

TREND IN PAEDIATRIC EMERGENCIES THAT PRESENTED IN ABIA STATE UNIVERSITY TEACHING HOSPITAL (ABSUTH), ABA, ABIA STATE – A FIVE-YEAR REVIEW (2013-2017)

Okite PC ¹, Uwaga BC ¹, Nze AC ¹, Ijioma CE ²

¹ College of Medicine and Health Sciences, Abia State University

² Federal Medical Centre, Umuahia

Corresponding Author: Okite Prince Chinonso

Email: princekitex2@gmail.com

ABSTRACT

BACKGROUND: In order to improve the quality of prompt child care and to assess the efforts towards the realization of sustainable development goal (SDG) ³, a regular appraisal of the morbidity and the mortality pattern at our emergency units is important. Findings of this study can inform policy decisions on resources and manpower allocations as well as preventive measures in the bid to reduce mortality and morbidity from childhood diseases.

OBJECTIVE: To evaluate the trend in Paediatric Emergency Presentations in ABSUTH from 2013-2017.

MATERIALS AND METHODS: This is a descriptive cross-sectional study done over a 5-year period. The age, gender, common presentations of Paediatric Emergencies, times of presentations and outcome of all the children aged 0-18 years that presented to children emergency room (CHER) of ABSUTH were consecutively documented. Data was obtained using hospital medical record files and analyzed using SPSS Version 21 and Excel 2010, Data was also presented using tables (simple and complex tables) and figures.

RESULTS: There were 281 patients, 52.3% of whom were females and 47.7% males. Bronchopneumonia (11.7%), Sepsis (16), Diarrhea diseases (10.7%), severe malaria (20.6%), uncomplicated malaria (13.5%); were the major cause of admission. Mortality rate within the study period was 3%, discharged (86.5%), 9.5% were transferred to the wards, none was referred to other units while 1% were discharged against medical advice. Of the children that presented, the age distribution is as follows; less than 6 months (19.6%), 6 months to 1 year (25.3%), 1-5 years (32.0%), 6-11 years (17.1%), and 6.0% for children aged between 12-18 years. For the times of presentation of these emergencies, 14.6% presented equally in both January and

February, 13.2% in March, 10.7% in April, 9.3% in May, 6.8% June, 0.8% in July , 5.3% in August, 5.7% in September and October, 8.2% in November, and 5.3% in December.

CONCLUSION AND RECOMMENDATION: Under-five mortality still remains high in our environment with Bronchopneumonia, Severe Malaria, Sepsis, Diarrhea diseases and Uncomplicated Malaria being the major cause of morbidity. Poor health seeking behaviours are generally associated with poor health awareness of the caregivers. There is therefore a need to put in place programs which will address the challenges of under-five mortality.

KEY WORDS: Trend in Paediatric Emergencies, five-year study in Abia State University Teaching Hospital, Aba.

INTRODUCTION

An Emergency is any medical problem that could cause death or permanent injury if not treated quickly.¹ A medical emergency can be defined as an acute change in physiological or psychological status likely to result in death, disability, or delayed recovery without prompt and appropriate treatment. Clinical deterioration in children develops more rapidly than in adults, but with correct treatment the child has a greater capacity for quick and complete recovery.²

A pediatric emergency medicine (PEM) is a medical subspecialty of both pediatrics and emergency medicine. A pediatric emergency is defined as a serious condition that threatens the life of an infant, child, teen, or young adult, thus requires immediate medical attention. Pediatric emergency can be caused by a particular illness, an injury or by ingesting a foreign object or poison.³ It involves the care of undifferentiated, unscheduled children with potentially acute injuries that require immediate medical attention. It remains a major cause of morbidity and mortality in children especially children less than five years old.⁴ While not usually providing long term or continuing care, pediatric emergency doctors undertake the necessary investigations and interventions to diagnose patients in the acute phase, to liaise with physicians from other specialties, and to resuscitate and stabilize children who are seriously ill or injured.⁴ The world health organization (WHO), estimates that approximately 10.6 million children under five years of age die each year with pediatric emergencies constituting a major cause of death.⁵ Children constitute one of the most diverse and challenging patient populations facing emergency physicians.

The variation in the pattern of presentations of pediatric emergencies may be affected by different home or environmental and climatic variations in different parts of the world.⁶ For example in Nigeria and other tropical countries, malaria is more common compared to its prevalence in the western world.

Pediatric emergencies tend to occur more in males than females during early infancy but towards the age of the older children, the females tend to present more compared to males. There is no racial predisposition to the occurrence of emergencies, though it is more common in the tropical countries especially in the rural areas compared to the western world due to factors like low socio-economic status of the countries and also lack of emergency medical facilities and personnel to handle various emergencies in these regions.⁷ Nevertheless, ignorance of most parents which is mostly caused by poor educational status (illiteracy), *laisse-faire* attitude are some of the precipitating factors to pediatric emergencies.

Children constitute one of the most diverse and challenging patient populations facing the emergency physician. While comprising almost 30% of emergency department patients, critical illness and injury are present in only approximately 5%. The majority of pediatric emergency visits are evaluated not in pediatric hospitals, but community emergency departments. Early recognition and aggressive management of illnesses and injuries affecting pediatric patients is of utmost importance. The epidemiology of pediatric emergency medicine changes with the clinical setting. In the pre hospital environment, the most common complaints are fever, trauma, injury, respiratory distress, vomiting, diarrhea or upper respiratory tract infection.⁸ The World Health Organization (WHO) and United Nations Children's Fund (UNICEF) recognizes anemia (both infection related and nutritional), acute lower respiratory tract infections and diarrheal diseases as the major causes of under-five presentation in the children.⁹ To further buttress the point, studies conducted in the various teaching hospitals in Nigeria have shown a predominance of infectious disease as the major cause of presentation in Children Emergency Room and also a major cause of mortality and morbidity in children. This is despite the various preventive programs such as the "roll back malaria", "baby friendly initiative" and "control of diarrheal disease", put in place to curb the surge.⁹

According to a study carried out by University of Ilorin teaching hospital, Nigeria ranks 14th among the countries with the worst infant mortality rate and under-five mortality rate.¹⁰ Factors responsible for these include poverty, ignorance, poor access to medical care, delay in presentation to health facilities and socio-cultural beliefs that make mothers unable to take decision to seek health care, all contribute to high mortality.¹⁰ A study carried out in University of Nigeria teaching hospital, Enugu, reported severe malaria with anemic heart failure, followed by acute respiratory tract infection and diarrheal diseases as the most common cause of children emergency admission in Enugu, south-east Nigeria,¹¹ which is similar to a study conducted in Children Emergency Room of University of Ilorin teaching hospital which reported malaria, respiratory tract infection, gastroenteritis with moderate to severe dehydration as the major cause of presentation.¹⁰ Another study conducted in the University of Ilorin teaching hospital reported that the commonest cause of presentation was febrile convulsion followed by malaria with severe anemic heart failure, acute lower respiratory tract infection, diarrheal diseases, complications of sickle cell anemia, acute asthma and neonatal conditions.¹²

Peak incidence of emergency presentation is usually between the neonatal period to the age of five years. The under five children are therefore a high risk group for these infectious diseases due to the waning of the transplacentally acquired immunity and transitional period of development of their own immunity

Diseases common in age group 1-5 years include malaria and its complications of severe anemic heart failure and febrile convulsion. Also common in this age group include diarrheal diseases and its complications, acute respiratory infections, hemoglobinopathies and home accidents including burns and poisonings, dislocations and fractures.

Unlike other age groups, the age group 6-15 years is liable to endemic diseases common in the environment and thus commonly present in the children emergency with exacerbation of chronic diseases including malaria, sickle cell haemoglobinopathies, bronchial asthma, cardiac failure from congenital or acquired cardiac lesions as well as seizure disorders. Cases of rape and drug abuse are becoming a frequent presentation in pediatric emergencies. Some others include breathing difficulties, seizures, severe allergic reactions, head bumps, vomiting, anaphylaxis,

trauma, respiratory failure, compensated shock, decompensated shock, and primary brain dysfunction.

Some of the common pediatric emergency presentations include severe attack of acute malaria which develops between ages of 6 months to 2 years. Presenting features include; hyperpyrexia ($>39^{\circ}\text{C}$), vomiting, convulsion, severe anemia, cardiac, renal, and liver failure as well as impaired consciousness and coma. Risk factors for fatal outcome are severe anemia, hypoglycemia, decerebration, and renal failure. Treatment can be specific or supportive. Specific treatment involves the use of antimalarial drugs which could be single or multiple drug regimen.

Febrile convulsion is also a common presentation of which malaria is the commonest cause. Other causes include Upper respiratory tract infections, Pneumonia, Urinary tract infections, Viral infections and otitis media. It usually occurs between the age range of 5 months to 6 years. Management includes calling an ambulance if the fit lasts longer than five minutes, maintaining a clear airway, oxygen administration and aborting seizures with Intravenous diazepam 0.3mg/kg. Thereafter, the provoking infection/cause of fever is identified and treated accordingly.

Pediatric emergencies are still a major cause of death in the tropics especially among people of low socio-economic status.⁹ Prevention therefore should be made of utmost priority. To achieve this, an all hand on deck approach is essential to improve the quality of health care given to children under five.

Paediatric Emergency is still a major health care challenge in most developing countries evidenced by the fact that there has been an upward rise in infant mortality rate in Nigeria.

Therefore, evaluation of pattern of presentation in the Emergency Unit of ABSUTH would provide valuable information on preventive programmes already in place and also help policy makers in planning preventive intervention programmes for the Paediatric population.

For the purpose of this study in ABSUTH, Aba, Abia State, Nigeria, similar studies carried out by other researchers which are comparable to our area of interest are reviewed.

MATERIAL AND METHODOLOGY

This study on Trending Paediatric Emergencies was conducted in the medical records of Abia State University Teaching Hospital Teaching Hospital Aba, Abia State. This was a Retrospective study carried out using existing folders in the medical records of the children admitted in the children Emergency Unit with typical emergency presentations. Abia State University Teaching Hospital, Aba. The study seeks to determine the Trend in Paediatric Emergencies ABSUTH. The sample was selected using the systematic probability sampling method. A pre-determined interval of five was used in selecting the folders (281folders) that represented our population of study from 2013-2017.

RESULT

TABLE ONE: AGE DISTRIBUTION AMONG CHILDREN ADMITTED IN THE CHER

YEAR	2013	2014	2015	2016	2017	TOTAL	%
AGE							
<6months	25	11	5	7	7	55	19.6
6months-1yr	14	14	15	7	21	71	25.3
1-5yrs	11	44	8	17	10	90	32.0
6-11years	7	16	-	25	-	48	17.1
12-18yrs	4	-	10	3	-	17	6.0
TOTAL	61	85	38	59	38	281	100

From the Table above, Children aged 1-5 years had the highest number of presentation,32% during the study period with the least presentation found among those aged 12-18 years, 6%. The pattern generally shows a decline in the presentation of these Emergencies as the age increases.

TABLE TWO: SEX DISTRIBUTION AMONG CHILDREN ADMITTED IN THE CHILDREN EMERGENCY ROOM

YEAR	2013	2014	2015	2016	2017	TOTAL	%
SEX							
MALE	32	37	18	29	18	134	47.3
FEMALE	29	48	20	30	20	147	52.3
TOTAL	61	85	38	59	38	281	100

Presentation is commoner among females, 52.3% than Males within the study period.

TABLE THREE: PARENTS' HIGHEST LEVEL OF EDUCATION.

YEAR	2013		2014		2015		2016		2017		TOTAL	%
LEVEL OF EDUCATION												
	M	F	M	F	M	F	M	F	M	F		
PRIMARY	5	4	5	3	1	-	-	-	-	1	19	12.7
SECONDARY	11	6	7	7	7	5	8	7	8	4	70	46.7
TERTIARY	-	3	5	6	5	2	3	4	2	3	33	22.0
NONE	1	1	12	14	-	-	-	-	-	-	28	18.6
												100

Those with secondary level of Education, 46.7% constituted the highest number of the parents of these children who presented at the Children Emergency Room. This was followed by those with tertiary level of Education, 22.0% ; those with none, 18.6% and lastly those with Primary Level of Education constituted the Least with 12.7%. Practicing Doctors usually do not take detailed history from the Parents of the Children that Presented as regards their highest Level of Academic attainment and this led to paucity of data.

TABLE FOUR: YEARLY DISTIBUTION OF ADMISSIONS:

YEAR	2013	2014	2015	2016	2017	TOTAL
NUMBER OF EMERGENCIES	61	85	38	59	38	281
%	21.7	30.2	13.5	21.0	13.5	100

Year 2014 has the highest number of Emergencies, 30.2%. This is followed by Year 2013, 2016, 2015, 2017 with respective values, 21.7%, 21.0%, 13.5%, and 13.5%. 2015 and 2017, have equal number of Presentations. The years with low number of Presentations especially 2015 and 2017, recorded the highest episodes of Strike actions.

TABLE FIVE: COMMON PRESENTATIONS AT Children Emergency Room

YEAR	2013	2014	2015	2016	2017	TOTAL	%
EMERGENCIES							
BRONCHOPNEUMONIA	14	7	5	5	2	33	11.7
SEPSIS	17	9	6	9	4	45	16.0
SEVERE MALARIA	9	24	10	10	5	58	20.6
MENINGITIS	-	5	-	1	1	7	2.5
MALNUTRITION	-	1	-	1	1	3	1.1
BRONCHIAL ASTHMA	-	1	-	1	-	2	0.7

UPPER RES. TRACT INFECTION.	1	4	1	4	6	16	5.7
FEBRILE CONVULSION	1	2	3	-	1	7	2.5
DIARRHOEA DISEASES	5	10	7	7	1	30	10.7
UNCOMP. MALARIA	5	13	4	11	5	38	13.5
ANAEMIC HEART. FAILURE.	1	2	1	1	-	5	1.8
MEASELES	-	2	-	-	-	2	0.7
DEHYDRATION	4	3	1	6	-	14	5.0
SICKLE CELL CRISIS	3	-	-	2	-	5	1.8
URINARY TRACT INF.	-	2	-	1	-	7	2.5
SHOCK	-	-	-	-	3	3	1.1
OTHERS	-	-	-	-	8	8	2.8
TOTAL	61	85	38	59	38	281	100

Sepsis was the highest in 2013 with 17 cases, 3rd highest in 2014 with 9 cases, 3rd highest in 2015 with 6 cases, 2nd highest in 2016 with 9 cases and 3rd highest in 2017 with 4 cases with a total of 45 cases in five years.

Severe Malaria is the 3rd highest with 9 cases in 2013, highest in 2014 with 24 cases, highest in 2015 with 10 cases, 2nd highest in 2016 with 10 cases, 2nd highest in 2017 with 5 cases, and a total of 58 cases in 5 years.

Bronchopneumonia is the 2nd highest in 2013 with 14 cases, 5th highest in 2014 with 7 cases, 4th highest in 2015 with 5 cases, 5th highest in 2016 with 5 cases, 5th highest in 2017 and a total of 33 cases in five years.

Meningitis is the 6th highest in 2014 with 5 cases, the last in 2016 and 2017 having scored 1 each respectively and none in 2013 and 2015. Scored a total of 7 cases in five years.

Malnutrition was last in 2014, 2016 and 2017 having scored 1 each respectively and none in 2013 and 2015 with a total of 3 cases in 5 years.

Bronchial Asthma was last in 2014 and 2016 having scored 1 each respectively and none in 2013, 2015 and 2017 with a total of 2 cases in 5 years.

Upper respiratory tract infection recorded 1 each respectively in 2013 and 2015, 7th highest in 2014 having recorded 4 cases, 6th in 2016 having recorded 4 cases, highest in 2017 having scored 6 cases with a total of 16 cases in five years.

Febrile Convulsion recorded 1 each in 2013 and 2017 respectively, 2 cases in 2014 and 3 cases in 2015 with a total of 7 cases in five years.

Diarrhea diseases is the 4th highest in 2013 having recorded 5 cases, 3rd in 2014 with 10 cases, 2nd in 2015 with 7 cases, 3rd in 2016 with 7 cases and recorded 1 in 2017 with a total of 30 cases in five years.

Uncomplicated Malaria was the 4th highest in 2013 recording 5 cases, 2nd highest in 2014 recording 13 cases, 5th highest in 2015 recording 4 cases, highest in 2016 recording 11 cases, 2nd highest in 2017 recording 5 cases with a total of 38 cases in five years.

Anemic heart failure recorded 1 in 2013, 2015 and 2016 respectively, 2 in 2014 and none in 2017 with a total of 5 cases in five years.

Measles recorded none in 2013, 2015, 2016 and 2017. 2 in 2014 with a total of 2 cases in five years.

Dehydration is the 5th highest in 2013 recording 4 cases, 8th in 2014 recording 3 cases, recording 1 case in 2015, 5th in 2016 recording 6 cases with a total of 14 cases in five years.

Sickle cell crisis was the 7th highest in 2013 recording 3 cases, none in 2014 and 2017, recorded 2 in 2016 with a total of 5 cases in five years.

Urinary Tract Infections recorded none in 2013, 2015 and 2017, recorded 2 in 2014 and 1 in 2016 with a total of 3 cases in five years.

Shock recorded none in 2013, 2014, 2015 and 2016. Recorded 3 cases in 2017 with a total of 3 cases in five years.

Therefore, from the analysis, the following are the common occurrence of the Pediatric Emergencies within the study Period:

1. Bronchopneumonia, 11.7%
2. Sepsis, 16.0%
3. Diarrhea diseases, 10.7%
4. Severe Malaria, 20.6%
5. Uncomplicated Malaria, 13.5%

TABLE SIX: TIMES OF PRESENTATION OF THE PAEDIATRIC EMERGENCIES.

YEAR	2013	2014	2015	2016	2017	TOTAL	%
MONTH							
JANUARY	17	8	10	5	1	41	14.6
FEBRUARY	6	18	-	15	1	41	14.6
MARCH	8	20	-	3	6	37	13.2
APRIL	6	10	-	14	-	30	10.7
MAY	3	9	-	4	10	26	9.3
JUNE	4	12	-	3	-	19	6.8
JULY	1	-	-	1	-	2	0.7
AUGUST	4	-	-	4	7	15	5.3
SEPTEMBER	5	3	5	-	3	16	5.7
OCTOBER	7	3	5	1	-	16	5.7
NOVEMBER	-	2	9	4	4	23	8.2
DECEMBER	-	-	9	5	6	15	5.3
TOTAL	61	85	38	59	38	281	100

The month of January and February has the highest Presentation with 14.6% followed by 13.2% in the Month of March. 4th highest was recorded in the month of April with 10.7% and 5th

highest is the Month of May with a score of 9.3%. Generally, the incidence of these Emergencies tend to be more during the late dry season and early period of rainy season involving the Months of January, February, March, April and May and decreases during the peak of Rainy season in the months of June, July August with a Plateau maintained at the nadir of the rainy season(i.e. September and October).

TABLE SEVEN: OUTCOME OF THE PAEDIATRIC EMERGENCIES.

YEAR	2013	2014	2015	2016	2017	TOTAL	%
OUTCOME							
DISCHARGED	46	53	17	34	23	173	86.5
TRANSFERRED TO WARD	-	8	9	-	2	19	9.5
REFERRED	-	-	-	-	-	-	0.0
DISCHARGED AGAINST MEDICAL ADVICE	-	1	1	-	-	2	1.0
DEAD	-	-	1	4	1	6	3.0
						200	100

Majority of the Emergencies were treated and discharged home between 2013 and 2017. 86.5% were discharged home and 9.5% were transferred to Ward and only 1.0% discharged against medical advice. Only 3.0% died within this period of Study.

FIGURES:

FIG 1:

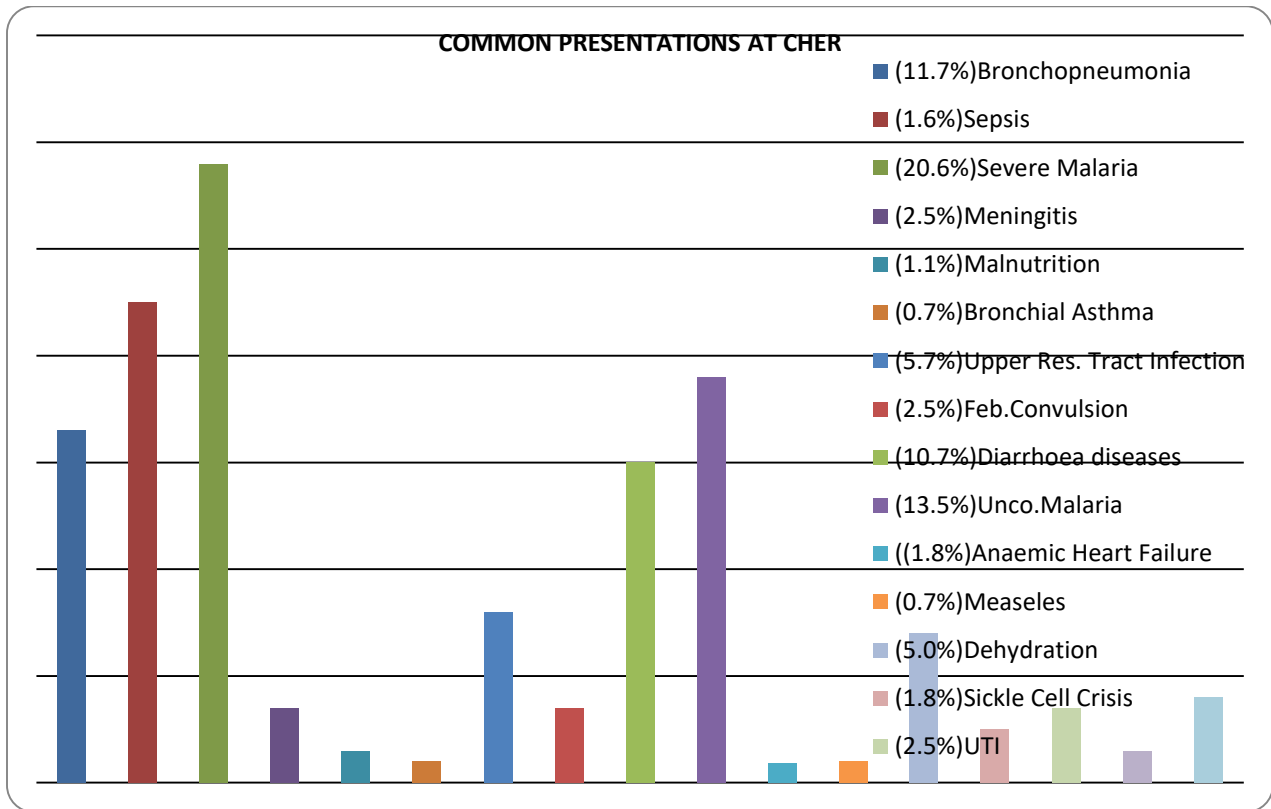


FIG 2:

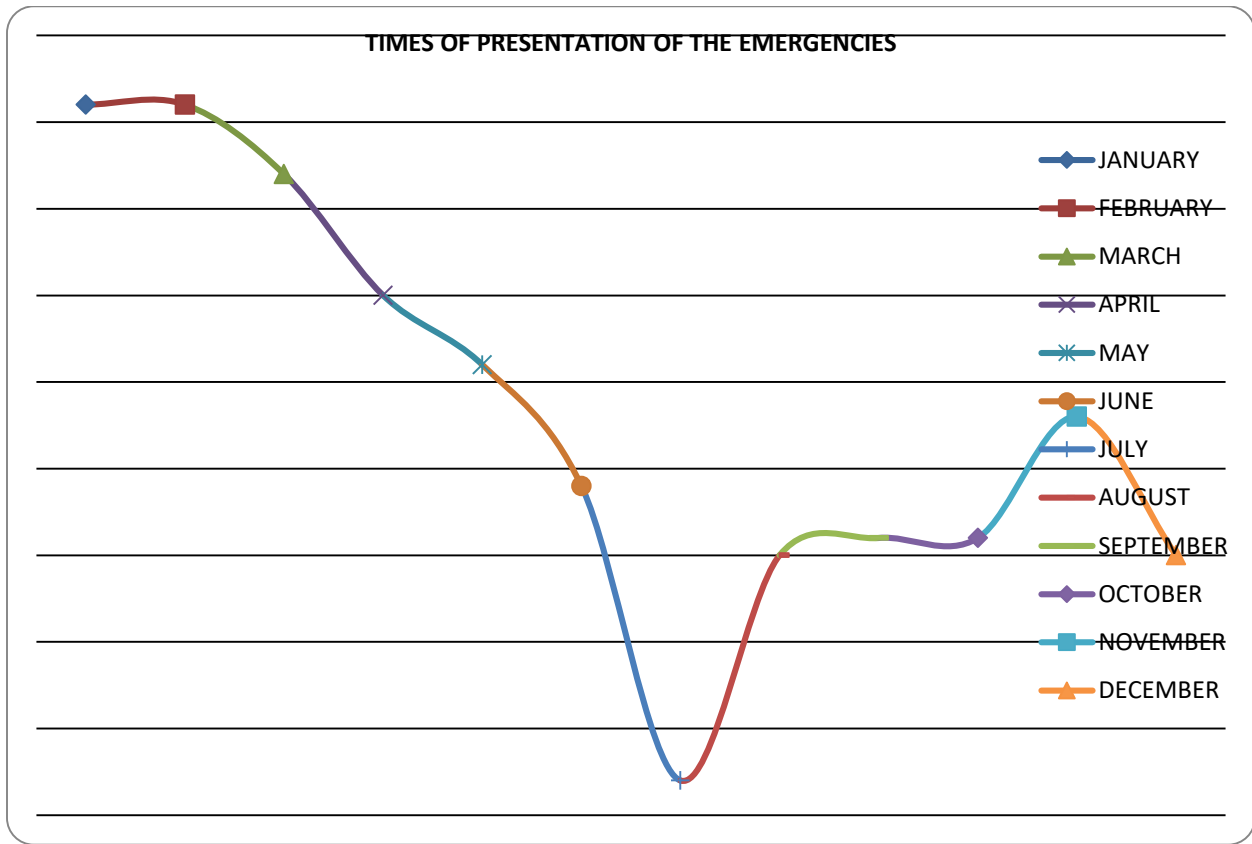


FIG 3:

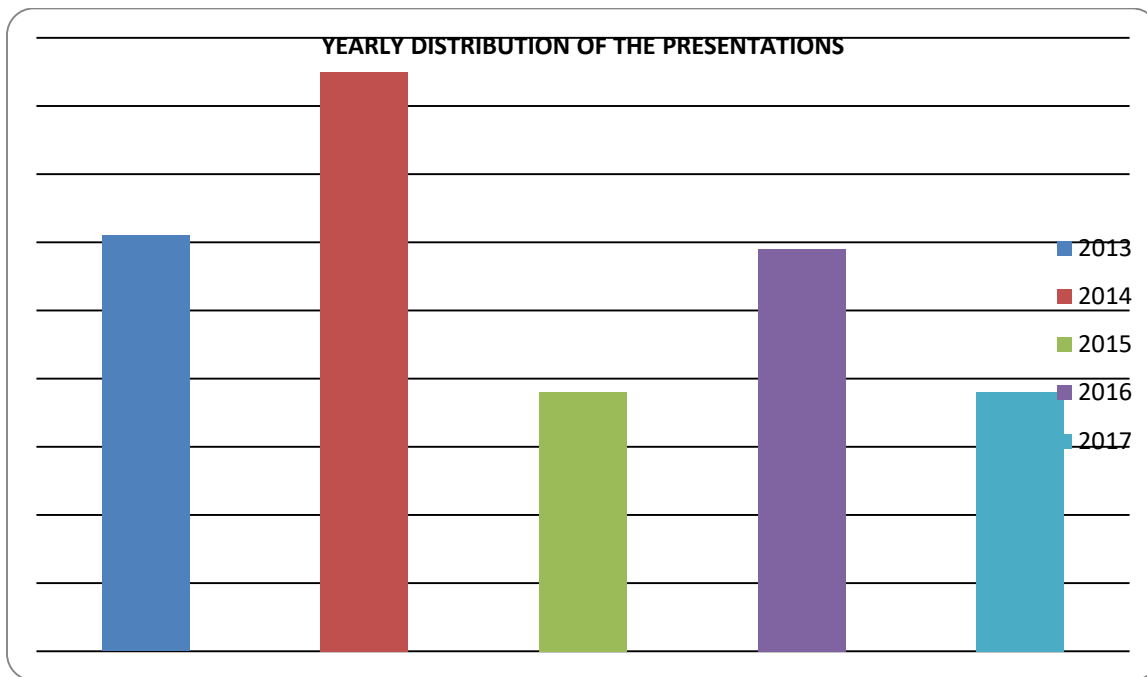
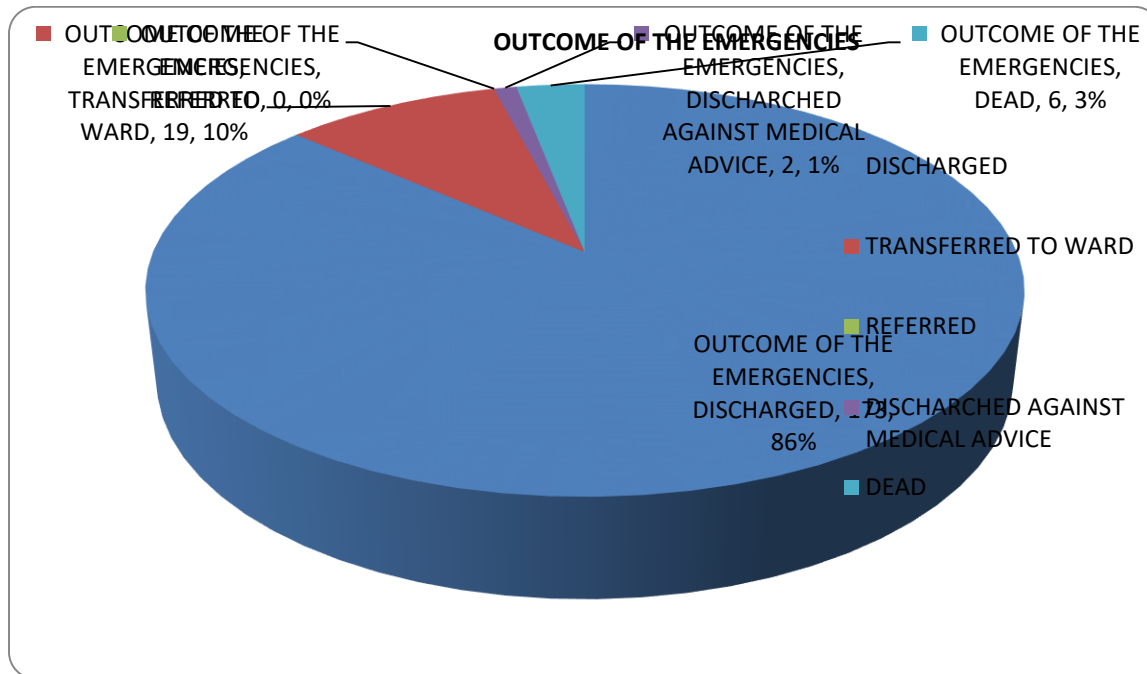


FIG 4:



DISCUSSION

Of a total of 281 presentations, greater percentage were females (52.3%) while males were 47.3 with age ranging from birth to 18 years and the age range that presented most were between 1-5 years of age with 32.0%.

In a study conducted by Bolanle Fetuga et al¹³ reported that out 1,225 patients, 57.7 were males while 42.3% were females. The age range from birth to 16 years but age that admitted most were between 0-28 days with 57% of cases.

From this study Bronchopneumonia accounted for 11.7%, URTI 5.7%, of total cumulative disease presentations, severe malaria accounted (13.5%), febrile convulsion (2.5%), sepsis (1.6%), meningitis (2.5%), anemic heart failure (1.8%), malnutrition (1.1%). This is different from a survey carried out in Niger Delta University Teaching Hospital, Bayelsa State on pattern and outcome of Admissions by Duru. C et al¹⁴ between 1st January 2008 to 31st December 2011, which showed that malaria (both complicated and uncomplicated) accounted for the commonest

cause of presentations with a score of 32%, upper respiratory tract infection (9.2%), anemic heart failure (6.4%), febrile seizures (4.5%), malnutrition (1.8%), sepsis (8.4%). The reason for the disparity in values could be due to the frequent strike actions experienced by most State University Teaching Hospitals of which ABSUTH happens to be one of them leading to paucity of data. This is different from a survey carried in Medical College Chittagong¹⁴ which showed that Bronchopneumonia (22%) accounted for the major cause of presentation was Bronchopneumonia, Septicemia (4.3%), Meningitis (11.3%), severe malaria (4.5%). The difference is probably due to improved medical care and early health seeking behaviours by the inhabitants.

In relation to the times of presentation of these emergencies, the month of January and February have the highest presentations with 14.6% each. This followed by 13.2% and 10.7% presentations in the month of March and April. This is similar to work done at University of Uyo Teaching Hospital, Uyo, AkwaIbom State, Nigeria on Paediatric Emergencies by Eno-ObongUdomobong and EcheyIjezie¹⁵ which showed that the month of March recorded the highest number of Admissions. The rainy season usually starts about this month in Uyo, AkwaIbom Sate of Nigeria. This is the period during which an increase in the period during which an increase in the incidence of Malaria, Diarrhea diseases, Bronchopneumonia and waterborne diseases are observed.

The result of the determinants of the Emergencies showed that both Age, Sex, and Parents level of Education are determinants of the Study. Children age 1-5 years had the highest presentation, 32% with the least among those age 12-18 years (6%). This is in-tandem with a retrospective study carried out by C. I Ndukwe and S. K Onah¹⁶ on the pattern and outcome of Post-neonatal Paediatrics Emergencies Nnamdi Azikiwe Teaching Hospital, Nnewi, South East Nigeria which showed that the under-five children disease states are influenced by the process of growth and development and age is epidemiologically recognized as a constitutional risk factor for some medical conditions during childhood especially infectious diseases. This might be due to bio-physiological changes associated with growth and development. The under-five children to a large extent are therefore the most vulnerable group that bears the burden of diseases to a large extent in Nigeria.

In a study conducted by James Olusegun Bamidele et al in Ado-Ekiti, ¹⁴ almost all the mothers were educated with 89.9% having tertiary education. This is high compared to our study which had 22% of parents with tertiary level of education which reflects the type of population that patronize the teaching hospital and plays a role in early and prompt arrival when symptoms are just starting, thereby reducing morbidity and mortality.

The results of the outcome of this study showed a total of 86.5% were discharged home, 9.5% transferred to the ward, none referred, 1% discharged against Medical Advice while 3% dies. This is similar to a study carried out by C. I Ndukwe and S. K Onah ¹⁶ which reported that out of 2,107 patients that were admitted. 49% were transferred to the ward, 36% were discharged after complete recovery, 2% discharged against Medical advice, and 12.6% mortality rate.

CONCLUSION

The study although not without limitations acknowledges that Paediatric Emergencies is still a major challenge both to parents, health care system and the nation as a whole.

The study commenced by identifying the common diseases that presented in Children Emergency Room and also the mortality rates did not examine the capacity of the health facility to handle such illnesses but the large number of children presenting with Bronchopneumonia and severe malaria was an indicator that there was a significant level of delay of care takers to seek medical attention.

The study also showed that the rate of under-five mortality is still rising despite all the various strategies that have been employed by different organizations and institutions to curb or reduce infant and child mortality.

RECOMMENDATION

By reason of this study and after a careful study of the trend in Paediatric Emergencies in ABSUTH within the study duration, we hereby make the following recommendations.

- 1) Adequate resources both material and human should be channeled to the health care facility to enable those involved to identify and respond with a quick reaction time to these emergencies.
- 2) Continuous health education that promotes the child survival strategies especially at the Primary Health Care Level if combined with several improvements of the socio-economic circumstances of the populace may further reduce morbidity and mortality.
- 3) Health care providers outside the tertiary health system should be made to undergo regular updates and training on maternal, newborn, infant, and childhood health as recommended by WHO and UNICEF.

REFERENCES

1. <https://Lexington.wakehealth.edu/services/>(assessed 10th January,2019)
2. PMID:2818310(indexed for MEDLINE)
3. <http://www.docdoc.com/info/condition/paediatric> emergency(assessed 10th January,2019)
4. [https:// en.m.wikipedia.org>wiki>pediat](https://en.m.wikipedia.org/wiki/pediat)
5. World Health Statistics.Geneva: WHO;2007:available from <http://www.intlwhostat2007.pdf> (assessed 10th January 2019).
6. Mesike C.G., Mosekwu J.N Environmental determinant of child mortality in Nigeria J Sustainable development 2012;5 (1)65-75.
7. Child Survival in Nigeria : Situation response and Project policy project NIGERIA: October 2002
8. [https:// accessmedicine.mhmedical.com>chapter50](https://accessmedicine.mhmedical.com>chapter50) Pediatric Emergencies; Maria Stephen, MD;Cray carter Do; Shah;Ashfaq, BS.
9. Bryce J; Boshi Pinto C; Shibayak; Black BE and the WHO child health Epidemiology reference group who estimates the cause of death in children. *Lance.L*, 2005; 365:114752.
10. M.A.N. Adeboye , A Ojuawo, S.K Ernest, A fadeyi, O.T. Salisu; Mortality Pattern Within Twenty-four hours of Emergency Pediatric Admission in a Resource-poor Nation Health Facility; *West African Journal of Medicine* ; vol.29; No 4 (2010)
11. Ibeziako S.N, Ibekwe R.C. Pattern and outcome of admission in children's Emergency room of the University of Nigeria Teaching Hospital Enugu. *Nig J Pediatric* 2002; 29(4): 103-7
12. Fagbule D, Joiner K.T, Pattern of Children Mortality at University of Ilorin TH. *Nigeria J Paed* 1987;11:1-5
13. Bolanle Fetuga, Tinuade Ogunlesi, Folashade Adekambi, Durutoye Olanrewaju Adebiyi Olowu. Comparative analysis of childhood death in Sagamu, Nigeria: Implications for the fourth MDG. Pg 106-111
14. James Olusegun Bamidele, Eyitope Amu, Olusola Olugbenga Odu. Socio-demographic characteristics and pattern of Morbidity among Patients attend the Infant Welfare Clinic of a Tertiary Health Institution in South Western Nigeria 2014;vol 4 NO 4:89-93.

15. Bassey EU, Ijezie E. Paediatric Emergencies seen in a Tertiary Hospital in Uyo, Akwaibom State of Nigeria, A 2 year review. *Int J.Sci Stud* 2016;4(4):42-45.
16. C I Ndukwu , SK Onah: Pattern and Outcome of Post-neonatal Pediatric Emergencies in Nnamdi Azikiwe University Teaching Hospital, Nnewi, South East Nigeria; *Nigerian J of clinical practice*, 2015;18:348-53