

Assessment of Measles Surveillance System in Ombada Locality, Sudan 2013

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Abstract: We conduct this study to determine whether measles surveillance system is active and flowing WHO standards. This study was conducted in Ombada Locality in Khartoum State capital of Sudan, Descriptive, and cross-sectional facility based study was conducted to Assess Measles surveillance System. This study designed to cover all surveillance facilities (n= 92). Our study found that all surveillance sites kept their weekly report (100%) timely and in completeness, about (13%) of the selected focal persons they were not aware about measles case definition while (87%)with full awareness, only 4.3% surveillance priority site receiving feedback from locality or state level and 95.7% never received any feedback and Our study revealed that a good documentation and setting in all surveillance faculties were showed particularly cases file and weekly reports. We highly recommended that staff training, improving data quality and management and periodic reviewing to insure proper feedback flow.

Keywords: Measles, evaluation, surveillance, Ombada.

1. INTRODUCTION

Measles is a communicable disease that is considered as a major health problem worldwide with nearly 45 million cases and 1 million deaths occurring each year. However, because of human is the exclusive reservoir of measles and existing an effective and safe vaccine, it can be eliminated(1). Measles vaccine induces long-term and probably lifelong immunity in most individuals. Live attenuated measles virus vaccine are in use. Most of them were derived from the Edmonton strain. Measles antibodies develop in approximately 85% of children vaccinated at 9 months of age, 95% of children vaccinated at 12 months of age and 98% of those vaccinated at 15 months of age(2). Measles is endemic virtually in all parts of the world. It tends to occur in epidemics when proportion of susceptible children reaches about 40%. When the disease is introduced into a virgin community more than 90 % of that community will be infected(3). Surveillance is ongoing systematic collection, analysis, and interpretation of Outcome specific data for use in planning, implementation, and evaluation of public health practice. Disease surveillance is a critical component of measles control and elimination efforts and is used in the assessment of progress and in making adjustments to programmes as required(4)also studies shown that measles eradication is visible and desirable (5). In 2006 Sudan began application of case-based surveillance system that requires investigation exact and detailed data collection and analysis for each case reported with taking a blood sample or oral fluid to confirm the case and the urine sample and throat swab to isolate the virus in order to take appropriate timely action (6).

Case-based reporting and laboratory confirmation of every suspected case is fundamental for monitoring measles virus during the elimination phase. Regarding case-finding activity, many conditions produce rash syndromes that could be measles—for example, rubella, scarlet fever, rosella, dengue fever, and drug reactions. Although the incidences of these illnesses vary over time and by location(7). To determine whether measles cases are due to indigenous or imported virus, a small number of samples from each chain of transmission should be collected for virus isolation and genetic analysis. In-depth investigation of each suspected case is critical. In addition to reporting the case, it should be the responsibility of the clinician to collect blood and urine or nasopharyngeal samples at the time of examination of the patient, as some cases

may be lost to follow-up after the first contact. Establishing a special “hot line” is recommended to convey information by the fastest means possible (telephone, telegram, aerogram, fax, email, etc.)(8).

Measles elimination is defined as the absence of endemic measles transmission in a defined geographic area (e.g., region or country) for ≥ 12 months in the presence of a well-performing surveillance system. Target dates for measles elimination have been set by four additional WHO regions as, 2012 in the Western Pacific Region, 2015 in the Eastern Mediterranean Region and in the European Region, and 2020 in the African Region. The South-East Asia Region has a target to reduce measles mortality by $\geq 95\%$ from the 2000 estimate by 2015(9).

The general objectives of measles surveillance are to immediately detecting any suspected cases, confirming cases by laboratory diagnosis and identifying importations and possible sources of infection so that can be used to plan, monitor and evaluate measles elimination programme. The specific objectives of measles surveillance are, to monitor incidence and coverage in order to assess Progress, to identify areas at high risk or with poor programme performance, to identifying high-risk population, to describe the changing epidemiology of measles in terms of age, immunization status and the intervals between epidemics, to predict the next outbreak that may occur because of a build-up of susceptible persons, to detect and investigate measles outbreaks so that cause of outbreaks can be determined, to determine where measles virus is circulating, to assess the performance of surveillance system and to ensure proper case management(10).

In order to achieve regional measles elimination goals, one of the important strategies is establishing effective surveillance for measles, including laboratory confirmation of cases and outbreaks and an opportunity to assess the population immunity profile through the vaccination status of cases. The three main components of a measles surveillance system are: 1. Detection and notification of suspected cases; 2. Investigation, including active case searches, timely collection of blood samples and laboratory workup and final classification; 3. Using surveillance data for action(11).

A case-based means that the surveillance system collects a core data set at national level on each case, including but not limited to, information on age, gender, vaccination status, date of last vaccination received, place of residence, travel history, date of rash onset, disease outcome, etc. Case-based measles surveillance in elimination settings implies laboratory support for confirmation at appropriate levels (5-10 per outbreak, all cases when approaching elimination) of the clinical diagnosis via identification of measles-specific IgM-antibodies and/or identification of measles virus in appropriate clinical specimens. Case-based surveillance allows for analysis of measles epidemiology to guide control efforts. As countries approach elimination status it becomes important for every suspect case of measles to be reported and included in the national database(10).

District-level staff should combine and evaluate the data collected from all reporting sites on a monthly basis. After the compilation of district-specific data the form should be sent to the state or national level every month. If possible, data should be entered into a computer at the district or provincial level and forwarded to the state or national level for the purpose of analysis. It is important to keep track of and evaluate measles data at the district level (i.e. the most peripheral level). District staffs are thus able to assess whether a measles outbreak is imminent and how it can be prevented, or whether such an outbreak is continuing and how the spread of the disease can be limited (12).

2. MATERIAL AND METHODS

Study area and population:

This study was conducted in Ombada Locality in Khartoum State capital of Sudan. It is about 600 square kilometres. The total numbers population is (1 405 519)(13), locality component of three administrative units {Albugaa, Alameer and Alsalam}. There are two displaced population camps [Alsalam and Wad al-Basher] which include displaced populations from the bordering states(14).

Study design:

Descriptive, cross-sectional facility based study was conducted to Assess Measles surveillance System in Ombada Locality

Sampling technique:

This study designed to cover all surveillance facilities (n= 92) which include(87) low priority site, (3) middle priority and (1) high priority and locality. face to face interviews and document reviewing were conducted for gathering data.

Ethical issues:

Permission was obtained from the Ombada locality health authority. Confidentiality was maintained during the process of the study by ensuring face to face and direct interviews by each interviewer without a third party and information obtained during the study was kept under confidential.

Data management:

The data obtained were entered into a computer and analyzed with SPSS version 16.0. Tables, graphs and charts have been used to report descriptive statistics.

Figures:

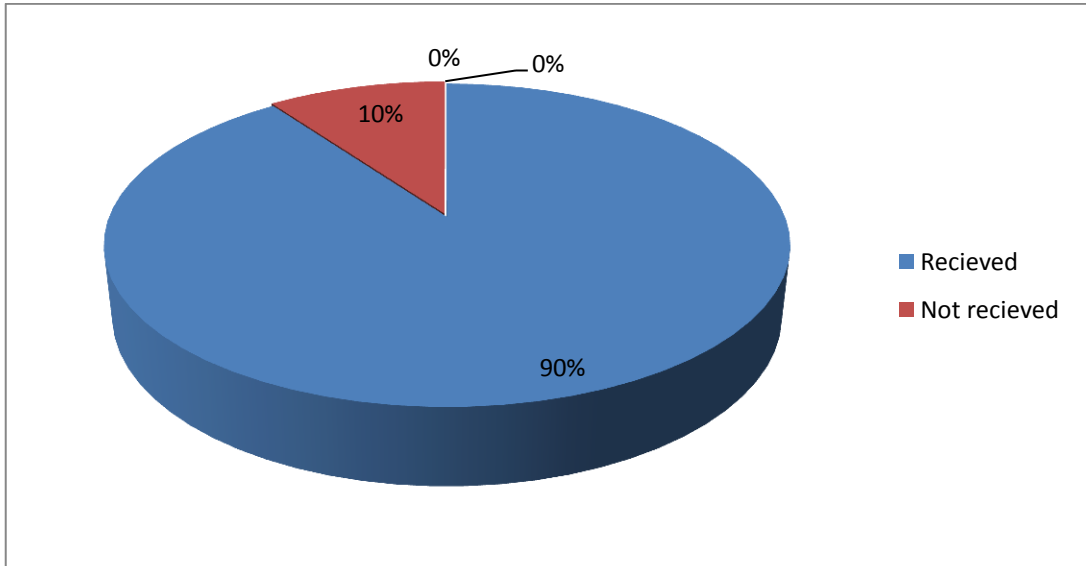


Figure 1: Receiving feedback from locality or state level to surveillance site in Ombada locality 2014.

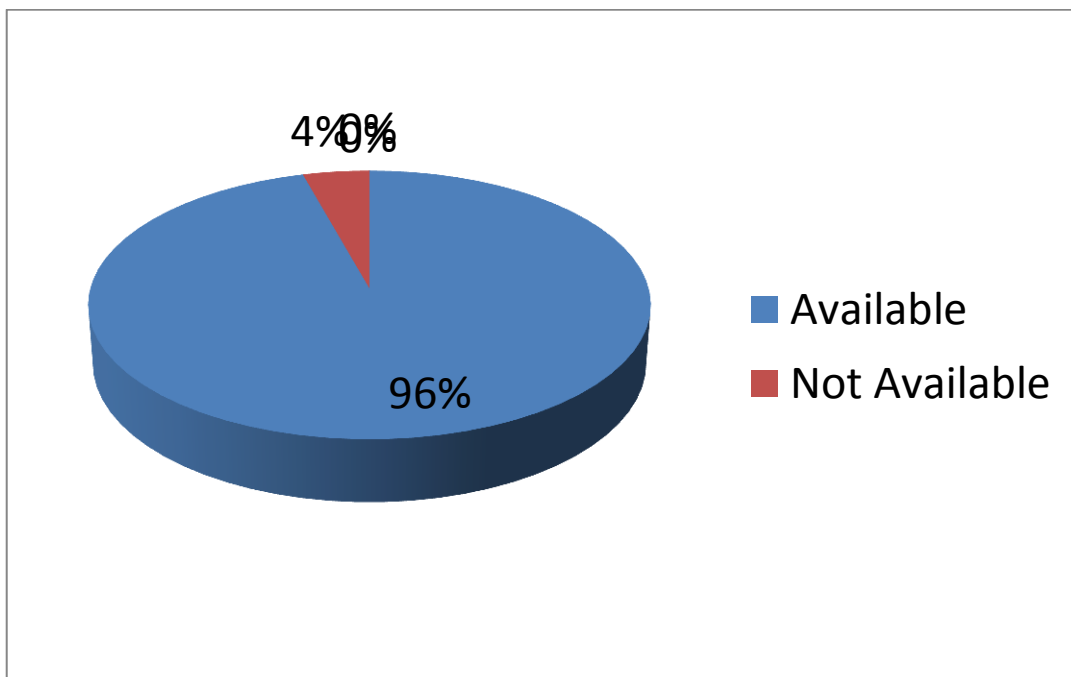


Figure 2: Availability of specimen kits for Measles suspected cases sampling in surveillance site in Ombada locality, 2013

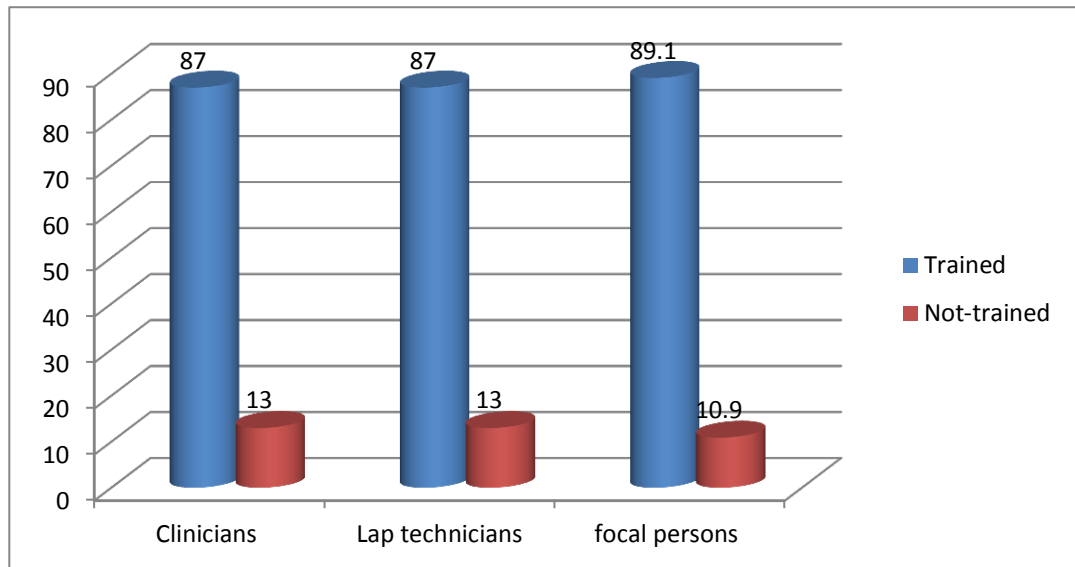


Figure 3: Health workers training situation about Measles surveillance in surveillance site in Ombada locality 2013.

3. RESULTS

Our study found that all surveillance sites keeping their weekly report (100%) timely and in completeness .only 4.3% of surveillance site have no specimen kits for measles sample collection but the majority provided (95.7%). About (13%)(n=92) of the selected focal person they were not aware about measles case definition while 87% with full awareness, across tabulation between awareness and educational level showed significant relationship ($p.value > 0.05$).our study also revealed that ,all out break report (100%) (n=12)containing the full detailed information regard mapping, demographic information, data analysis, interventions and recommendations .only 4.3% surveillance priority site receiving feedback from locality or state level and 95.7% never received any feedback.facilities were not posses surveillance logistics such as computer , printer machine, photocopy machine and separate vehicle .all surveillance indicator met the WHO standard (100%).

4. DISCUSSIONS

Measles surveillance system consider as the key solution to reach elimination goal, this study aimed to assess the role of surveillance in Ombada locality. Our study revealed that a good documentation and setting in all surveillance faculties were showed particularly cases file and weekly reports, this is play positive role in elimination process by providing evidence supporting absent of endemic measles genotype. although in persist of high documentation in surveillance sites ,there still poor surveillance supplying in term of specimen collation tools because it may be a reasons for delaying or missing collection of measles sample ,so a very tided supplying plan needed to fill existing gaps .

Concerning the awareness about measles case definition among focal persons, our study found that 13% were not aware about measles case definition,and this is could jeopardize the surveillance system as giving opportunity to miss measles cases beside missing the additional task for the focal persons by providing initial orientation to untrained clinicians in their facilities (fever, rash and one or more of 3C(coryza, cough and conjunctivitis) showed an overall sensitivity of 63.5% and specificity of 100%)(15) .however ,all focal persons .also require with prior selection criteria considering high secondary school is minimum require training regard principles of measles surveillance system in order to achieve high performance indicators so as to meet elimination standards.

Reviewing outbreak reportsshowed a good practice in reports availability for last three years and all reports were containing the required details. (Sensitive surveillance allows for the assessment of an immunization program over longer time horizons and minimizes the demoralizing effect of ‘post honeymoon’ outbreaks)(16). but our view extend to require and cover analytic information such as specific age fatality rate ,basic reproductive number and spots map .however, they should increase the sensitivity of case detection by increasing the number of expected suspected case to > 2 case instead of

(2 cases per 100,000 population)(17).In our study we are considering some limitation firstly we didn't touch the area of surveillance and community linkage and we recommend further study about this point . Secondly, the turn over and replacement of the health worker (in& out)of study area and during our study period could give misleading information and this may considered as information bias.

5. CONCLUSIONS

As National measles elimination approaches, it is highly important that all localities achieve the surveillance targets to insure interruption of indigenous measles transmission. The locality measles surveillance system improved and sensitive in order to achieve measles elimination goals. System needs to enhance efforts to improve quality of data, provide logistics and develop capacity building to increase capacity to detect measles suspected cases.

6. RECOMMENDATIONS

We highly recommend staff training regarding measles surveillance and targeting clinicians and focal person's groups. we also recommend improving data quality and documentations as well as provide logistics. There is needed to make periodic data reviewing to insure proper feedback information flow.

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