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**PATTERN OF MORBIDITY AMONG CHILDREN UNDER FIVE YEARS OF AGE  
SEEN AT RURAL HEALTHCARE FACILITY IN SOUTH-SOUTH NIGERIA**

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**ABSTRACT**

**Background:** Under five morbidity constitutes serious public health challenge with attendant deleterious sequelae on children globally, especially in sub-Saharan Africa and other least developed countries. This is further aggravated by inadequate research data on the state of health of under five children especially in rural areas.

This study was done to describe the pattern of morbidity among under five children presenting at a rural secondary health care facility in Etinan Local Government Area of Akwa Ibom State, Southern Nigeria.

**Method:** This was a descriptive retrospective study involving 494 children aged 0-59 months who presented at the general out patient and emergency units of Qua Iboe Church Leprosy Hospital (QICLH) Ekpene Obom, Etinan Local Government Area, Akwa Ibom State, between June 2014 to June, 2017. The case records of the under five children who presented at the period of the study both at the out patient and the wards were collated and entered into a spread sheet. The age, sex, diagnoses, causes and outcome of admission were extracted from the records.

**Results:** The mean age of the children was 21.63 (±15.34) months. Results obtained showed that 259 (52.43%) of the children were male while 235 (47.57%) were female, giving a male to female ratio of 1.1:1. Out of 526 morbidities presented, 262 (49.81%) were malaria, 133 (25.29%) were acute respiratory infections (ARI's), 37(7.03%) were skin infections, 23(4.37%) were diarrhoea while haemoglobinopathy was the least presentation of only one case (0.19%). There were 74 cases of admission, giving an

admission rate of 14.17%. Complicated malaria was the commonest cause of admission while 89.19% of those admitted were successfully treated and discharged.

**Conclusion:** Most of the morbidities that presented in the facility during the period of the study were preventable through improved socioeconomic condition, health education and immunization. The need therefore to improve the socioeconomic conditions of the populace especially those aspects that affect the wellbeing of under five children and strict adherence to immunization programme as a panacea for reduction of morbidity among the under five children in rural areas is recommended.

**Key Words:** Pattern, morbidity, under five, children.

**INTRODUCTION**

Under five morbidity still remains a serious health challenge globally with far-reaching implications for effectiveness or otherwise of the healthcare system of nations.<sup>1,2,3,4</sup> Although much effort had been made through the erstwhile Millennium Development Goal four (MDG4) to reduce under five morbidity and mortality globally from 91 deaths per 1000 live births in 1990 to 43 deaths per 1000 live births in 2015, it has been documented that about 5.9 million children under five years of age died with about 16,000 deaths daily as at 2015.<sup>1</sup> While under five mortality rate is generally high in the least developing countries, the rate appears to be even much more higher in sub-Saharan Africa.<sup>1,5</sup> Also, according to UNICEF recent survey, everyday, Nigeria loses 2,300 under five year old children thereby making the country the second largest contributor to under five mortality globally.<sup>4</sup> Of profound concern is the fact that most of these deaths are caused

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by morbidities (such as malaria, acute respiratory infections, diarrhoeal disease, paediatric HIV infection, neonatal infections, tuberculosis, etc) which are mostly preventable through improved socioeconomic condition of the populace, intense public enlightenment/health education campaign and, adherence to childhood immunization schedules.<sup>6,7,8,9</sup>

Omokhodion, et al found out in a study on the morbidity pattern among under five children in Ibadan that low educational status and poor environmental sanitation may put children at risk of childhood disease.<sup>10</sup> Several other studies have shown that parent's education and improved socioeconomic condition play an important role in improving health status of the preschool child.<sup>11,12,13,14</sup>

Target two of the third goal of the United Nations Sustainable Development Goals (UN-SDG's) emphasizes reduction of neonatal mortality to as low as 12 per 1000 live births and under five mortality to as low as 25 per 1000 live births by the year 2030.<sup>15</sup>

There seems to be paucity of data on the pattern of illnesses among the under five children in rural health care facilities in Akwa Ibom State. This study was done therefore to fill that gap and aimed at describing the pattern of morbidity among the under five children attending secondary health care facility in rural area of Akwa Ibom state.

## MATERIALS AND METHODS

### Area of Study

The study was carried out at the General Out Patient clinic, emergency unit and children ward of Qua Iboe Church Leprosy Hospital (QICLH), Ekpene Obom, Etinan Local Government Area of Akwa Ibom State. The QICLH was established by the medical mission of Qua Iboe Church primarily to manage leprosy patients. Currently the facility is jointly managed by the Akwa Ibom State Hospital Management Board and the Qua Iboe Church Leprosy Mission. Apart from treatment of leprosy patients, QICLH also serves as a secondary health care facility that takes care of most health problems of its

immediate environment and beyond.

The facility operates a 24 hour emergency service and out patient clinics from 8am to 4pm daily from Monday to Friday and attends to health needs of children and adults. It also has children and adult wards for admission. Patients in the facility are seen by medical officers and consultants employed by the state hospital management board and the medical mission of Qua Iboe Church. The facility has a general laboratory manned by qualified medical laboratory scientists.

## PATIENTS AND METHODS

This was a retrospective study where data was retrieved from the case notes of all children, under five years of age, who presented at the facility between June 2014 and June 2017 for treatment of one illness or the other at the out patient clinic and the children ward. The data obtained include age, sex, definitive diagnosis, causes and outcome of admission. These were entered into a spread sheet for analysis. The diagnoses of the various illnesses were made by the medical personnel in the facility, based on medical history obtained from the parents, clinical examination of the children, and confirmed with laboratory investigations.

### Data Analysis:

The data obtained were analysed using Statistical Package for Social Sciences (SPSS) version 20.0. The frequency and percentages of age, gender distribution and pattern of morbidity among the children were determined. Tables were used to show various data distributions as appropriate.

### Ethical Clearance:

Approval for the study was obtained from the management of QICLH, Ekpene Obom and Akwa Ibom State Health Research Committee before the commencement of the study.

## RESULTS

A total of four hundred and ninety-four (494) under five years old children presented in the hospital during the period of the study.

**TABLE 1: GENDER AND AGE DISTRIBUTION OF ALL THE CHILDREN UNDER FIVE YEARS OF AGE SEEN AT THE FACILITY.**

<b>Characteristics</b>	<b>Frequency (n=494)</b>	<b>Percentage (%)</b>
<b>Gender:</b>		
Male	259	52.43
Female	235	47.57
TOTAL	494	100.00
<b>Age(months):</b>		
= 12	171	34.61
13 – 24	148	29.96
25-36	85	17.21
37-48	48	9.72
49-59	42	8.50
TOTAL	494	100.00

As shown in table 1, of the 494 under five children who presented at the facility, majority 259(52.43%) were male while 235 (47.57%) were female, giving male to female ratio of 1.1:1.

The age of the children ranged from 0-59 months with a mean of  $21.63 \pm 15.34$  months. Greater percentage of the children, 171(34.61%) were infants ( $\leq 12$  months), while the least 42(8.5%) belonged to 49-59months age group.

**TABLE 2: MORBIDITIES AMONG THE UNDER FIVE CHILDREN SEEN AT THE FACILITY.**

<b>Morbidity</b>	<b>Frequency (n=526)</b>	<b>Percentage (%)</b>
Malaria	262	49.81
Acute Respiratory(ARI's)	133	25.29
Skin Infections	37	7.03
Diarrhoea	23	4.37
Bronchial asthma	11	2.09
Paediatric HIV	11	2.09
Inguinal hernia	11	2.09
Pulmonary tuberculosis	7	1.33
Protein Energy Malnutrition (PEM)	5	0.95
Neonatal Tetanus	5	0.95
Neonatal sepsis	5	0.95
Atopic dermatitis	3	0.57
Skin pigmentation disorder	2	0.38
Cerebral palsy	2	0.38
Conjunctivitis	2	0.38
Nephritic syndrome	2	0.38
Road traffic accident (RTA)	2	0.38
Burns	2	0.38
Haemoglobinopathy	1	0.19
TOTAL	526	100.00

*NB: Some children presented with more than one morbidity.*

Table 2 shows morbidity pattern among the under five children in the study. Out of 526 morbidities that presented during the period of the study, malaria had the highest percentage of occurrence 262 (49.81%), followed by ARI's 133(25.29%), skin infections 37(7.03%), then diarrhoea 23(4.37%). Other morbidities included bronchial asthma, paediatric HIV infection, inguinal hernia each having 11(2.09%) respectively, pulmonary tuberculosis 7(1.33%), PEM, neonatal tetanus, neonatal sepsis, each having 5(0.95%). Atopic dermatitis, 3(0.57%), skin pigmentation disorder, cerebral palsy, conjunctivitis, nephritic syndrome, RTA, burns each with 2 cases (0.38%) and Haemoglobinopathy, (0.19%) are also shown.

**TABLE 3: AGE DISTRIBUTION OF THE ADMITTED CASES AMONG THE CHILDREN.**

Age (Months)	Frequency (n=74)	Percentage (%)
= 12	23	31.08
13-24	27	36.49
25-36	11	14.86
37-48	8	10.81
49-59	5	6.76
TOTAL	74	100.00

Table 3 shows age distribution of the admitted cases among the children. Most of those admitted, 27(36.49%) were 13-24 months of age, followed by infants with 23(31.08%) cases. The least admitted group, 5(6.76) were those in 49-59 months.

**TABLE 4: CAUSES OF ADMISSION AMONG THE UNDER FIVE CHILDREN IN THE STUDY.**

Morbidity	Frequency (n=74)	Percentage (%)
Complicated malaria	31	41.89
Acute Respiratory Infections	9	12.16
Diarrhoea	7	9.46
Neonatal Tetanus	5	6.76
Neonatal sepsis	5	6.76
Inguinal hernia	4	5.41
Pulmonary tuberculosis	4	5.41
Protein Energy Malnutrition	3	4.05
Road Traffic Accident	2	2.70
Paediatric HIV infection	2	2.70
Burns	2	2.70
TOTAL	74	100.00

Table 4 shows causes of admission among the under five children in the study. Again complicated malaria, 31(41.89%), constituted the commonest cause of admission, followed by acute respiratory infections, 9(12.16%) and diarrheal disease 7(9.46%) while neonatal sepsis, inguinal hernia, pulmonary tuberculosis, protein energy malnutrition, road traffic accident, paediatric HIV and burns constituted 6.76%, 6.76%, 5.41%, 5.41%, 4.05%, 2.70%, 2.70%, and 2.70% respectively.

**TABLE 5: OUTCOME OF ADMISSION CASES AMONG THE UNDER FIVE CHILDREN IN THE STUDY.**

Outcome	Frequency (n=74)	Percentage (%)
Treated and discharged	66	89.19
Referred	6	8.11
LAMA*	2	2.70
TOTAL	74	100.00

\*LAMA Left Against Medical Advice.

Table 5 shows the outcome of admission cases among the under five children in the study. Most of the admitted cases (89.19%) were successfully treated and discharged, a lesser percentage (8.11%) were referred to a tertiary health facility while 2.70% of the cases left the facility against medical advice. However, from the records available, no mortality was recorded during the period of the study among under-five children in the facility.

## **DISCUSSION**

This study showed the pattern of morbidity among children under five years of age seen at the QICLH, Ekpene Obom, Etinan, Akwa Ibom State, South-South Nigeria. The study indicated an inverse relationship between the age of the children and the frequency of presentation such that the higher the age group of the children the lower the frequency of presentation and vice versa. Thus greater percentage (64.57%) of the children were between age zero and 36 months while lesser percentage (35.43%) were 37 months and above.

This finding agrees with that of Nwolisa, etal and other workers and further corroborates the fact that younger children with lower immunity are more prone to morbidity than older children with stronger immune system.<sup>6,18,19,20</sup>

On the pattern of morbidity presented by the children, the study has shown that out of the 526 cases presented, malaria, ARI's, skin infections and diarrhoeal disease constituted the top most morbidities, accounting for 86.5% of the morbidities among the children. This is similar to findings by Iloh, etal in Owerri, Eastern Nigeria, Ezeonwu, etal in Asaba, Southern Nigeria, Fadeyi in Jos, Northern Nigeria and Elusiyan, etal in Ile-Ife, Western Nigeria<sup>7,9,13,19</sup>. This however is slightly in contrast to the findings by Bamidele, etal in a tertiary hospital in western Nigeria<sup>3</sup>. The presence of other morbidities such as asthma, paediatric HIV infection, pulmonary tuberculosis, hernia, protein energy malnutrition, neonatal tetanus and sepsis, atopic dermatitis, pigmentation disorder, cerebral palsy, conjunctivitis, nephritic syndrome, road traffic accident, burns and haemoglobinopathy, documented in the study, are similar to findings in other studies, in Nigeria and other sub-Saharan African countries<sup>6,8,21,22</sup>.

The study also shows that out of 494 under five children that presented in the facility, 74 of them (14.98%) were admitted. Again in decreasing frequency, complicated malaria, ARI's, diarrhoea, neonatal infections, inguinal hernia, pulmonary tuberculosis,

PEM, RTA, Paediatric HIV and burns respectively were the causes of admission among the children. This pattern of admission among the under five children are similar to findings by Duru, etal in Nigeria and Munthali, etal in Zambia<sup>22,23</sup>. Furthermore, the study has shown that among the admitted cases, a greater percentage were successfully treated and discharged, a smaller percentage of the admitted cases were referred to the University of Uyo Teaching Hospital (UUTH) while the least percentage of the admitted cases left the facility against medical advice (LAMA). Again this finding among admitted cases is similar to findings in other studies<sup>6,22,24,25</sup>. However among the cases seen in the centre during the period of the study no mortality was recorded. This is in disagreement with findings from other studies which documented mortality among under five children in other centres<sup>8,9,19,26</sup>. This zero mortality among the under five children in the facility, a rare finding in morbidity study among children under five years of age, could be due to a deliberate policy of prompt referral of severely ill patients seen in the facility to higher levels of care, with readily available ambulance. Moreover there is a well organized emergency service in the facility such that the staff on duty respond swiftly to emergency cases presented there at anytime. Finally it is interesting to note that most of the morbidities presented at the centre are largely preventable through simple measures such as personal and environmental hygiene, provision of safe drinking water, improved nutrition based on locally available diet, premarital/prenatal counseling and screening, antenatal booking and supervised delivery, use of insecticide treated nets, close monitoring of children, childhood immunization, maternal education and other child survival strategies. The WHO and UNICEF have consistently recommended these measures as means of preventing under five morbidity and mortality globally.<sup>1,4,27,28</sup>

The need therefore to put these measures into practical implementation to reduce morbidity

among children under five years of age in our environment can not be over-emphasised.

## CONCLUSION

The study has shown that most of the morbidities among the under five children seen in QICLH, Ekpene Obom were preventable through simple measures including improved socio-economic condition, health education and adherence to immunization programme. The need therefore to improve the socioeconomic condition of the populace especially those aspects that affect the health of the under five children, enhanced maternal education and strict adherence to immunization schedules as panacea to reduce morbidity among under five children in rural areas, is recommended.

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