

Experience of Developing Early Warning Reporting System for Immunisation Coverage in Ombada Locality, Sudan

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Received date: Nov 2, 2015; Accepted date: Dec 21, 2015; Published date: Jan 22, 2015

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Abstract

Background: High immunisation coverage is important to stop the transmission of vaccine preventable diseases among children population. **Objective:** Our assignment aimed to help health workers to develop sensitive early warning system able to detect any coverage gaps among catchment areas self-evaluate their immunisation coverage twice per month in Ombada locality. **Methodology:** This work was applied in Ombada locality which is located in western northern part of Khartoum state. Out of 42 health centres we were select initially 16 (67%) health centres been the official sample for assessing the immunisation coverage twice per month. These centres were the fixed facilities with reference to the 3 immunisation strategies. The vaccinators were trained about how to report and intervene to elevate the immunisation coverage. **Results:** Our work revealed that, slight increase in DPT1 coverage through (2009-2010) and remarkable changes progress in (2011-2012). Significant DPT3 coverage progress in 2009 compared with (87%) in 2008. Then dramatically decline noted through (2010-2011) especially in outreach facilities, Measles and DPT drop-out rate was appear very low and acceptable, but after deep investigation we indicate several reasons lead to this experience, such as underestimating of data reported. **Recommendations:** we recommended that, the local health authority should continue maintaining the early warning reporting system and include other districts, Develop new evidence-based innovative approaches to enhance accessibility to immunization and effective supportive supervision with tools and resources, it is highly recommend to support system implementation. Furthermost understanding of strategies to elevate and sustain immunization levels is necessary in order to create lasting, effective immunization delivery systems. Limitations: limited resources provided and poor supportive supervision to health facilities noted as limitations of this assignment.

Keywords: Immunisation; Reporting; Ombada; District

Introduction

Immunization is the cornerstone of public health programs. Publicly-funded immunizations protect those who are healthy, as well those who are at high risk of exposure to disease or of transmitting disease to others [1]. Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert 2 to 3 million deaths each year. It is one of the most cost-effective health investments, with proven strategies that make it accessible to even the most hard-to-reach and vulnerable populations [1].

In the 1970s, at the end stage of the global campaign to eradicate smallpox, the World Health Organization (WHO) launched the Expanded Programme on Immunization (EPI). Coverage for basic vaccines was an estimated 5% in developing countries at that time. The EPI goals were to ensure that every child received protection against childhood tuberculosis, polio, diphtheria, pertussis, tetanus, and measles by the time he or she was one year of age and to give tetanus toxoid vaccinations to women to protect them and their new-borns against tetanus

During the 1980s, national immunization programs in developing countries made substantial progress in meeting the EPI goal, with the support of WHO, the United Nations Children's Fund (UNICEF), the US Agency for International Development (USAID), the Italian government, and other partners. EPI and the program to control diarrheal diseases were the "twin engines" that powered child survival programs worldwide. As immunization coverage in developing countries soared, EPI was helping lay the foundation for other primary health care services. By 1990, average reported coverage for the six antigens was over 70%. As a result of the increase in coverage, the incidence of vaccine-preventable diseases began to fall dramatically [2].

The role of immunisation is widely recognised as critical to achieving Millennium Development Goals (MDGs). The Global Immunisation Vision and Strategy (GIVS) spells out the contribution of immunisation to MDG-4: a two-thirds or greater reduction in global childhood deaths and illness due to vaccine preventable diseases by 2015 as compared to 2000. At the district and facility levels, planning should identify what resources are needed to reach all target populations in a way that can be managed well and thus maintained. Good planning involves: (a) understanding the district/health facility catchment area (situational analysis); (b) prioritizing problems and

designing micro plans that address key gaps; (c) as part of micro planning, developing a budget that realistically reflects the human, material and financial resources available; and (d) regularly revising, updating and costing micro plans to address changing needs [3].

Thus, it is no wonder that WHO launched the Expanded Programme on Immunization (EPI) in 1974, and many developing countries adopted it. Despite this effort, over 24,000 children die of vaccine-preventable diseases every day around the world. This is equivalent to 1 child dying every 3.6 seconds, 16-17 children dying every minute, and just about 9 million children dying every year. Of these deaths in 2008, a bigger proportion occurred in sub-Saharan Africa (4.4 million) and South Asia (2.8 million) compared to Latin America, the Caribbean (0.2 million), and industrialized countries (0.1million) [4].

Studies in many developing countries show that the great majority of parents view immunization as a worthwhile and relatively easy health practice. Childhood immunization only requires parents to take action about five times in the first year of a child's life and is generally accepted by families and communities. This contrasts with other practices, such as exclusive breast-feeding, which require repeated and frequent actions on the part of mothers and which are sometimes contrary to cultural norms and beliefs. Scheduling immunization sessions to be accessible is only half the battle people must actually use the services. Research from many countries indicates that people will use immunization services at least once if they know what services are offered and where and when they are available [2].

Problem statement

Sudan's Triple Capital (Khartoum, Khartoum North and Omdurman) has experienced exceptionally rapid urban growth over the past few decades, but this growth has not been matched by improvements in the delivery of health services. Also, due to war and a lack of stability in some parts of the country, Khartoum was subjected to massive immigration and displacement of people (the majority children and women) from remote areas of the country, mainly the south (before the North-South peace agreement) and the west. Displaced people settled mainly in the peripheral rural areas of the state, which already were underserved with health services compared to the central urban areas. Health services had also declined due to population growth, leading to unsatisfactory and unequal geographical distribution of healthcare facilities and personnel [5]. Ombada is one the seven main localities in Khartoum state and it is characterised with density population, scattered resident in rural area, numerous of ethnics and religions and exist of displacements camps. As any developing countries, Ombada locality experienced low immunisation coverage and several outbreaks were reported concerning polio, measles and whooping cough. The top factors that influencing the poor quality of immunisation services compose poor utilization and accessibility immunisation services, lack of data quality management, poor practice and performance of vaccinators and absence of community and political support [6]. The factors that determine immunisation timeliness are likely to have their effect from very early in the child's life, or even before the child is born. There is a range of factors that contribute to vaccine uptake, including the knowledge and attitudes of caregiver's attitudes of health professionals [17, 18] and aspects of health care systems such as cost, recall and reminders, and cost to provider [7].

Methodology and Study Materials

Ombada locality located in western northern part of Khartoum state, it is bordered by Omdurman locality to the east and south, northern Kordufan state to the west and river Nile state to the north. Total estimated population is 1,452,303 distributed as (405,810) Alameer health district, (601,200) Alsalam health district, Albugaa health district (495,990). We decided to select Albugaa health district because of the special distinguishing present in highly populated composition, multi ethnics-religions and sharing border with other localities and state.

Our early warning reporting system aim to develop reporting tools helping health workers to self-evaluate their immunisation coverage twice per month, in addition to create a decision on how to intervene to improve or sustain the coverage. Furthermore we planned to make the reporting system sensitive to report the cold chain breaks down, vaccine stock out and adverse event following immunisation.

Out of 42 health centres we were select initially 16 (67%) health centres been the official sample for assessing the immunisation coverage twice per month. These centres were the fixed facilities concerning the 3 immunisation strategies. Our justification for this centres been select was the geographical distribution approach, availability of high drop- out rate or left out, hard to reach area, high risk areas and no compliances community areas.

The vaccinators were trained about how to report and create intervention before system instigate, practical and theoretical training were applied to insure high Quality of data received all selected health facilities notified to report to the district immunisation officer hand to hand half-month based report and before 4:00 pm 13th day of each month. Three main antigens were designed to assess immunisation coverage (DPT1, DPT3, and Measles) and 50% of each antigen was the desirable coverage. After collecting data from health facilities, the District operation officer was assigned to be responsible to prepare situational analysis report detailed in catchment areas level every month. Action plan were prepared and disseminated to the affected area in order to increase the health workers performance and reach the assigned cut point (50%) in the next half of the month.

Study design

A cross sectional facility based study was conducted to in this original study.

Tools used for data gathering

Half-Monthly based Reports: Immunization data was collected into a half monthly based report at each level of the health service. The half-monthly based report was designed to contain administrative vaccine data about the most of the components of the immunization antigens, data was collected in brief and summarised to avoid adding new burden to vaccinators .

Records and tally sheets: Tally sheets are the forms that health workers use to document an immunization session, by making a record for every dose of vaccine given. Tally sheets should be used for all sessions whether fixed, outreach or conducted by mobile teams. It is always worthwhile for a supervisor to spend time reviewing tally sheets with staff to improve the quality of reporting Monitoring charts.

The immunization register records doses given to each individual and helps health workers keep track of the immunization services they

offer to each infant and pregnant woman. Each dose given to every child or pregnant woman in the catchment area should be recorded against their names in the register.

Coverage map analysis: Geographical data distribution was used to indicate the areas with coverage weakness in order to help vaccinator and manger to develop satiable and immediate intervention. The map composed the detailed information about each catchment area included population size, target of children and health facilities.

Active data collection: A supervisory visit presents an excellent opportunity for monitoring the components of the immunization system, and providing details that was complement the half-monthly (passive) report. For example, active observation of immunization work and discussion with health workers and the community was providing information that cannot be captured in a monthly report. We also used active data collection as part of data gathering as well as compression tool to insure high quality of data obtained from health facilities and prove that our system in place.

Discussion

Vaccination coverage was reasonably high and achieved the EPI's coverage goal of 90% for each vaccine in our study intervention, Figure [1] shows slight increase in DPT1 coverage through (2009-2010) and remarkable changes progress in (2011-2012). We were expecting the slight progress at the initiate of our system due to limited resources provided and low level of experience and knowledge of health workers involved. However, regardless our thought about the over estimating from some health facilities this result put the district in the top green line of achieving accessibility score (90%). Figure 2 indicated significant DPT3 coverage progress in 2009 compared with (87%) in 2008. Then dramatically decline noted through (2010-2011) especially in outreach sites. Map coverage analysis revealed this low coverage within semi urban and slum areas, we explain this decline to the migrant back of southern Sudanese people after declaring the peace agreement in 2009 as they present a great bulk in semi urban and slum areas additionally the camp of displaced people (Wadalba sheer). In 2012 and after setting the detonator to cope with the new population, a very significant uplifting in DPT3 converge was noted (95.3%) and achieving.

Measles coverage has been a great challenge of EPI programme not only in our study area but all over the world even in developed countries (Figure 3). Depending on the literature reviewing, we were very keen to provide sensitive and effective intervention to achieve our goal to increase immunisation coverage and reducing drop-out rate, our system indicate good progress in measles coverage. High routine coverage with one dose of measles lengthens the period between campaigns, therefore reaching more than 90% coverage was achieved despite of increasing number of suspected measles reported, these due to the sensitive surveillance system developed in certain time .

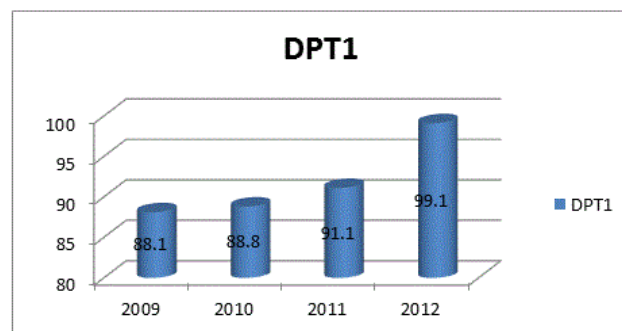


Figure 1: DPT1 reported overage of Albugaa administrative unit.

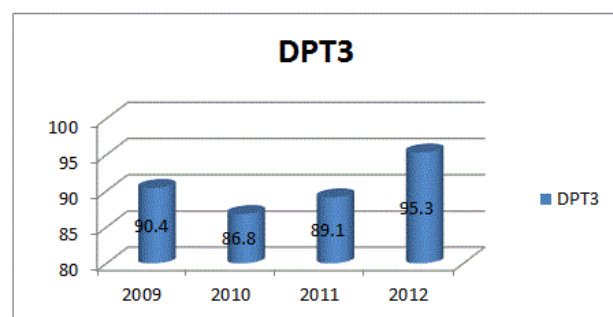


Figure 2: DPT3 reported overage of Albugaa administrative unit.

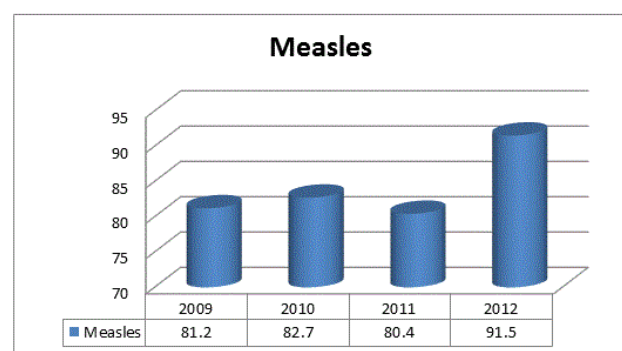
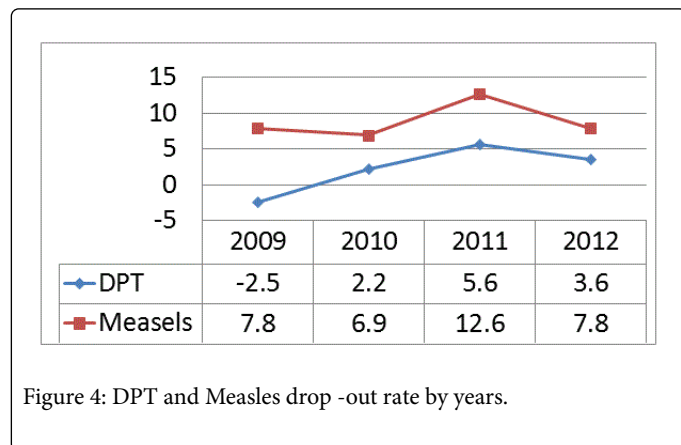


Figure 3: Measles first dose coverage.

Measles and DPT drop-out rate was appear very low and acceptable initially (Figure 3), but after deep investigation we indicate several reasons lead to this experience, such as underestimating of data reported, children vaccinated from out of the catchment area and drop-out rate miscalculation.

To insure high coverage sustainably with high quality of data obtained, local health authority should continue maintaining the early warring reporting system and include other districts in Ombada locality, additionally this system must applied to the rest of health facilities remained out of reporting system in Albugaa districts. Develop new evidence-based innovative approaches to enhance

accessibility to immunization, such approaches may include outreach programs, use of incentives and increased numbers of session in fixed facilities. Effective supportive supervision with tools and resources it is highly recommend to the support the system implementation. Finally increasing the capacity building of the health worker by periodic training could be the right way to elevate the immunisation performance.



Limitations

This assignment experienced several limitations summarised as, limited resources provided, difficulty of obtaining data from peripheral area, weak supportive supervision to health facilities absent of community involvement in the planning stage and not only in intervention stage.

Acknowledgement

We would like to appreciate and acknowledge all EPI staff in state, localities and districts in Khartoum state for their valuable advising to make this work achievable. We specially thank Dr. Ibrahim Alamin Alfaki for his great contributions and support.

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