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A Review Of The 2017/2018 National Measles Vaccination Campaign In Delta State, Nigeria (Short Communication)

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ABSTRACT

This review sought to highlight the 2017/2018 Measles Vaccination Campaign implementation process in Delta State, Nigeria. Data on different aspects of the campaign were reviewed and analyzed using simple descriptive statistics. A total of 1, 157 827 eligible children were vaccinated, 1368-member teams were trained to offer vaccination services, 26 (25 minor and I major) adverse events following immunization were recorded and subsequently managed by trained clinicians at designated secondary health facilities in the 9 affected local government areas, 17,948 safety boxes were generated, stored and incinerated at the Ibuzor industrial waste plant near the state capital. While 2.59% and 18.02 % of all vaccinated children between the ages of 9 and11 months had received a first measles dose and other doses, 2.08% and 77.32% of all children between the ages of 12-59 months had received the first dose and other doses respectively. The state vaccine wastage rate was 12.2%. At the end of the campaign, the state recorded administrative measles coverage of 106.5% while the National Bureau of Statistics in conjunction with partners reported a post campaign coverage of 93.8%. The measles vaccination campaign for controlling measles in Delta State which targeted children between the ages of 9 and 59 months was able to achieve the desired coverage required for herd immunity. Political support from the state government and from relevant line ministries, robust advocacy, communication with electronic and print media, training of teams and sustained social mobilization were veritable tools to the overall success of the measles campaign in Delta State.

Keywords: Delta State, Measles, Vaccination, Government, Coverage.

INTRODUCTION

Measles is a highly contagious viral disease that occurs mostly in children between the ages of 9months and 5 years and can cause serious illness, lifelong complications and death (WHO, 2016). Prior to the availability of safe and cost-effective measles vaccine, measles infected over 90% of children before they reached 15 years of age (CDC, 2018). These infections were estimated to cause more than two million deaths and about 60,000 cases of blindness annually worldwide (WHO, 2017). Even though the global surge in routine and supplemental immunization activities resulted in an 84% drop in measles deaths between 2000 and 2016 worldwide, six countries however account for over half of all unvaccinated children and 75% of estimated deaths (WHO, 2016). The United Nations Children Fund estimates that Nigeria accounts for the highest burden of measles globally with the northern part of the country contributing over 62% to the epidemic despite routine activities (WHO/UNICEF, 2017).

Due to the epidemic burden of measles in Nigeria, several measles supplemental immunization activities (SIA) have been conducted with the aim of controlling measles transmission and sustaining high population immunity (Portnoy et al. 2018). Unlike past SIAs, the 2015 national measles follow up SIA did not result in a decrease in the number of reported cases in 2016 despite achieving substantially higher coverage of 84.5% than the 2013 measles follow up SIA with a coverage of 74.0% (NPHCDA, 2017). While, Delta State having implemented the 2015 mass measles campaign achieved post campaign coverage of 83.6%, below the national coverage of 84.5% the 2017 UNICEF Multi-indicator survey reported coverage of 62.3%. Since, the 2015/2016 SIA did not produce the expected of

low incidence period associated with follow up campaigns, the measles incidence rate in the state rose to 6.4 cases per million by the end of the implementation year with pockets of measles outbreaks documented in 6 of its 25 local government areas. (WHO, 2017)This outbreak was generally due to the accumulation of children susceptible to measles virus as a result of low routine immunization coverage and poor surveillance systems (Baffa et al. 2017).

Having carefully assessed the current situation, the Federal Government of Nigeria mandated the National Primary Health Care Development Agency (NPHCDA) to conduct a national measles follow-up vaccination campaign in line with the WHO plan for "Measles elimination by 2020" (WHO, 2012). This national campaign was implemented in October/November 2017 and March 2018 for the Northern and Southern States respectively. In order to reach the goal of measles elimination in the Delta State, she will need to achieve and maintain 95% vaccination coverage against this disease within each local government area (LGA) through routine immunization (RI) and supplementary immunization campaigns (SIA). In addition, the state will need to improve and sustain a sensitive and timely case-based measles surveillance system, develop and maintain outbreak preparedness and response and manage all confirmed cases appropriately (Baffa, 2017).

The Delta State Primary Health Care Agency (DSPHCDA) through the State Measles Technical Coordinating Committee with technical and financial support from International partners and the Ministry of Health was given the responsibility of planning, coordinating, implementing and evaluating the 2018 supplemental campaign. This review will discuss the implementation of the campaign in Delta State using the World Health Organization guideline for planning a vaccination campaign.

MATERIALS AND METHODS

Study Setting

Delta is an oil and agricultural producing state of Nigeria, situated in the region known as the South-South geo-political zone with a population of 4,112,445 (males: 2,069,309; females: 2,043,136).(NPC 2006)The state has a wide coastal belt inter-lace with rivulets and streams, which form part of the Niger Delta. The capital city is Asaba, located at the northern end of the state, while Warri is the economic nerve center of the state and is located in the southern end of the state.

Delta state has 25 LGAs with 268 political wards. All the wards have a ward focal person and the LGAs have Primary Health Care Coordinators (PHC) who work hand in hand with the Local Immunization Officer (LIO) and other LGA team to deliver health to the grassroots through the umbrella of primary health care.

Delta has a primary health care agency (Delta State Primary Health Care Development Agency), DSPHCDA which is managed on a day to day basis by an Executive Secretary and its board.(DSPHCDA 2018) The DSPHCDA adopted the Primary Health Care under One Roof, (PHCUOR)in 2017 to strengthen Primary Health Care. "The PHCUOP seeks to establish one Primary Health Centre per Ward and to bring strong, accessible and functional healthcare to the grassroots." This innovation has helped Delta state develop and equip model health centres in every political ward in the state.

Planning and Coordination

For the effective planning and coordination of the MVC, the management of the DSPHCDA formed a state measles technical coordinating committee. The fifteen-man members of the committee were adopted from the National field guidelines in addition to the technical measles consultants that represented different international partner agencies. The SMTCC was officially inaugurated by the board Chairman of the DSPHCDA and was charged with the mandate of planning and coordination the 2018 measles vaccination campaign. Their core functions were to review the draft micro plan and daily implementation plans, assess the cold chain inventory and logistics plan for the state and local councils, develop a waste management plan, monitor and supervise the campaign, plan advocacy visits to all relevant stakeholders,

liaise with the health management board for the sensitization of medical personnel who would manage adverse events following immunization (AEFI), train local personnel and collect and collate the data from the campaign.

Advocacy, Communication and Social Mobilization

The major news media and television stations sensitized and created awareness on the campaign and other issues related to it. A thirty minutes television broadcast was held weekly while radio broadcasts and jingle were conducted in 5 local languages and disseminated across the state. The Delta State National Orientation Agency sent out about 2 million messages to registered phone users in the state. There were 8837 flyers, 19073 posters that were distributed to all 25 local councils in the state.A risk communication protocol was developed as an integral component of this campaign since the country and state was emerging from an outbreak of monkey pox disease with attendant poor rumor management.

Target population

The target population was determined by a house to house walk through that was conducted and submitted to the National Measles Technical Coordinating Committee (NMTCC) for verification in March 2017. All eligible children between the ages of 9 and 59 months who were living in Delta State regardless of their residence status, vaccination or disease history were vaccinated. One thousand three hundred and sixty-nine teams made up of 2 vaccinators, 2 recorders, a community mobilizer, a town crier, and a crowd controller were used for the campaign to vaccinate all eligible children. Eight special teams were used to cover 8 affected wards in 2 local government councils that were security compromised.

Ethical Approval

Since this campaign in Delta State was part of a National Campaign, the Delta State Ministry of Health waived approval. Parents and guardians gave verbal consent for their children and wards to be vaccinated during the campaign. Approval was also obtained from the National Primary Health Care Development Agency (NPHCDA) for the reproduction of the state data.

Implementation

The campaign was implemented in March 2018 using the two-phase approach according to the field guide lines. The first phase was implemented in 16 local councils between the 1st - 6th of March with a mop up on the 7th while the second phase was held between the 8th -13th of March with a mop up on the 14th. The local government strategy approach was used whereby non-implementing local council areas had to step in to help the implementing local councils by providing personnel, infrastructure and other logistics.

Adverse Event Following Immunization Management

An Adverse Event Following Immunization (AEFI) is any untoward medical occurrence which follows immunization and which does not necessarily have a causal relationship with the usage of the vaccine. The adverse event may be any *unfavorable, unintended sign, abnormal laboratory finding, or symptom or disease*. While clinicians working in secondary health facilities attended a one day sensitization workshop on injection safety and the management of AEFI, vaccinators were not only selected from the available working staff at the local councils but were trained and examined on the tenets of injection safety and the management of mild AEFIs which were all line-listed in the provided forms for the campaign and reported accordingly from the vaccination site to the local immunization officer (LIO) who reported to the (state immunization officer) SIO and finally to the national.

Vaccination:

One dose of 0.5 ml of live attenuated measles vaccine was given subcutaneously in the left arm of every child after obtaining parental or guardian consent. The vaccine was sourced by GAVI through the NPHCDA and distributed from the national cold store to ensure its potency and effectiveness.

Waste Disposal:

A waste management committee was instituted to develop a logistics plan for managing all the wastes that were generated from the 25 LGAs. Safety boxes for each local council was distributed along with the vaccine and other materials needed for the campaign in bundled packs. Finally, the state pulled all the sharp wastes from the local councils to the industrial incineration site near the city.

Post Coverage Survey:

This was conducted independent of the state and supporting partners 2 weeks after the implementation of the campaign using a supervisory assessment tool developed by the World Health Organization. A stratified multi-stage probability sampling technique was used to select 210 children from the 25 LGAs in the state.

Monitoring and Supervision

The supervisory process was intensive and carried out by 21 national supervisors who were deployed by the NPHCDA, 6 Management Support Team (MST) from African Field Epidemiology Network (AFENET),7 management technical officers (MTO)s from WHO, 5 National consultants deployed to the state (1 WHO technical officer, 3 UNICEF technical officers and I AFENET technical officer) and 25 members of the state team.

Rapid convenience monitoring was carried out during the campaign by 50 independent monitors using the WHO standardized in –process and end process templates. Feedback on the assessments was given during the evening meetings and necessary corrective actions were taken.

RESULTS

Vaccination Coverage

Of the 1,088,499 eligible children registered during the house to house walkthrough enumeration who had no serious or severe health condition or contraindication to the measles vaccine 1, 157 827 received the measles vaccine during the campaign with a total administrative coverage of 106.5%. (Figure 1) A total of 131656 vials of vaccine and 1,194,928 auto disable syringes were used to vaccinate the children. This state coverage was derived from the cumulative averages of the 25 local councils in Delta State. Post coverage survey revealed that Delta State had achieved a measles vaccination coverage of 93.8%.

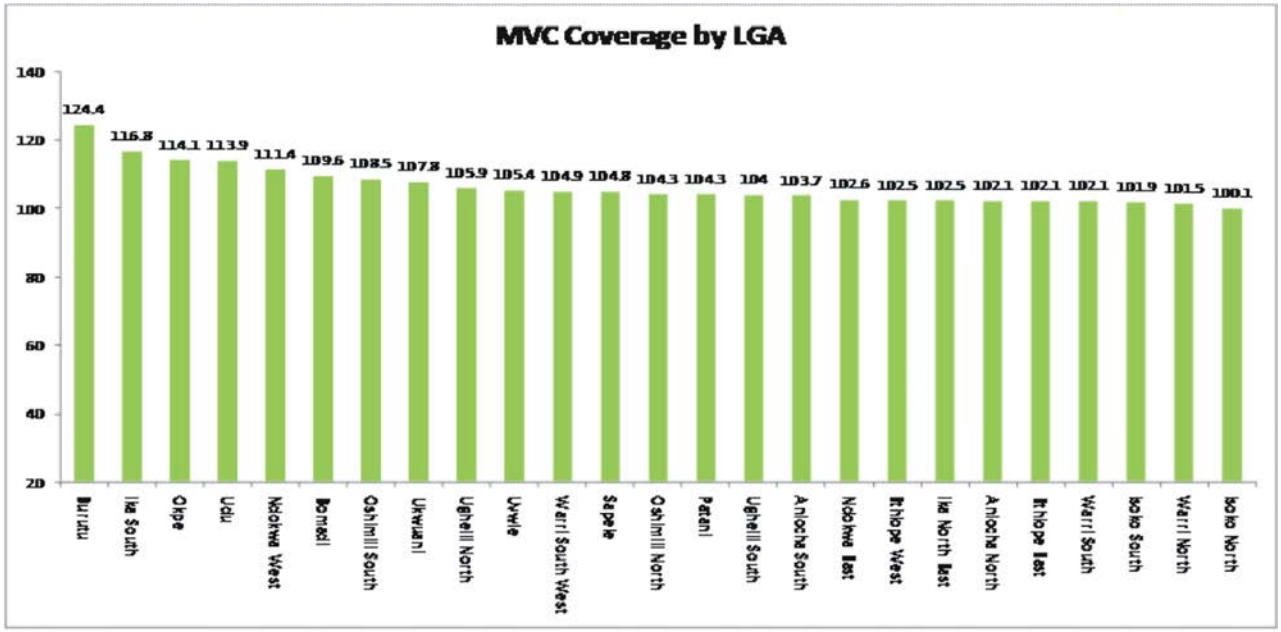

Fig 1: Highlights the Measles administrative coverage (%) in each of the 25 local government areas

Adverse events following immunization (AEFI)

During the measles implementation, 26 cases (25 minor and 1 major) of AEFI were documented, investigated and managed by trained clinicians at the respective secondary facilities at the local government areas (Figure 2).

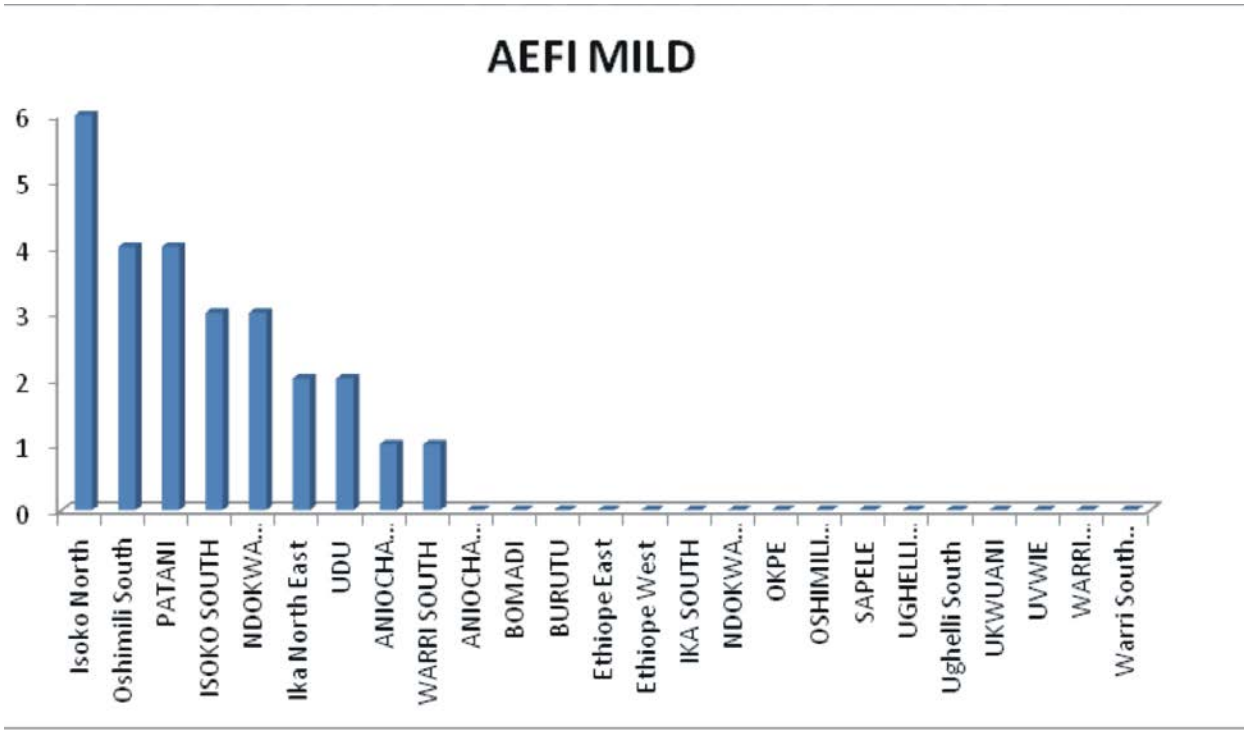

Figure 2: Cases of reported AEFI in the 25 local government areas in the state.

Vaccine uptake analysis:

While 2.6% and 2.1% of all eligible children between the ages of 9 and 11 months and 12 and 59 months respectively received their first measles vaccine dose during the campaign, 77.3% and 18.0% of children between the ages of 12-60 months received a second dose of the vaccine. (Figure 3)

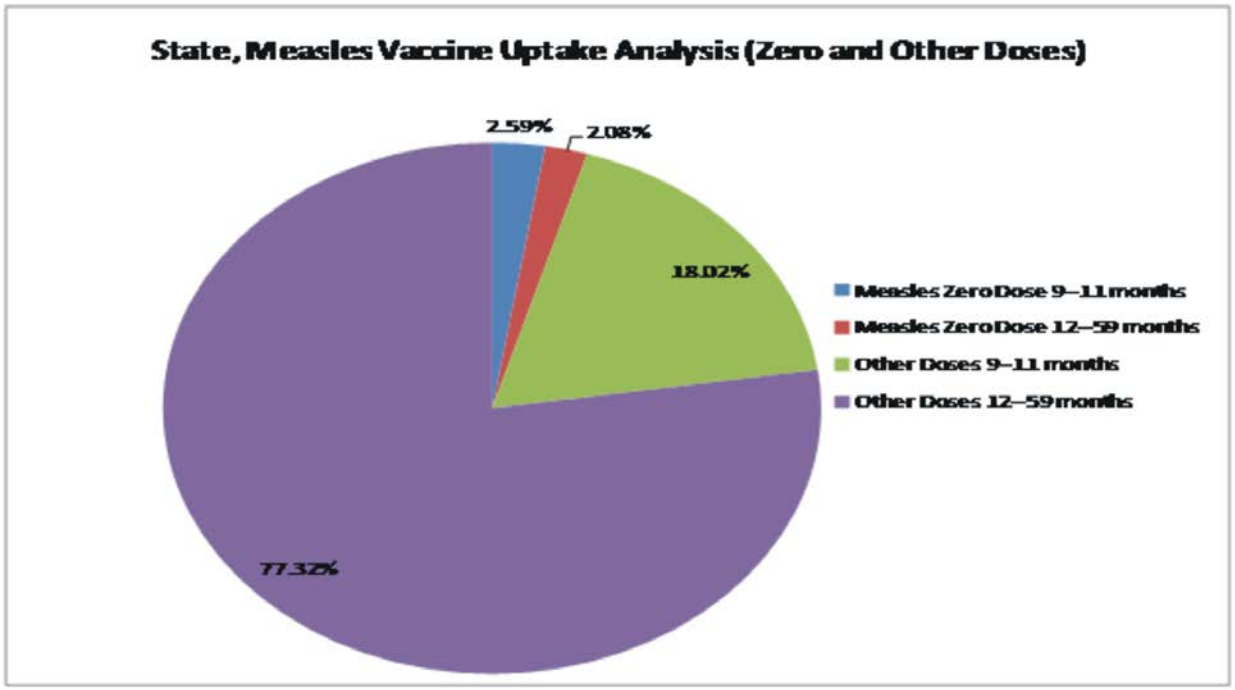

Figure 3: Vaccine uptake analysis by age

Waste disposal and validation

A total of 17,948 SBs were collected from the 25 implementing LGAs and disposed accordingly. (Figure 4) The total number of boxes to be used for the campaign was calculated by adding the auto disable syringes and total reconstitution syringes and dividing by 100. All safety boxes were retrieved by identified waste managers at all the 25 local councils and were pulled centrally to the industrial incinerator site in the state for destruction.

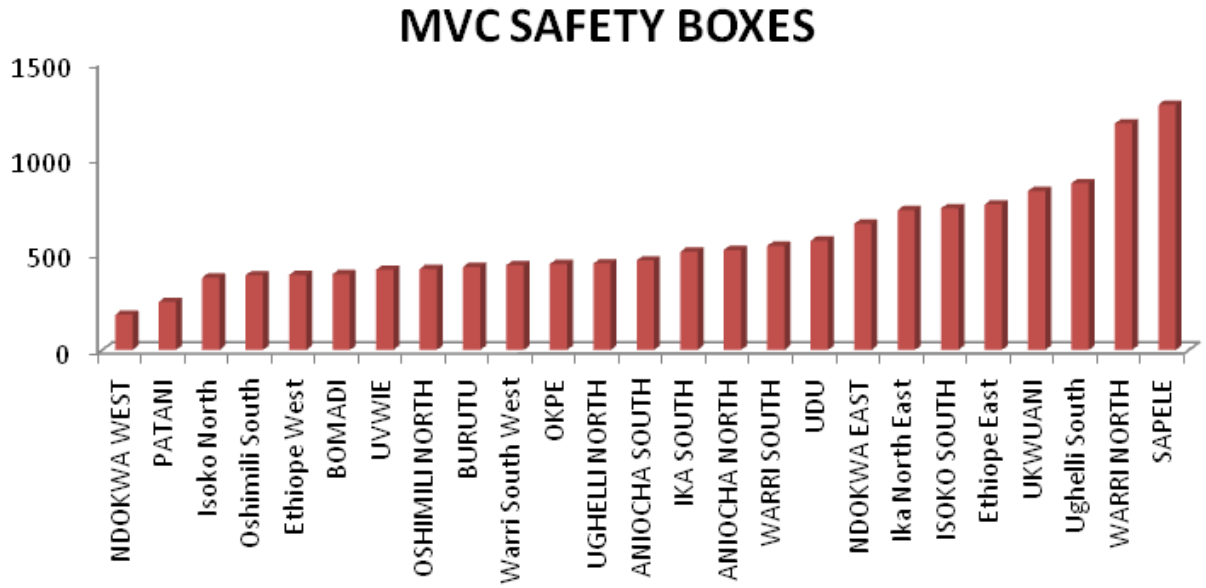

Figure 4: Used safety boxes in the 25 local government areas of the state.

Vaccine Wastage Rate:

The state measles vaccine total wastage rate was 12.2% with Ika South and Warri South local councils having the highest wastage rate of 59% and 37% respectively (Figure 5).

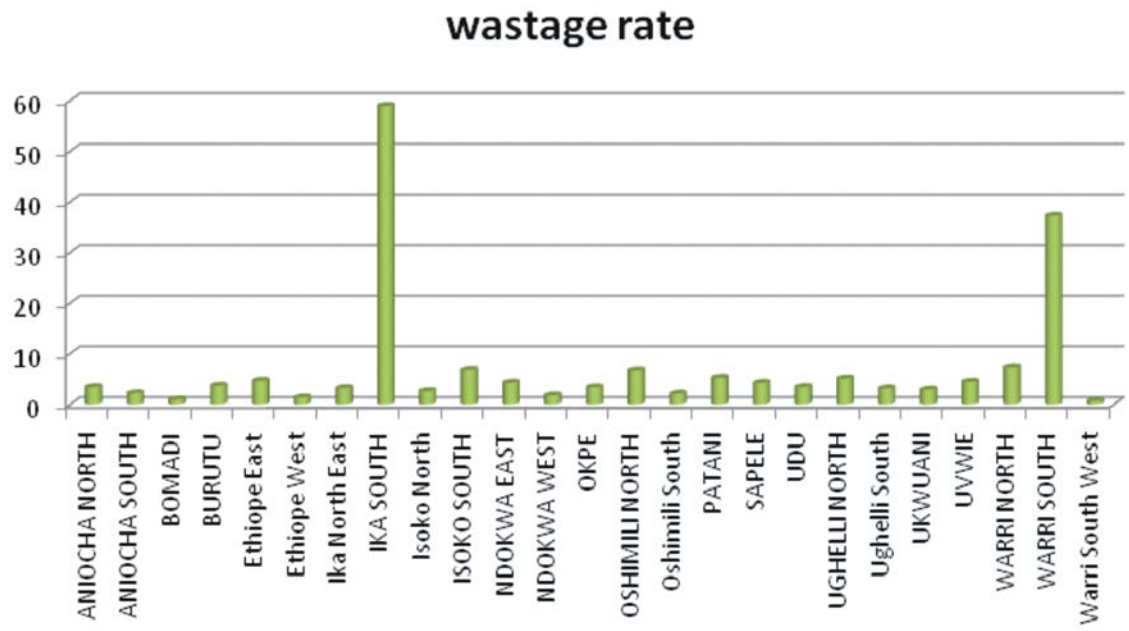

Figure 5: Aggregated vaccine wastage rate for the 25 local government areas.

DISCUSSION

The highly effective, safe and relatively inexpensive measles containing vaccine protects individuals from the infection and their widespread use can completely stop the spread of the viruses in populations that achieve and maintain high levels of vaccination coverage. Delta State achieved a post campaign coverage of 93.8%, at this coverage rate, it is expected that the state has been able to interrupt the transmission of the disease in the present cohort of children. This 2018 post coverage rate is similar to what was obtained from similar studies carried out in Albania, Bangladesh and Iran with rates of 99%, 90% and 98.7% respectively (Bino et al. 2013; Jasim et al. 2016; Zahraei et al. 2017). The huge success and high coverage rate recorded were made possible by the effective planning, coordination and robust supervision of the campaign in the state.

The state reported a minimum number of adverse events (25 -minor events and 1 major event). This may have resulted from the extensive training and re-training and adequate mobilization of trained health personnel at the secondary health facilities. The few number of cases reported may also have been that the parents were unaware of the features of an AEFI or did not wish to report such events to the centers. However, care-givers of vaccinated children were instructed to wait at the vaccination venue for a period of 30 minutes so that the children could be assessed for any adverse event. They were released after the waiting period and asked to report back in the event of any untoward reaction.

The generated waste from this campaign was handled effectively. Sufficient number of safety boxes were made available at each vaccination site based on the daily expected target population of children to be immunized. The training of the health workers re-emphasized that all safety boxes should be stored away as soon as they were three-fourth filled. Waste managers in each local council had the responsibility of storing the safety boxes in a safe area at the local council headquarters. These boxes were subsequently transported to the Ibuzo industrial plant, a public private initiative of the Delta State government that had the capacity to incinerate 3.5 tonnes of boxes within 30 minutes. Incineration commenced two weeks after the implementation and mop up exercise and was completed within a week.

The wastage rate for the measles vaccine was lower than the acceptable limit for a lyophilized multi-vial vaccine. The UNICEF acceptable measles vaccine wastage rate was placed at 35% during immunization sessions. This is similar to studies carried out in Urban India and The Gamboa with measles wastage rates of 39.9% and 30.9% but dissimilar to a study carried out in Bangladesh with rates as high as 71.2% at the fixed posts in health facilities and 68.7% at the mobile posts at different service delivery areas (Guichard et al. 2009; Chinnakali et al. 2012; Usuf et al. 2018). A study carried out in Nigeria by Wallace et al that sampled 54 health facilities within 11 local councils put the vaccine wastage rate for lyophilized vaccines at a range of between 18%- 35% (Wallace et al. 2017). The low wastage rate in this campaign may have been caused by the fact that the vaccinators were afraid that there may have a vaccine stock out since this was part of a large national campaign or due to their poor knowledge and application of the multi-dose vial policy.

The collaboration between the state and her media outfits greatly enhanced the overall awareness of the public towards the campaign. However, previous rumors following the false forced monkey pox vaccination by the military in Nigeria primary schools created doubts about the safety of the vaccine and the genuineness of the health care workers. This led to the development of a state measles crisis communication plan which involved facilitating capacity building and sensitization of various stakeholders and key partners including communication and social mobilization committees/working groups, health education officers, Ward Development Committees (WDCs), Village Development Committees (VDCs), media, religious leaders/groups, traditional leaders/institutions, community influencers and care givers, etc. on mobilization activities to improve knowledge and acceptance for positive behaviours for measles immunization and routine immunization in general.

Documented lessons learnt from the previous campaign in 2015/2016 were analyzed and resolved in this campaign and adequate

technical and financial support were provided by the national consultants and the state governor who not only provided the counterpart funding for the project but also hosted a flag off event to sensitize and boost the campaign. The activity highlighted the crucial importance of political will culminating in the successful collaboration of relevant stake holders and line ministries. The deputy governor, members of the House of Representatives and commissioners of different ministries attended the flag off ceremony. This emphasized the importance of coordinated and sustained advocacy by the state technical working group.

CONCLUSION

Delta State reported a post measles coverage rate of 93.8%. The State Primary Health care development agency along with international partners implemented a successful mass vaccination campaign in Delta State.

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