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Success in Revitalizing Weekly Disease Surveillance System in Zimbabwe Using Cell-phone Mediated Data Transmission, 2009-2013

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Objective

Documentation of the processes in revitalizing the Zimbabwe, Ministry of Health and Child Welfare (MOHCW)'s weekly disease surveillance system (WDSS) in the period 2009 -2013.

Introduction

The importance of providing information on epidemic prone diseases in a timely and complete manner cannot be over-emphasized. In many countries WDSS form a core component of national health system notification and response plans. Countries are required to establish WDSS for diseases that have demonstrated ability to cause serious public health impact and spread rapidly across geographic regions. Ministries of Health, the World Health Organisation (WHO) and other sector ministries rely on accurate and timely information to ensure an effective response.

Zimbabwe MOHCW's WDSS is a critical component of the health management information system (HMIS). At least fourteen diseases and public health events that include non-specific diarrheal disease, cholera, malaria, vaccine preventable diseases, snake and dog bites have been reported through the system.

Due to an unstable macro-economic environment, Zimbabwe's WDSS has struggled with incomplete and delayed reporting from facilities to the district and national level. According to WHO both timeliness and completeness of data were oscillating below 40% since 2005 through 2011. The MOHCW has measured timeliness as a proportion of facility reports received at the national office every Wednesday, completeness of the national report as a proportion of facilities contributing to the report. Rural facilities have reported challenges in transmitting data to the next administrative level. In December 2010, only 8.8% of rural health facilities had a functional fixed-line telephone and only 11.3% had a functional VHF radio.

We document the processes in revitalizing the Zimbabwe, MOHCW's WDSS in the period 2009 -2013.

Methods

The Zimbabwe MOHCW reviewed the national health information system and provided a National Health Information Strategy 2009-2014 as a tool for revitalizing the HMIS.

Cell phones have proven to be an effective, low-cost method of data transmission for remote health facilities in developing countries. Because of the increase in cellular network coverage in Zimbabwe from around 15% in 2009 to above 90% penetration rate in 2013, 1,200 solar charged cell phones were procured for rural facilities and a system to report WDSS data using cell phones was developed. This system was built on the open source software FrontlineSMS(www.frontlinesms.com) and District Health information System (DHIS). Nurses and health information officers were trained to enter and receive data for onward transmission to next levels. As of 2013 a centralized FrontlinesSMS and DHIS version 2 (DHIS2) server were implemented thereby eliminating manual data transmission, improving timeliness and enhancing data access and use through use of web based DHIS2.

Results

The use of cell phones has significantly increase number of facilities expected to report from less than 600 to more than 1300 health facilities and improved completeness and timeliness of reporting rates from below 40% to above 80% between 2009 and 2013. During 2012, the median reporting rate was 84% (Q1= 81% Q3= 87%). Events that have been detected include a malaria outbreak in Manicaland province(December 2012) and cholera outbreaks in Chiredzi district (May 2012 and March 2013).

Health worker training is inexpensive and the initial fears of increased data security have proved baseless. MOHCW needs to put in place policies to ensure constant access to the portable cell phones and charging systems.

Conclusions

There is growing evidence that cell phones are an acceptable and a rapidly growing means of communication in the developing world. This work shows that cell phone based systems are feasible and are an efficient method of collecting and sharing of health information. The health delivery system should continue to expand the use of cheap and simple information communication technologies such as cell phone and tablet computers to continue to improve the data collection and transmission systems and health delivery systems in general.

Keywords

disease; surveillance; cell phone; mobile phone; system

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References

1. Zimbabwe Health Information Capacity Assessment, p. 16. Data from UNICEF, VMAHS Round 7 Survey,

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