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BOOK REVIEWS

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Clusters of measles outbreaks in a special group of the Midlands population, Zimbabwe

*LK SHODU, *DG DHLAKAMA, **C ZISHIRI, ***CS ZVAVAMWE, E MAKHULUMO

Objective: To determine the magnitude of the measles resurgence and identify factors contributing to the persistence of the disease in the affected population.

Design: An exploratory and descriptive study of measles cases recorded or detected in August and September 1996 in Gokwe North.

Setting: Gokwe North District, Health Institutions and the community.
Introduction

Over the past two years, the Gokwe districts in the Midlands Province have implemented aggressive measles control activities, targeting children aged nine months to 10 years. These included massive and extensive vaccination programmes and intensive training of health workers on the management of Expanded Programme on Immunization (EPI) diseases with particular emphasis on measles disease.

Unfortunately, the monitoring and supervision of the EPI management and EPI diseases surveillance has remained poor due to basic logistic and management problems, which the health managers in Gokwe have over the year failed to overcome.

Recently, cases of measles have been reported in many parts of Zimbabwe, suggesting a widespread measles disease resurgence, despite the measles vaccination supplementary programmes which were carried out countrywide in the past.

In Midlands Province, 662 measles cases were reported from Health Institutions (HI) through the Health Information System (T5). Gokwe districts, North and South, known as measles prone Districts in the Midlands Province, were closely monitored. An active case investigation study was carried out in Gokwe North.

The present paper outlines the findings of the investigation study conducted as part of the control strategy developed to contain the spread of the disease.

The objectives of the investigation study were:

- To determine the magnitude of the measles resurgence in the Gokwe population.
- To establish the specific characteristics of the population affected by the disease.
- To identify the factors contributing to the persistence of measles in the area.

Materials and Methods

An exploratory and descriptive study was carried out in Gokwe North, covering a two month period, August and September 1996. The cases reported through both the community and HI, were investigated at two levels. Firstly, by the local extension worker or health staff of the area and at a second stage, the district and provincial investigation team. Fourteen of the 17 health centres in Gokwe North were visited and investigated.

A review of the health centre records (Outpatient Registers, Measles Surveillance Forms) to collect all measles cases and deaths registered was conducted.

A follow up investigation for each case or death and collection of socio-anthropologic characteristics as well as the medical history of each case in the community was carried out to complement the health centre investigation, and especially to check on cases reported through the Community operated Morbidity/Mortality Surveillance System (CMSS). The CMSS consists of extensive surveillance of the prevailing morbidity/mortality in the community with the assistance of members of the community who organize and agree to the report all cases of disease and deaths occurring in their location to the extension Environmental health Technician (EHT), the health centre nurses or simply to the Village Community Workers (VCW).

Two measles case definitions were used: a case presenting with fever, rash and cough, or running nose or red eyes, for the lay person in the community. For the professionals, a measles case would be a case presenting with a history of a generalized blotchy rash lasting three or more days and history of fever and history of any of the following: cough, running nose, red eyes as recommended by the Zimbabwe Expanded Programme on Immunization (EPI).

In order to avoid a falsification of the fatality resulting from measles, cases found suffering from measles during the investigation were not entered in this study. The estimate of the case fatality rate is based on cases who survived or died within 30 days after the onset of the disease.

Results

This study found much more evidence of occurrence of measles in the community than reported by Health Institutions (HI).
Sixty six cases of measles were recorded from the HI and two the community during the study, against 59 from the T5 system alone, including surveillance reports which did not report for treatment, in Gokwe North for the period under investigation. Of these, no deaths were recorded in the HI but 8 measles related deaths were detected or notified through the CMSIS.

For the cases where the age could be specified, the overall average age of cases was 6,7 years old (Standard Deviation (SD) 4). The cases who survived had a mean age of 7.8 years old (SD:5.8), while the specific mean age for the deaths was markedly lower: 3.5 (SD: 3.92). The median age recorded was 15 years, with the youngest case aged eight months and the oldest 15 years old.

Fifty cases (76%) reported by both sources occurred in the population of Apostolic Faith Followers (AFF) and who did seek conventional modern treatment care, due to religious convictions.

The vaccination status of 61 (92%) cases was established; from them, 56 (92%) cases were not vaccinated for measles. Forty eight (83%) of all measles related deaths reported or registered during the investigation originated from families of AFF and were all vaccinated.

The association of belonging to AFF with measles related deaths is shown in Table I. The AFF status was significantly associated with measles related deaths (OR=4.00, 95%CI: 1.04 to 13.84). Available records indicate that 42 or 95% of all measles related deaths were not vaccinated. For the cases with established immunization status, the case fatality rate (CFR) ceased to 86% compared to the overall CFR of 73% (Table I).

The important point to note is the high vulnerability of the children from this population and the remarkable restriction of the cases (epidemic) in the same population. Indirectly, this attests to the high levels of protection against the measles infection among other children, receptive to measles vaccination.

Overall, Gokwe districts have reduced the measles incidence by more than 90% as was expected after the implementation of the measles control strategy based on massive measles vaccination campaigns which resulted in some children among the receptive population getting two or three doses of measles vaccine. Such strategy, indeed, is known to have contributed decisively to the reduction of the measles incidence levels and successfully eliminated the measles transmission in the recipient population.

This is also attested to by the complete inversion of the relative risk of measles in Gokwe resulting from the abovementioned programme. Indeed, the administration of
live measles vaccine to children already immune to measles as a result of either previous vaccination or natural disease is totally inoffensive and carries no single evident risk8 but adds to the recipient's protection against measles disease, as evidenced here.

From the findings of this investigation study, the measles case fatality rate is much higher in the community than reported by HI, in contrast to what is usually found in other studies in populations that utilize health care service.10 The AFF do not utilize modern health facilities, hence do not contribute to HI based records.

The objection of modern health care services combined with the lack of boosted (or vaccine induced) immunity against measles and the age at the infection are all factors concurring toward the high toll of morbidity and mortality affecting the community of AFF. It remains highly vulnerable to measles as the measles infectivity level exceeds easily the herd threshold natural immunity, which more likely is low in such a population.

This study found an inverse correlation between the measles fatality and the age of affected cases especially in unvaccinated children as described by Gordon et al11 and also by McGregor in The Gambia.12

Conclusions.

As the community is most affected by measles, measles outbreaks in Zimbabwe would be best monitored through a CMSS and any study addressing the issue would benefit and may discover more from a community oriented research method. The close interactions among AFF families during their gatherings increase the potential transmission of the measles infection in their homogenous population of unvaccinated children.

In the light of our study, the purported outbreaks of measles in Zimbabwe need to be qualified in order to enable proper action and resource mobilization. Indeed, the country is not in the real turmoil of measles outbreaks as may be understood by the epidemiological definition of epidemic at country level.

There are clusters of cases epidemiologically linked and fortunately very much limited to a population group with many common features, all opportune for the emergence of measles disease.

As measles continues to exact a high toll on infant mortality in this country, mainly in the AFF population, which is fully aware of the fatal risk they take for their children, stern enforcement measures and strategies are sought to constrain the group to comply with public health requirements.

This study has given an epidemiological insight into the community hidden measles occurrence. It calls for more extensive and in depth research to study socio-cultural and demographic factors surrounding the children's morbidity and mortality, focussing on fatal conditions such as measles, at community level.

There is need to determine the long term safety (protection) of the general target population which, though on board with the preventive and curative health programme, remains continuously exposed to infectious diseases harboured by the non modern health care users.

It is recommended that regular and direct population surveys be conducted to obtain valid data, to assess and confirm the actual prevalence of such a persistent disease and its incidence as a complement and validation of the institutional records collection.13

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References
