Assessment of Knowledge, Attitude, and Practices of Measles Prevention among Mothers of Under Five Years children attending under 5 clinic in Bauchi Town

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Abstract—Measles (rubella) is among the leading causes of child morbidity and mortality worldwide, although, routine measles immunization coverage has increased from 29% in 1994 to 59.7% in 2009. This coverage is still relatively very low; due to this low coverage rate and prevailing poor living conditions, measles outbreaks frequently occur in different parts of Nigeria, more especially in Bauchi state. This study was conducted to review the knowledge, attitude, and practices of measles prevention among mothers of under Five Years children attending under 5's clinic in Bauchi Town. A descriptive cross- sectional study design was used to collect data via convenience sampling method. 60 mothers formed the sample size of the study. The reliability of the study instrument was obtained by means of cleaning the data, while the validity was established through Cronbach's Alpha reliability test of 0.89 values and analyzed using tables, percentages and chi-square test. Majority of the respondents were in agreement with the statement that measles is among the most common cause of death in children, and also shows that, higher mortality among children infected with measles is couple with malnutrition. Several factors such as infectiousness, greater difficulties in vaccination, in carrying out surveillance, and in detecting infected individuals make measles hard to control talk less of eradicating it. To avoid this tragic effect of measles, Immunization as one of the most powerful and cost-effective weapons of modern preventive medicine should be adopted as prevention and control means. Therefore, it is crucial to immunize children if they are found un-immunized after the age of 9 months.

Index Terms—Bauchi, Children, Clinic, Immunization, Knowledge, Measles, Prevention

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1 Introduction

Measles (rubella) is among the leading causes of child morbidity and mortality worldwide [2]. Measles is a highly contagious disease, which is transmitted via the respiratory route. After an incubation time of one to two weeks, disease starts with a prodromal phase of fever, cough and coryza. At this stage the typical red "Koplik spots" can be seen on the buccal mucosa. A few days later a generalised maculopapular rash appears, often in combination with conjunctivitis [3]. Measles is associated with a transient immuno-suppression, which significantly contributes to its morbidity and mortality. Paradoxically, the disease also results in lifelong immunity [7].

All children are susceptible to measles infection unless protected by immunization. Measles is certainly unpleasant, but it can also be quite dangerous. As many as one in three people with measles develop complications to include pneumonia, miscarriage, brain inflammation, hospitalization and even death. Infants under one year of age, people who have a weakened immune system and non-immune pregnant women's are at highest risk of severe illness and complications. One out of 1,000 people with measles will develop inflammation of the brain, and about one out of 1,000 will die [8].

About 30% infections are of sub-clinical and asymptomatic nature. The rise in the measles antibody level after 9 months of age suggests measles infection or immunization against measles. Various health workers have conducted several sero-epidemiological studies to highlight the problem of measles infection in Nigeria [13]. Measles accounts for a significant childhood morbidity and mortality especially in third world countries, Nigeria inclusive. The WHO estimated in 1996 that the annual case burden amounted to 40 million cases of which about 1 million deaths occur every year, making it the most important killer of the vaccine preventable diseases. The World Health Assembly [9] resolution for child survival calls for 95% reduction of measles deaths and 90% reduction of measles cases by the turn of the 20th. Century,

However, most of the developing countries have not achieved this goal yet. An estimated 20 million children worldwide did not receive the first dose of vaccine in 2011. More than half of these children live in five countries:

- The Democratic Republic of the Congo (DRC) (0.8 million)
- Ethiopia (1 million)
- India (6.7 million)
- Nigeria (1.7 million)
- Pakistan (0.9 million) [11]

Balogun [13] explains that in Nigeria, measles is among the most common cause for morbidity and mortality in children. However, routine measles immunization coverage has increased from 29% in 1994 to 59.7% in 2009 (FMOH). This is still relatively very low. Due to this low coverage rate and prevailing poor living conditions, measles outbreaks frequently occur in different parts of the country. Speculation about the underlying cause centered on the availability of sufficiently many susceptible individuals of the right age-class in close enough proximity to each contact other; hence precursory ideas of critical community sizes for sustaining endemic measles were present. Trottier and Philippe [4] presented a model which investigated measles cycles and the Role of Births and vaccination. Their work had a target on providing a more realistic portrait of the infection by introducing births and deaths in the SEIR model, vaccination, and finally time vaccination in the contact rate.

It is fairly easy to catch the disease if you have not been vaccinated and come into contact with someone who has the infection, which is why epidemics often occur among schoolchildren. Many infected children subsequently suffer blindness, deafness or impaired vision. Measles confer lifelong immunity from

further attacks. In developing countries, 1-5% of children with measles die from complications of the disease. This death rate may be as high as 25% among people who are displaced, malnourished and have poor access to health care [5]. It remains one of the leading causes of death among young children, globally, despite the availability of a safe and effective vaccine. An estimated 16,400 people died from measles in 2008-mostly children under the age of five [10].

2 Methodology

A descriptive cross- sectional study design using quantitative and qualitative methods was used to collect data from mothers on measles and its control. The target population was all the mothers who attended children welfare clinic days of under 5 clinic Bauchi. A convenience sampling method was used to select mothers who attend the children clinic. A total of 60 mothers formed the sample size of the study. Data was collected between 12th and 15th April 2014 at under 5 clinic Bauchi via Face to face interviewing method to collect information on measles knowledge, attitudes and control measures. The reliability of the study was increased by means of cleaning data looking for missing and out of range values, while the validity was established through Cronbach's Alpha reliability test of 0.89 value. Data collated was analyzed using tables and percentages and chi-square method for comparison of variables.

3 Result and Discussion

Table 1: Mothers knowledge on measles

STATEMENT	Response (n = 60)				
	1	2	3	4	5
Measles is among the most common cause of death in children	34	40	23	0	3
Measles can be spread from one person to another	34	43	10	0	13
Danger of measles is usually higher among the young children	60	36.7	0	0	3.3
Measles cases have one or more complications	23	70	0	0	7
Children aged 9-15 months of age should be given 2 doses of measles vaccines.	65	28.3	0	0	6.7

Source:- Field Survey, 2014
Key:-
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree

The table above (table 1) reveals that 34% of the respondents strongly agreed that Measles is among the most common cause of death in children, 40% agreed, 23% were undecided and 3% disagreed. Balogun [13] explains that in Nigeria, measles is among the most common cause for morbidity and mortality in children. In the above table (table 1) 34% of the respondents strongly agreed, 43% agreed, 10% were undecided and 13% disagreed with Measles can be spread from one person to another. The table (table 1) shows that 60% of the respondents strongly agreed that Danger of measles is usually higher among the young children 36.7% agreed and 3.3% disagreed. In table 1 above 23% of the respondents strongly agreed, 70% agreed and 7% disagreed with Measles cases have one or more complications. It could also be seen that in table 1 above 65%, strongly agreed, 28.3% agreed and 6.7%

strongly disagreed that children aged 9-15 months of age should be given 2 doses of measles vaccines. The first dose of measles-containing vaccine (MCV1) is recommended for children aged 9-15 months of age and a second dose of measles vaccine (MCV2) is recommended to be given through routine vaccination programmes to children in the second year of life or at school entry or through mass campaigns to children under 5 years of age [11].

Table 2: Measles control measures

Statement	Response (N = 60)				
	1	2	3	4	5
Measles control is defined as decreasing measles cases	53.3	33.3	6.7	6	6.7
Properly organized hygienic conditions for the patient reduce measles cases.	33.3	56.7	3.3	6.7	0
Prompt measles immunization controls the spread of the infection.	70	23.3	0	0	6.7
Indoor air ventilation decrease measles cases.	33.3	43.3	0	0	23.4
Measles outbreak could be controlled by preventing its importation from other countries.	34	43	10	0	13

Source:- Field Survey, 2014
Key:-
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree

In the table above (table 2) 13.3% of the respondents agreed, 10% were undecided, 53.3% strongly disagreed and 23.3% disagreed with Measles control is defined as decreasing measles cases. The data above (table 2) indicates that 33.3% of the respondents strongly agreed, 56.7% agreed, 3.3% were undecided and 6.7% strongly disagreed with the argument properly organized hygienic conditions for the patient reduce measles cases. The above table (table 2) shows that 70% of the respondents strongly agreed, 23.3% agreed while 6.7% disagreed with Prompt measles immunization control the spread of the infection. This finding was collaborated with the World Health Assembly recommendations that three milestones towards the future eradication of measles to be achieved by 2015:

- Increase routine coverage with the first dose of measles-containing vaccine (MCV1) for children aged 1 year to ≥90% nationally and ≥80% in every district or equivalent administrative unit;

- Reduce and maintain annual measles incidence to <5 cases per million; and reduce estimated measles mortality by >95% from the 2000 estimate [11].

The analysis above (table 2) shows that 33.3% of the respondents strongly agreed, 43.3% agreed while 23.3% disagreed with Indoor air ventilation decrease measles cases. It could also be seen that (table 2), 34% of the respondent strongly agree, 43% agreed, 10% were undecided while 13% disagreed that Measles outbreak could be controlled by preventing its importation from other countries. This finding was in conformity with the CDC assertion that, to prevent importation of measles, CDC worked with health officials in China, including "panel physicians" contracted by the U.S. Department of State to conduct the overseas medical examinations required for

all immigrants and refugees bound for the United States [6]. Moreover, the following measures were recommended:

1) All adoptees examined at panel physician facilities should be screened for fever and rash illness.

2) Measles immunity should be ensured among all adoptees from Henan Province who are scheduled for imminent departure to the United States.

All children at the orphanage in Henan Province should be evaluated for measles. This report summarizes the results of the outbreak investigation and underscores the importance of timely routine vaccination for all international adoptees [6].

Table 3: Chi square table on measles cases could be reduced drastically through sustained immunization coverage

Respondents View	Oi	Ei	Oi -Ei	$(Oi-Ei)^2$	$\dfrac{(Oi-Ei)^2}{Ei}$
Strongly Agree	30	10	20	400	40
Agree	19	10	9	81	8.1
Undecided	5	10	-5	25	2.5
Strongly Disagree	3	10	-7	49	4.9
Disagree	3	10	-7	49	4.9
Total	**60**	**60**	**0**	**604**	**60.4**

Source: Computed from Data, 2014

Therefore, Z^2 (Chi-Square) value calculated is 34.56, the degree of freedom K-L, 5-1 = 4 from the chi-square rule,

Table x 2^2_4; 0.05 = 91.952

Therefore, X^2 calculated = 60.4

X^2 tabulated = 91.952

Decision rule: since X^2 calculated is greater than X^2 tabulated, (60.4>91.952) at 5% confidence level and 4 degree of freedom, the first null hypothesis is rejected and the alternative hypothesis which state that "Measles cases can be drastically reduced through sustained immunization coverage" is accepted. According to Fiebelkorn, et al.[1], to help expedite public health containment strategies, health-care providers should maintain a high awareness of measles immunization and its implementation, implement appropriate infection control measures when measles is suspected, and promptly report suspected cases to their local health departments.

4 Research Findings

Majority of the respondents were in agreement with the statement that measles is among the most common cause of death in children, to avoid the tragic effect of measles, Immunization as one of the most powerful and cost-effective weapons of modern preventive medicine should be adopted as a control means, because without immunization, an average of three out of every one hundred children will die from measles. Therefore, it is crucial to immunize children if they are found un-immunized after the age of 9 months.

5 Conclusion

Although measles controls remains distant, the goal is worthy. The infectiousness of the virus dictates the need for very high vaccine coverage rates to prevent or interrupt transmission. Vaccine coverage is complicated in developing countries by the need to inject children with at least two doses of the vaccine after they reach 9 months. In developed countries, parental resistance to vaccination in previously well-immunized populations is leading to more frequent and larger outbreaks. Therefore, several approaches need to be adopted to solve the problems presented by measles, include developing new vaccines and delivery methods, identifying the determinants of protective immunity in individuals and populations, and educating governments, the public, and health care personnel about the need to implement sustainable measles vaccination programs. Maintaining political will and public confidence are critically important factors for reducing and eventually controlling measles.

6 Recommendations

1. Mass immunization should be conducted in high-risk areas.

2. Children 5 years and above should be Included in supplemental mass vaccination programs based on the measles surveillance data and susceptibility profile.

3. Regular, interval surveys on measles using area identification through mapping of the villages should be carry out.

4. National Measles Control Programme should emphasize on the improvement in early detection of measles cases so that the disease transmission can be minimized.

References

[1] A.P. Fiebelkorn, S.B. Redd, K. Gallagher, (2010). Measles in the United States during the Postelimination Era. J Infect Dis; Vol 202: pp. 1520-8.

[2] C.A. De Quadros, *Can measles be eradicated globally?* 2004 Bull World

[3] D.E. Griffin, Measles virus, 2010 pp. 1401-1441. *In* D. M. Knipe and P. M. Howley (eds.), Fields Virology. Lippincott Williams & Wilkins, Philadelphia. Health Org 2010 Vol 82: pp. 134-138.

[4] H. Trottier, and P. Philippe, "Deterministic modelling of infectious diseases: Applications to measles and other similar infections". The international journal of infectious diseases, 2002 Vol 2, No. 1, pp. 1-18.

[5] H.W. Hethcote, "The mathematics of infectious diseases". Society for Industrial and Applied Mathematics Siam Review, 2000 Vol. 42, No. 4, pp. 599–653.

[6] M.M.W.R. Measles Outbreak Associated with Adopted Children from China — Missouri, Minnesota, and Washington, July 2013: Morbidity and Mortality Weekly Report; April 11, 2014 / 63(14);301-304 2014 http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6314a1.htm

[7] T. Duke, and C.S. Mgone, (2003). Measles: not just another viral exanthem. Lancet 2003, Vol **361**: pp. 763-773.

[8] V. Christine, Measles Outbreaks Are Concerning, Even to the Vaccinated, 2014 http://shotofprevention.com/2014/03/11/measles-outbreaks-are-concerning-even-to-the vaccinated/

[9] WHO/EPI*: (2006/7) Immunization Policy*. Geneva.

[10] World Health Organization, Department of vaccinces and biologicals, (2001), "Measles Technical Working Group: strategies for measles control and elimination". Report of a meeting, Geneva, 11-12 May (2000), Geneva, Switzerland : World Health Organization.

[11] WHO: (2013). Improved Vaccination Rates Critical For Success. http://www.who.int/mediacentre/news/notes/2013/measles_20130117/en/

[12] Y.P Bedi, A Hand book of Preventive and Social Medicine. 16th Edition, Bharnot Publication, New-Delhi, India, 2009.

[13] W.W. Balogun., Missed Opportunities for Immunization in Nigeria, *Journal of Health Development.* 2007 Vol 32: pp. 41- 46

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