

## **Community-based disease surveillance (CBDS)**

### Norwegian Red Cross – Disaster Management Unit

#### **INTRODUCTION**

Community-based disease surveillance (CBDS) uses a network Red Cross volunteers to report on cases of acute watery diarrhea (AWD)/cholera and other communicable diseases, in their own communities. Previous CBDS and Oral rehydration point (ORP) programs have shown the potential of such a system to catch cases that were ‘missed’ by formal surveillance. For example, in Sierra Leone in 2012, only 5% of the cases reported from ORPs were referred to a formal health clinic. This suggests that the attack rates for cholera reported by formal surveillance are underestimates of the true burden, and highlights the need for better surveillance at the community level.

A challenging aspect of the implementation of a CBDS project is both accessibility to populations and the collection of data. The Norwegian Red Cross is currently piloting a CBDS project incorporating mobile technology to assist and resolve these problems. The results and lessons learned will contribute to Norwegian Red Cross’ future epidemic response capacity. This is to be used as a global tool to respond to various outbreaks of different communicable diseases.

The pilot project is taking place in Haiti, where the first cases of cholera were registered in 2010 and have since registered the highest cholera caseload in the world. Poor access to water, insufficient sanitation, poor health and hygiene practices and lack of adequate health services all contribute to the aggressive spread of the disease.

#### **HAITI**

Situated in the heart of the Caribbean, Haiti occupies the western, smaller portion of the island of Hispaniola, which it shares with the Dominican Republic. Haiti has an estimated population of 9 million people out of which half are under 20 years. Half of the children in Haiti are unvaccinated and only 40% of the population has access to basic health care. Most people living in Haiti are at high risk for major infectious diseases. Food and water-borne diseases include bacterial and protozoal diarrhea, typhoid fever and hepatitis A and E. Common vector-borne diseases are dengue fever and malaria. Water-contact diseases include leptospirosis. Roughly 75% of Haitian households lack running water.

Deficient sanitation systems, poor nutrition, and inadequate health services have pushed Haiti to the bottom of the World Bank’s rankings of health indicators. Haiti ranks 161 over 186 countries in the Humanitarian development index as per 2012 UNDP report with an HDI of 0.456 compared to the regional average of 0.741 for Latin America and the Caribbean.

In October 2010, Haiti experienced an epidemiological disaster in the form of a Cholera outbreak with an incidence rate of 4%. According to the Pan American Health Organization (PAHO/WHO), by October 2013, the total number of cholera cases reached 682,573, of which 379,870 were hospitalized (55.6%) and 8,330 died. In 2010, according to the World Bank, there were more deaths as a result of cholera in Haiti than in Sub-Saharan Africa an area with 86 times the population of Haiti making this the worst Cholera outbreak the world has seen.

Cholera has become endemic to Haiti, and three years since the initial outbreak, it is taking a sub-regional dimension with cases spilling in Dominican Republic, Cuba and even Mexico. The outbreak is stimulated by the lack of safe drinking water, the inadequacy of sanitation, and the poor health care infrastructure. The epidemiological surveillance system established by the MoH faces considerable challenges and, despite many improvement initiatives in 2013, it still does not provide comprehensive, reliable data, particularly at the commune level.

The high number of cases underlines the urgent need to leverage resources (financial, technical and material resources) to support Haiti’s effort to definitively eliminate Cholera.

#### **PROJECT PLAN**

The goal of this project is to contribute to the elimination of Cholera from Haiti, and is part of an initiative headed by Unicef and the Ministry of Health along with the Croix-Rouge Haitienne. The specific target areas include the

communes of Petit Goave, Grand Goave, Les Cayes, Cavaillon and Aquain. The areas were selected based on the analysis of vulnerabilities and cases and spikes registered in 2013. The project aims at 250'000 beneficiaries including 100'000 direct beneficiaries over 2 years.

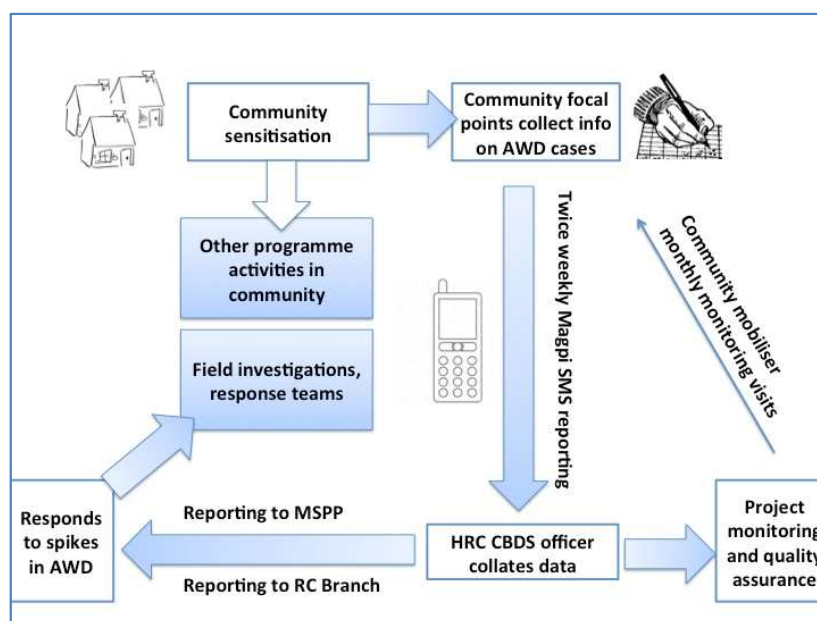
The outcomes of this project will focus on 1) reducing the risk of infection and exposure to cholera through improved access to potable water; 2) reducing the risk of infection and exposure to cholera through improved access to sanitation facilities; 3) increasing the knowledge and changing behavior regarding hygiene and sanitation; 4) improving the rate of response to Cholera spikes; and 5) improve community epidemiological surveillance through CBDS – Community Based Disease Surveillance

In relation to the fifth outcome outlined above, improved community epidemiological surveillance, the Norwegian Red Cross will introduce a system of mobile technology to collect data and ensure that community based disease surveillance is informing the formal Cholera surveillance system and that needed investigation and follow up is made. A sustainable, evidence-based, integrated approach to Cholera prevention, which includes CBDS and cholera response, has the potential to create a measurable reduction in cholera morbidity and mortality in the communities where it is implemented.

The reporting and analysis of community data in real time can provide an early warning indicator of spikes in AWD (acute watery diarrhea) cases. It allows for monitoring of cholera trends in communities and regions, and can assist in making program and response decisions based on real evidence. Furthermore, CBDS can supplement the national cholera surveillance data collection to provide information about suspected cholera cases in communities where there is no formal surveillance, and allows for MSPP to target investigations and response.

## Strategy

In each targeted community, 2 – 4 volunteer cholera focal points (depending on population size and geographical location) will be recruited and trained in ECV, AWD prevention and treatment and CBDS. Working in pairs, the volunteers will be equipped with a basic mobile phone, a cholera first aid kit and simple guidelines. They are expected to organise a community sensitisation session, and conduct CBDS and AWD response in their local communities, supported by a RC community mobiliser. Households will know to notify the volunteer of AWD cases to get treatment and support. All cases of AWD that fit the case definition will be recorded in the volunteer's record book, disaggregated by age, whether referred, and deaths. Twice weekly (daily during outbreak/alert) the volunteer sends an SMS to a local number with all collected data, including zero reporting. The indicators are aligned with those of the national surveillance system, and follow the same standard case definitions. The data will be collated and analyzed by the Haitian Red Cross CBDS Officer (national level) and shared with MSPP, and fed back to the appropriate RC Branches for response and monitoring purposes.



## Phase 1

CBDS has been used and tested in other contexts, but is being applied for the first time in Haiti. The data is most useful and reliable when we are certain that all occurring cases in one community are recorded and reported, and covering a large population. To ensure that the system is functioning optimally, CBDS will first be implemented in 2 communities in Petit Goave and Grand Goave communes, covering 28.000 people. This first phase of the project will allow for continuous support, evaluation and adaption of project structure to a best fit for the local context, before scaling up to cover larger populations. Phase 1 will commence in May 2014 and continue for 4 – 6 weeks, depending on the incoming findings and community feedback. For phase 1 the volunteers will report twice weekly on set days. Reporting frequency will subsequently be guided from experiences and feedback from the field, aiming at weekly reports with the flexibility to act quickly should the community experience sudden spikes in AWD caseload.

## REQUIRED SUPPORT

There are numerous challenges in implementing such a system in a country lacking stable infrastructure and in-country expertise. Numerous challenges have been encountered during Phase 1 directly related to the hardware and software solutions of the CBDS system. The support of a technical expert would facilitate both the planning and troubleshooting of these technical challenges, which include; costly data transfer to database located outside of Haiti, implementing and developing applications for a local gateway, liaising with partners such as the database management company, and summarizing lessons learned and developing SOPs for future implementations of the system. The latter would entail taking into consideration that multitude of contexts and possible challenges of the many places in which the Norwegian Red Cross operates.

The financial support is essential in providing the necessary technical support to supplement the medical expertise provided by Norwegian Red Cross in disease surveillance and epidemiology. The participation of one or more students from the Institutt for Informatikk in Universitet I Oslo would also be highly welcomed. The main technical support can be provided through the Disaster Management Unit of the Norwegian Red Cross based in Oslo who is responsible for the CBDS portion of the project. The emphasis of the required support will then be twofold; first, the technical aspect in the implementation of CBDS in the following phases of the Haiti pilot project, and second, contributing to the development of this global tool for the future response to outbreaks of communicable diseases.

## CONTACTS

If you have any questions or remarks feel free to contact us through the persons below:

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