

AN EVALUATION OF SUPPLEMENTAL AND ROUTINE IMMUNIZATION COVERAGE IN MAIDUGURI METROPOLIS, BORNO STATE, NIGERIA

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ABSTRACT

Background: Nigeria is currently the main focus of the polio eradication initiative. Strong routine immunization coverage offers better-sustained protection to the most vulnerable age group (0-59 months). Maiduguri is the commercial nerve centre and the seat of government of Borno State.

Objective: To evaluate Supplemental and routine immunization coverage in Maiduguri, Borno State

Methods: This is a thirty-by-seven cluster survey conducted to assess the status of immunization in the metropolis. The WHO standardized EPI questionnaire was used to allow for comparison with other states and nations. A total of two hundred and ten mothers were interviewed from thirty clusters.

Result: The responses revealed a coverage of 78.8 percent for the April 2004 NIDs amongst children 0-59 months of age. Routine immunization coverage for children 12-23 months of age were BCG 45%, DPT-1 42%, DPT- 3 24% and Measles 20% respectively. The BCG to Measles and DPT-1 to DPT- 3 drop out rates were 44.6% and 41.4% respectively which is extremely high. Only 20% of the targeted children completed the immunization schedule.

Reasons for immunization failure include lack of information by health staff on next dates 51.4%, distance from immunization centre 14.6%, unaware of the need to complete immunization schedule to afford protection for their children 15.9% and other associated reasons 18.1%.

Conclusion: The quality of ongoing supplemental immunization is improving, although routine immunization coverage is below the national average of 80%. The metropolitan council and National Programme on Immunization should target caregivers and religious leaders at all levels of the metropolis by both traditional and the electronic media on the importance of completing immunization schedules.

Key words: Community based assessment, supplemental immunization, routine immunization, Maiduguri metropolis, Borno state.

INTRODUCTION

The World Health Organization (WHO) launched its expanded programme on Immunization (EPI) in 1974. Immunization was included as an essential component of primary health care and a strategy for child survival¹. These laudable initiatives did not change the status quo of low immunization coverage for many developing countries including Nigeria contributing to the high morbidity and mortality among children less than 60 months.²

More than five million children die every year in the developing countries and another five million are physically, mentally and socially disabled due to vaccine preventable diseases namely Diphtheria, Pertusis, Tetanus, Measles, Poliomyelitis and Tuberculosis. Ten to twenty percent of all deaths of children of immunization age in developing countries are due vaccine preventable diseases.³ The break through in small pox immunization had given impetus to the world Health Organization and UNICEF to invest in immunization.^{3,5}

In many developing countries including those where services are readily available, certain risk factors do

contribute to the low utilization of immunization services^{5,6} and the World Health reports that the proportions of the targeted children protected from vaccine preventable diseases is less than 50%.⁷

Immunization has been judged to be the most cost effective health care commodity that when fully availed and utilized can avert 50% of under five morbidities and mortalities yet there is paucity of information in the metropolis on childhood immunization and other child survival strategies despite the reported low coverage for Borno state 15.5%.¹¹ This study was carried out to provide baseline data on both routine and supplemental activities to help plan for better coverage.

MATERIALS AND METHODS

Study Area: Borno State, in the North-Eastern Nigeria was created in 1976. It has an area of 69,435 square kilometres and a physical setting which arises from an amalgam of factors relating to location, geology and climate. In 1968 Maiduguri became the capital city of North Eastern State, the geographically largest and the most populous state in

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Nigeria. It was already the headquarters of Borno province, the seat of the Shehu of Borno and centre for migration. Because of its location and growing population it gained importance as a market and centre for entrepot trade from the Sahara and Lake Chad.⁸

Provisional figures from the 1991 census show that, Borno State has a population of 2,536,003 comprising of 1,296,111 males and 1,339,892 females. The population distribution by LGA's indicates that Maiduguri, the state capital has 462, 763 inhabitants (National Population Commission, 1991).⁹

Study population:

The study population consisted of mothers or caregivers of children less than 60 months and children 12-23 months for routine immunization in Maiduguri metropolis selected from its fifteen administrative wards that has an estimated 100,000 inhabitants.¹⁶

Study design:

This was a cross sectional survey using the WHO EPI "thirty by seven (30*7)" cluster survey. Fifteen wards were included in the samples and based on the population estimate provided by the Population commission for the metropolis thirty areas were selected. The selection was based on the probability proportionate to size (PPS) of the population in the cluster. The sample size set for 30 by 7 cluster sample is 210.

In each ward every fourth household starting with the house of the word head form a cluster. The EPI-standardized questionnaire was administered to the respondents. Seven children that were systematically selected were assessed from every cluster. The team entered 634 households and information of children 0-59 months and their experience with the ongoing polio immunization activities and AFP cases reported in their vicinity were sought for.

Survey Instruments used include

The standard EPI cluster survey questionnaire was used. To assess the NID a separate questionnaire developed by the team was used.

Study Methodology

The 30 by 7 cluster sample was used and the 30 clusters were randomly from the 1999 Office of Federal Statistics Maiduguri. Seven children aged (12-23) months were selected in each cluster. The status of last polio campaigns for children (0-59 months) was assessed in the households. Their mothers' status on Tetanus toxoid immunization was also assessed.

The first household was randomly selected using a dice and followed by the contiguous households in the area until the sample is completed in the area selected. Seven children were selected within each cluster and from contiguous households until the sample is completely interviewed.

Table 1: Coverage of NID campaigns in October 2004 in Maiduguri metropolis

Age in Months	Number	Immunized	% Coverage
0-5	89	61	68.5
6-11	102	69	67.6
12-59	837	680	81.2

Figure 1: Routine Immunization coverage by antigens in Maiduguri metropolis

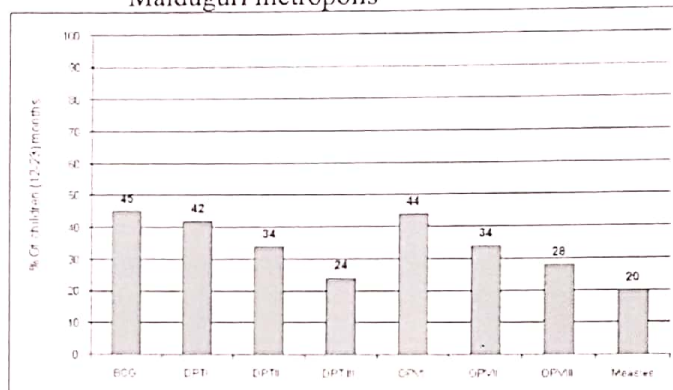


Figure 2: The Drop out rates using the BCG to Measles and OPV¹ OPV³ in Maiduguri Metropolis

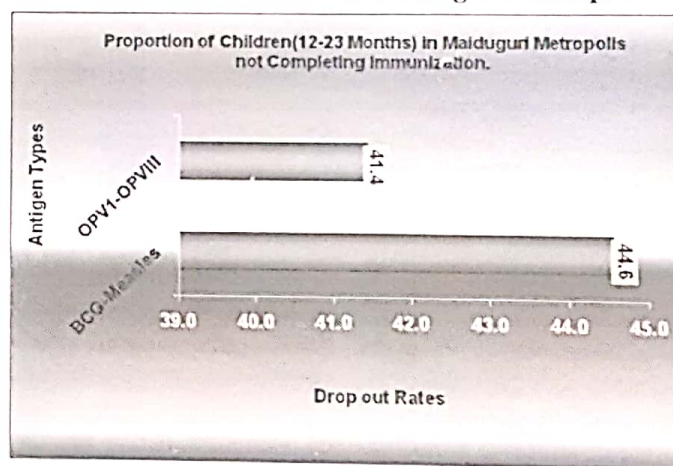


Figure 3: Immunization status of the children 12-23 months in Maiduguri metropolis.

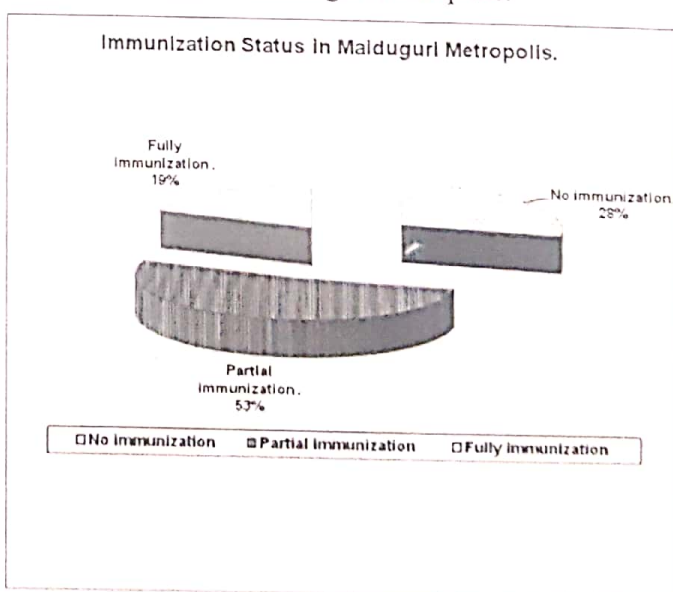


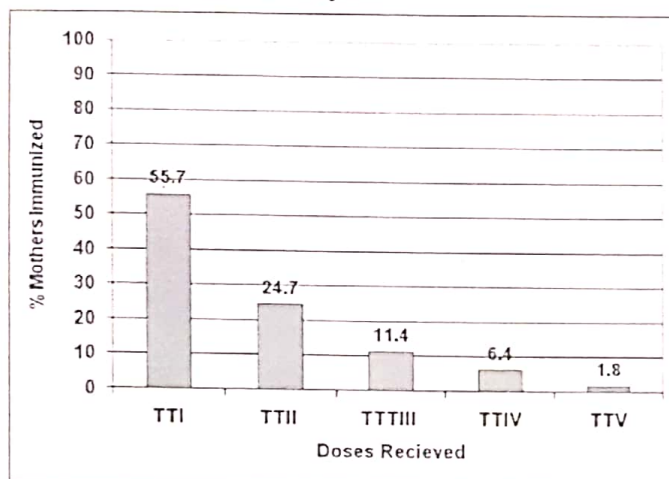
Figure 4: Maternal Tetanus Toxoid immunization status in Maiduguri metropolis

Figure 4 showing Maternal Tetanus Toxoid immunization status in Maiduguri metropolis with only 55.7% of women receiving TT1 (which offers no protection at all) compared to 11.4% (partial 3 years immunity) and only 1.8% getting a life time protective dose in Maiduguri metropolis.

Table 2: Reasons of mothers and caregivers for not immunizing their Children in Maiduguri metropolis**A. Reasons of mothers and caregivers for not immunizing their Children**

Lack of or inadequate awareness for the need of immunization	57.9%
Lack of information to return for subsequent doses of antigens	23.6%
Distance of Immunization Point/Center from family	18.5%

B. Utilization of Health facilities

Proportion of mothers that had at least one antenatal visit	46.8%
Proportion of mothers that had visited a health facility during pregnancy	43.5%

C. Place of Delivery

Home delivery by mothers	76.5%
Delivery at a health facility including private facilities	23.5%

RESULTS

Table 1 and figure 1 shows the trend of the immunization status of the children. The immunization status of the children 12-23 months of age was ascertained by history from the mothers or other care givers, evidence of BCG mark and immunization card. Majority of the respondents 200 (97%) were mothers. Only 44.7% of the mothers

received two or more TT immunization.

The proportion of the fully immunized children (FIC) in the Maiduguri metropolis is shown in figure II, III, and IV where 50% of the respondents showed their immunization cards to validate their claims. The coverage rates for the age groups in the survey depicts a progressive increase in coverage with increasing age in the house to house approach of NID campaigns and the mothers availing grown up kids that are usually more accessible during those campaigns than those less than 12 months olds

Table 2 shows the proportion of caregivers who gave reasons for immunization failure and it ranged widely with lack of awareness being the most frequently reported in more than 50% of the respondents. The pattern of the antigens coverage of the routine immunization showing the decline in coverage from DPT¹ – DPT³ and OPV¹ – OPV³ or BCG to measles dropout rates that is showing the clear pattern associated with low routine immunization service delivery in the metropolis.

The Immunization status of the children 12-23 months in Maiduguri metropolis with only 20% fully immunize children while 52% are partially immunized and 28% or not immunized at all clearly showing a large proportion of left outs. The National Immunization Coverage Survey (2003), showed the fully immunized children as 17.6% and one year after the system showed improvement to 20%.

DISCUSSION

Nigeria is currently the main focus of the Polio eradication initiative where strong routine immunization coverage offers better-sustained protection to the most vulnerable age group 0-59 months. Already more than sixteen rounds of SIAs had been successfully conducted in Borno State and the present findings shows that quality issues in the micro plan development and training of service providers to ensure steady but sustained improvement in the proportion of targeted /vulnerable children with the vaccines is required. In the course of the study, 1,028 households were visited and there is an average of five children (0-59 months) in each household visited. The average coverage of the on-going supplemental immunization in October 2004 making use of the house marking and respondents' acknowledgement was 78.8% (Table 1). However, this clearly shows that the SIAs have not met the minimum requirement of at least 95% for 3 or more consecutive times⁴ to interrupt wild poliovirus transmission. In addition it is expected that every ward have fixed immunization points where more than 80% of the targeted children are protected with the vaccines in the schedule for Nigeria. The findings are consistent with the results of wild polio virus cases isolated in the state.

Children most at risk in Maiduguri metropolis are those in the 0-11 months age group accounting for 12.6% of all the children targeted and a purposeful catch up campaign by

specially trained nurses and Community Health Officers may reduce the proportion of the partially and non immunized through the introduction of static centers.^{12,13,14,15}

However, the WHO polio eradication stipulates coverage above 95% as quality¹⁶ immunization round that could interrupt the transmission of the wild polio virus. Maiduguri is the commercial nerve centre and gateway to Chad, Cameroun and Niger republics and the seat of Government of Borno state, it is time to set up immunization centers at the border crossings so that all the targeted children did not missed receiving OPV and other antigens. This will reduce proportion and importation of the wild poliovirus.

The routine immunization coverage (see figure I, II, III) for children 12-23 months of age of BCG 45%, DPT-1 42%, DPT-3 24% and Measles 20% respectively was found to be new information concerning the regular system of immunizations at the local government level. These results are very much lower than those reported in Kano north central Nigeria, Togo and Ghana in the same period. Routine immunization coverage is also a measure of the quality of primary care service in any ward and similar findings in northern Nigeria showed Maiduguri metropolis having much lower figures for DPT 3 and Measles.^{6,7,9,11}

The BCG to Measles and DPT-1 to DPT-3 drop out rates were 44.6% and 41.4% respectively (see figure II & III). There is good access to immunization services for more than 50% of the targeted children, but completing the immunizations had been the main constraint. The World health reports and documentation allows for drop out rates that are below 10 percent. One of the main components of Primary Health Care, immunization needs to be given priority in the form of retaining, close monitoring and supervision including a sustainable budget line.

Only 20% of the targeted children complete the immunization schedule (fully immunized children) whilst more than half of the children 12-23 months were partially immunized.^{13,14}

Maternal protection through the tetanus toxoid (TT)

given during ante-natal period revealed that only 44.3% of the mothers had received two or more doses in their lifetime. Looking at studies conducted in 1984, there is little or no improvement in the TT coverage within the metropolis.^{3,8,18}

Reasons for immunization failure most frequently quoted by the respondents were the lack of information by the Health staff on next dates 51.4%. This was followed closely by lack of awareness of the need to complete immunization schedule to afford protection for their children (15.9%) and distance from immunization centre 14.6%. Other associated reasons include adverse reactions to BCG and advert events following immunization (18.1%).¹⁶ The reasons mothers and caregivers do not immunize their children or utilize services in Maiduguri metropolis include the lack of or inadequate awareness for the need of immunization accounting for the most reasons (57.9%); with lack of information to return for subsequent doses of antigens (23.6%) while distance from the health facility accounts for 18.5%.

CONCLUSION

In conclusion, the quality of ongoing supplemental immunization seems to be improving, whilst the routine immunization coverage is below the national average of 80% for fully immunized children. The metropolitan council and NPI should deliberately target parents/caregivers and religious leaders at all levels of the metropolis by both traditional and the electronic media on the new immunization schedule and the importance of reporting adverse events following immunization. In addition, the re-introduction of community directed static sites and home visitations using Community Health Extension Workers and relevant health staff should be the mainstay approaches in achieving Reaching Every Ward (REW) a means of meeting the millennium development goals.

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