable conditions (that included pneumonia, malaria, diarrhoea/dehydration, meningitis and malnutrition) in paediatric wards who had stayed in the ward for 24 to 48 hours.

Results: Two hundred and fifty six parents/guardians staying with their children were recruited into the study. The vast majority (85.5%) of the children were aged less than two years. The prevalence of the acute treatable and preventable medical conditions was 88.6% over a one month period. The leading cause of admission for most children was pneumonia (31.6%) followed by malnutrition (16.8%) and gastro-enteritis (16%). Other conditions included neonatal sepsis (9.1%), measles (6%) and malaria (4.8%). The parents'/guardians' mean and median age was 26 years and the majority (89.8%) were mothers. A great proportion (46.5%) of the parents/guardians had attained at least some primary education. More than 70% of the parents/guardians were found to lack knowledge about their children's health problems and the drugs they were using. This was regardless of the parent's/guardians level of education and the frequency of admission of the child.

Conclusion: Acute preventable and treatable medical conditions at KNH are highly prevalent, and the leading conditions include pneumonia, malnutrition and gastro-enteritis. Most parents/guardians did not understand their children's health problems regardless of their level of education.

INTRODUCTION

Childhood preventable and treatable conditions are highly prevalent in the world especially in developing countries (1-4). Each year, more than ten million children under the age of five years die globally from a handful of preventable and treatable health conditions which include pneumonia, malaria, diarrhoea/dehydration, meningitis and malnutrition. For every two people who die of traffic accidents, twenty children die from preventable and treatable causes (5).

These preventable health conditions have also caused high hospital admission rates with paediatric patients occupying a big percentage of hospital beds (6, 7). Quality of care to these patients has been compromised as a result of this congestion (8). The high prevalence necessitated the development and adoption of the integrated management of childhood

illnesses (IMCI) strategy by the World Health Organisation (WHO) in handling these conditions (9). In Kenya as in other African countries, these preventable diseases are the major causes of infant and child morbidity and mortality (10, 11).

The Ministry of Health of the Kenya Government aims at reducing the morbidity and mortality of children aged less than five years from 70 to 40% (12). Commitment of key stakeholders in healthcare is essential for the attainment of this goal. One of the key stakeholders is the child's parent/guardian, who however is ignored most of the time by the healthcare providers (13). The studies that have been done locally have been done in the first level referral hospitals but not in tertiary level referral hospitals (14). Therefore the study set out to determine the prevalence of childhood preventable and treatable medical conditions among the children admitted at

Kenyatta National Hospital (KNH) and the parent's/guardian's knowledge about the conditions and their management.

The study answered the following questions:

- What is the prevalence of acute preventable and treatable medical conditions in children aged 0-60 months in the paediatric wards at KNH?
- Do the parents/guardians understand their children's condition and how it is managed?
- Is there a relationship between the parent's/guardian's level of education and the knowledge they have about the child's condition?

MATERIALS AND METHODS

A descriptive cross-sectional study was carried out at the paediatric wards at KNH. A total of 256 parents/guardians staying with the selected children were recruited into the study. The study used a questionnaire with open ended and closed ended questions. The questionnaire was pre-tested in the paediatric surgical ward of KNH.

The admission registers were checked on a daily basis to determine the number of children admitted with the conditions over the period of study. Systematic random sampling was used for selecting the children whose parents/guardians were to participate in the study. All children aged 0-60 months with preventable conditions in paediatric wards who had stayed in the ward for 24 to 48 hours were serialised on the first day of research. A table of random numbers was used to select the first patient. The third patient from the first patient was then selected on a daily basis as they were being admitted until the sample size was reached. Parents'/guardians' of the selected children staying with them in the wards were then requested to participate in the study.

The data collection exercise was conducted on a rotational basis whereby every ward was visited 24 to 48 hours post admission. The researcher and research

assistants reported to the paediatric medical wards on a rotational basis each weekday from 8.00pm to 5.00pm. The children who had stayed in the ward for one to two days were selected from the admission register and then their parents/guardians were approached, consent was requested and those who consented were interviewed by either the researcher or the research assistants using the questionnaire. The 24 to 48 hours duration was chosen so that the patients would have interacted with the healthcare providers.

At the end of every day, the filled questionnaires were checked for completeness and then they were stored for data analysis at the end of the data collection exercise. The questionnaires were coded and then data entered into the computer and analysed using the "statistical package for social science programme (SPSS)". Descriptive statistics were determined and used to describe the population in terms of socio-demographic characteristics and prevalence of the conditions. Relationships were determined by use of chi - square test and Fishers exact test at 0.05 level of significance.

The research protocol and consent forms were reviewed and approved by the KNH Research and Ethics Committee and the Ministry of Education Research Committee. The participants of the study were explained to the nature, purpose and benefits of the study. If they were agreeable they were given the consent form to sign.

RESULTS

Children

Age and Sex: The mean age of the children was 9.6 months with a median of 91/2 months and a range of 2 days to 60 months. The majority (59.6%, N= 152) were male whereas female were 40.6%, N=104.

Residence: Two hundred and five (80,1 %) of the 256 children were from Nairobi Province. The remaining 19.9% were from the other provinces.

Table 1
Age-Sex Distribution

	Age of Child	Sex of Child				Total
		Male		Female		
		No.	(%)	No.	(%)	
	<1 yr	95	61.3	60	38.7	155 100.0
	1-2 yr	38	58.5	27	41.5	65 100.0
	2-3 yr	5	45.5	6	54.5	11 100.0
	3-4 yr	7	53.8	6	46.2	13 100.0
	4-5 yr	7	58.3	5	41.7	12 100.0
	Total	152	59.4	104	40.6	256 100.0

Table 2
Province of residence

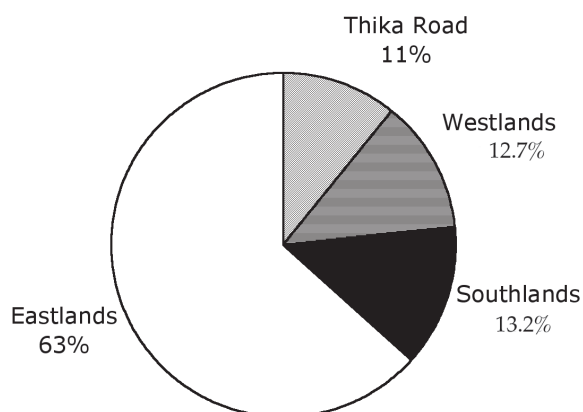
Characteristic	Frequency	Percentage
Nairobi	205	80.1
Central	24	9.4
Eastern	7	2.7
North Eastern	2	0.8
Rift Valley	13	5.1
Nyanza	3	1.2
Western	2	0.8
Total	256	100

Table 3
Parents/Guardians' knowledge of drugs

Knowledge	Frequency	Percentage
Types of medicines		
Yes	129	50.4
No	127	49.6
Total	256	100.0
Source of information		
Doctor	19	14.7
Nurse	16	12.4
Read from notes	84	65.1
Has similar drugs at home	3	2.3
Read from drug container	7	5.4
Total	129	100.0
Effects of drugs		
Yes	127	98.4
No	2	1.6
Total	129	100.0
Source of information		
Doctor	27	21.3
Nurse	29	22.8
Self	71	55.9
Total	127	100.0

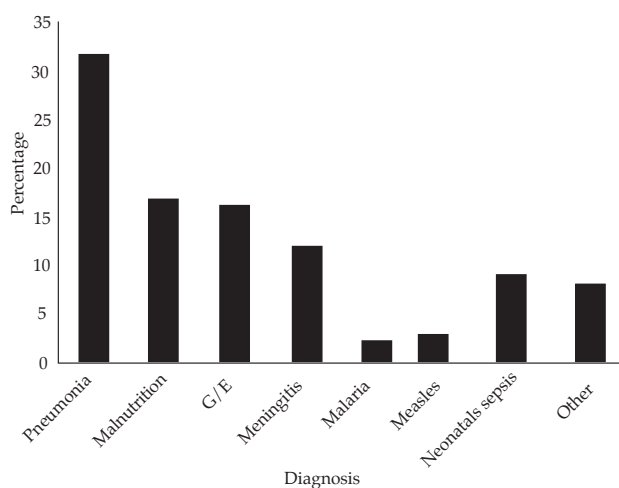
Further analysis of the residential places for those from Nairobi Province was done. Nairobi was divided into four zones that is Eastlands, Thika Road, Southlands and Westlands. Of the 80.1% patients from Nairobi, the majority (63.4%) of the patients were from Eastlands, Southlands counted for 13.2 %, Westlands 12.7% and Thika Road 10.7%.

Figure 1
Distribution of the patients in the four zones



Prevalence of acute preventable and treatable medical conditions: A total of 1042 children were admitted to the paediatric medical wards during the one month study period. Out of these admissions, 922 were aged 0-60 months of which 817 had the acute preventable and treatable medical conditions giving rise to a prevalence of 88.6% over a period of one month. Majority (31.6%) of the children had pneumonia followed by malnutrition (protein energy malnutrition (PEM), marasmus, rickets and anaemia (16.8%) and gastroenteritis 16%. The "other" conditions included dermatitis, bronchiolitis, bronchospasms and asthma.

Figure 2
Prevalence of acute preventable and treatable medical conditions:



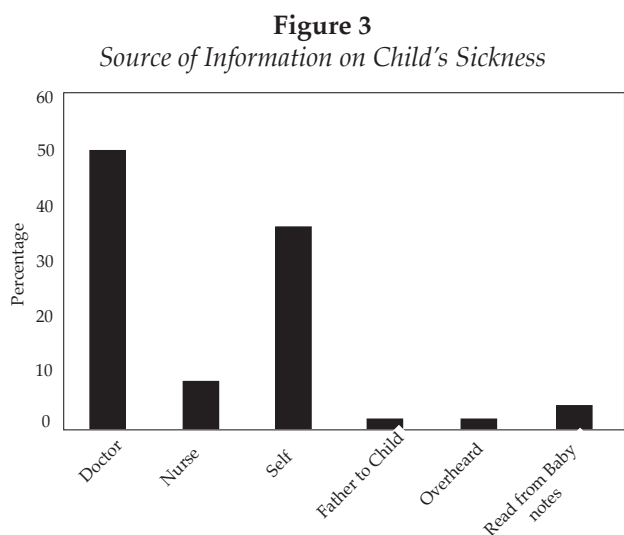
PARENTS/GUARDIANS

Demographic Data: Out of the 256 parents / guardians, 127 (49 %) of them were aged between 15-25 years. Those aged between 26-35 years constituted 43% and those above 35 years 8%. The vast majority (97.7%) of the parents / guardians who were staying with the children were females. The study established that 80.5% of the parents / guardians were married whereas 13.7% of them were single, 2.7% were divorced and 2.3 % were widowed.

Almost half (46.5%) of the parents / guardians had attained primary level of education whereas 2% had no formal education and 8.2 % had attained post-secondary education. Over half the parents / guardians (54.3%) were housewives (table 6). The rest of the respondents comprised business people (16%), farmers (3.9%), security guards (3.9%), attendants (2.7%) teachers (2.3%), and casual labourers (3.9%). Those falling in the "other" category comprised 3.9% of the respondents and included lawyer, pharmacist, messengers, computer technician and a social worker.

Relationship with Child: Most (89.8%) of the children's care takers were mothers, whereas fathers were 2.3 %. Others interviewed included aunts (3.6%), grandmothers (3.5%) and cousins (0.4%).

Knowledge of Child's Sickness: Only about a third (37.1 %) of the parents / guardians knew about their children's sickness. The source of information included; Doctors 49%, Nurses, 8%, Self 36% and other sources 7%.



Relationship between Parent/Guardian's level of Education and Knowledge of Child's Sickness: Parent's / guardian's level of education was compared with their knowledge of the child's sickness. There was no statistically significant relationship between the

parent' s/guardian' s level of education and their knowledge on the child's sickness ($X^2 = 0.847$, $p = 0.655$).

DISCUSSION

The survey showed that the majority of the children who participated in the study were aged less than twelve months. This is in line with studies done world wide (1) and locally (10). The study further established that over 80% of the children were from Nairobi and Central provinces. It was however surprising to find that the majority of the patients from Nairobi were from the low income estates. Many studies have indicated that the status of one's health is related to the level of income and hence the high prevalence of the conditions among this class of people (15). Low standards of hygiene would also be a contributory factor.

The acute and preventable medical conditions were found to cause more than 80% of the admissions among the under fives. This is consistent with the findings documented by MOH/WHO/UNICEF (9). Pneumonia was found to be the leading cause. This is similar to the findings by Victoria *et al* (16). This was followed by malnutrition and gastro-enteritis. The Kenya KDHS 2003 (10) and MOH/WHO/UNICEF (8) reveal the same trend countrywide and many of the developing countries respectively. A local study by Magadi (11) done in Nyanza Province also showed the same trend. Other studies with similar findings include Sullivan's documentation on Global Child Health (4), and WHO (5). The study thus acknowledges that these acute treatable and preventable medical conditions remain a great threat to the health of the under fives.

The study established that the majority of the parents / guardians had attained primary level of education. For those who were married, most of them were house wives. This explains why majority of the patients were from the low income areas and the increased prevalence of these conditions. Therefore, considering the socio-demographic characteristics of both the parents / guardians and the children, the study observes that the age of the child, maternal level of education and occupation have an influence on the child's health. This consistent with local studies carried out by Obimbo (17), Magadi (11) and the KDHS, 2003 (10).

Majority of the parents / guardians did not know their children's health problems or any other community services in proximity to their residence that they could make use of. The findings indicate that the healthcare providers do not apply the IMCI principles which emphasize health education and counselling. As established by Obimbo, only mothers who had been taught by health workers had the right knowledge (17).

In conclusion, the study concluded that the acute preventable and treatable medical conditions are the leading cause of admission of children at KNH and that the most affected children are males, first-borns, of age less than one year and from parents of low socio-economic backgrounds. The study further concluded that parents/guardians have no understanding of their children's health problems and regardless of their level of education. Based on these conclusions, it is therefore recommended that emphasis be laid on the utilisation of the Integrated Management of Childhood Illnesses (IMCI) by the healthcare providers so as to reduce the morbidity of the preventable and treatable medical conditions and that the parents/guardians be educated in regard to the cause, treatment and prevention of the acute treatable and preventable medical conditions whenever they seek medical attention.

REFERENCES

1. Goldhagen, J.L. Child health in the developing world. In: Behrman RE., Kliegman, RM and Jenson, H.B., eds: Nelson textbook of Paediatrics, 16th edn. New York. WB Saunders Company. 2000; 23-26
2. Nolan, T., Angos, P. and Cunha, J. L. A. Quality of hospital care for seriously ill children in less-developed countries. *The Lancet*. 2001; **357**: 106-110.
3. Jones, G., Steketee, R. W., Black, R. E. *et al.* How many child deaths can we prevent this year? *The Lancet*. 2003; **362**: 65-71.
4. Sullivan, P.B. Global Child Health. Archives of Disease in Childhood. *Brit. Med. J Pub. Group. Roy. College Paed. Child Hlth*. 2004; **89**: 397.
5. WHO. Make every mother and child count. World Health Day (7/4/005). *Switzerland*. 2005; 7-13.
6. Can, M. Community child health in the developing world. In: Harvey D., Miles, M. and Smyth, D. eds. Community Child Health and Paediatrics. Oxford, Butterworth-Heinmann Ltd. 1995; 629-635.
7. Dougherty, D. and Simpson, L.A Measuring the Quality of Children's Healthcare. A prerequisite to action to Action. *J. Paediatrics*. 2001; **113**: 185-198.
8. KNH, (2005). Strategic Plan 2005-2010. 15-24.
9. MOH Kenya, WHO and UNICEF. Integrated Management of Childhood Illnesses: Introduction. Nairobi, 2nd edn. 2002.
10. Central Bureau of Statistics (CBS) [Kenya], Ministry of Health (MOH) [Kenya], and ORC Macro. Kenya Demographic Health Survey 2003. Calverton, Maryland: CBS, MOH and ORC Macro. 2004: 140-146.
11. Magadi, M.A. Status of women and Infant/Child Health in Kenya with particular reference to the high mortality zone in Nyanza Province; *UoN-Nairobi*. 1997; 1-12.
12. MOH. (1999). Health Sector Reform Secretariat. National Health Sector Strategic Plan 1999-2004. 1999; 7.
13. Hilary, J.E. and Connie, J.C. Parent-Nurse Interactions: Care of Hospitalised Children. *J. Adva. Nurs*. 2003; **44**: 34-41.
14. English, M., Esamai, F., Wasunna, A., *et al.* Delivery of paediatric care at the first referral level in Kenya. *The Lancet*. 2004; **364**: 1622-1629.
15. Cooper, E. Health, Environment and Poverty. World Resources. earthtrends. wri.org (accessed 12/7/07). 2005.
16. Victoria, C.G., Kirkwood, B.R., Ashworth, A., *et al.* Potential Interventions for the Prevention of Childhood Pneumonia in Developing Countries: Improving Nutrition: *Amer. J. Nutr*. 1999; **70**: 309-320.
17. Obimbo, E.A. The Knowledge, Attitudes and Practices of Mothers, and the Knowledge of Healthcare Workers Regarding Care of the Umbilical Cord of a Newborn. *MMed Thesis U.o.N*. 1996.