

## Operations Research



### Summary: Study of Effectiveness of Community-Based EVD Prevention & Management in Bo District, Sierra Leone

*Zero Ebola-related fatalities documented among the 59,000 sponsored children and family members supported by World Vision during the outbreak.*

#### Summary

The unprecedented Ebola Virus Disease (EVD) outbreak in West Africa was first reported in Sierra Leone in March 2014 and rapidly spread as the response to the crisis failed, revealing the faults of the region's chronically fractured and under-resourced healthcare system. However, a review of district level EVD records indicated that no Ebola-related deaths were documented among the 59,000 World Vision-supported sponsored children and their family members. World Vision, Inc. commissioned Johns Hopkins University Bloomberg School of Public Health to determine the effectiveness of specific strategies employed by World Vision in order to increase the evidence of what works in responding to similar disease outbreaks. The study also explored differences between households containing children sponsored by World Vision that had a documented case of Ebola and households without a case of Ebola.

#### EVD in Sierra Leone

Sierra Leone's fragile healthcare system is a result of a civil war that ended in 2002, which severely damaged the health infrastructure and created a cohort of young adults with little or no education. Consequently, there was a severe shortage of healthcare workers as well as weak transportation infrastructure, making it difficult to transport samples to laboratories and patients to health centers. In August 2014, the World Health Organization (WHO) declared the EVD outbreak a "public health emergency of international concern." Due to a lack of early warning systems, Ebola spread rapidly and the country's health system lacked the capacity to address the overwhelming number of cases.

Studies demonstrated the critical role of isolation of Ebola patients and safe burials in controlling spread of the disease. But initially approaches, particularly quarantine and body collection, were designed with lack of bottom-up community engagement, and were

## Key Findings

- Appropriately tailored messaging required from the onset
- “Bottom-Up” approach effective, including the engagement of community leaders from the start
- By-laws vital to controlling the outbreak
- Survivors key in rebuilding trust in the health system
- Interaction with patients impacted knowledge of transmission mechanisms
- Awareness and trust of World Vision staff is widespread
- Beneficiaries of World Vision sponsorship had greater access to services and information
- Zero deaths of sponsored children



therefore ineffective. Designed and implemented without buy-in and input from community leaders, they failed to address key infrastructure constraints and were culturally insensitive. This resulted in general distrust among community members, and, ultimately, underutilization, and underuse of these interventions. By March 2016, WHO had documented a total of 14,124 cases of Ebola, including 3,955 deaths, in Sierra Leone—more than any other country.

## World Vision's Response

During the Ebola crisis, World Vision Sierra Leone contributed to helping change the beliefs about Sierra Leone's health system. World Vision was actively engaged in implementing preventive activities and case management in 25 of its area development programs, which included 25 Chiefdoms in Bo, Bonthe, Pujehun, and Kono. World Vision's Ebola response strategy was designed to work in close collaboration with the government of Sierra Leone to reach a population of 1.6 million through the establishment and mobilization of an extensive network of community providers, including teachers, paramount chiefs, and faith leaders.

In an effort to assuage the fears and expectations of community members and ensure the intervention was responsive to their needs and expectations, World Vision adopted an integrated and multi-sector response tailored to the needs and priorities of the communities it served. Community leaders and community health workers were supplied with essential medical commodities, such as hand-washing kits and protective equipment. World Vision's strategies were effective in terms of countering rumors and, ultimately, transforming public opinion and behaviors related to Ebola. This is in large part due to their unique position of trust and influence in communities throughout Bo District.

## Purpose of study and findings

This study fills a critical knowledge-to-practice gap by providing an in depth analysis of the community's perspective of the health system during the Ebola crisis in Sierra Leone, with a specific focus on the factors (facilitating and impeding) that impact behavior change. The study also shed new the light on barriers preventing communities from trusting and using the Ebola response system during the height of the outbreak and reinforced the importance of community-based interventions (bottom up) in fostering behavior change. The key findings underscore the importance of improving the capacity of all health systems, particularly those characterized by fragile and dysfunctional health systems, to detect, evaluate, and respond to public health emergencies. Findings include:

- Compared to control households, a statistically significantly higher proportion of case households received information from community providers (including CHWs) (50.0% versus 21.5%).
- A significantly higher proportion of case households indicated that they trusted World Vision staff (46.2% versus 24.3%).

- Perhaps in part due to World Vision's efforts to organize and build the capacity of religious leaders, sermons (i.e., Friday prayer and Sunday church services) emerged as key opportunities for spreading messages about prevention.
- Roughly 70% of respondents reported receiving information on prevention from religious leaders.
- The most influential people in stopping the spread of Ebola were people within the community (80.0% sponsored vs. 36.4% non-sponsored) and CHWs (93.3% sponsored vs. 54.5% non-sponsored).
- Participants commonly acknowledged that prevention requires a community-wide response that engages community leaders from the onset.
- More than half of the participants, particularly community members, remarked on the critical role of by-laws (local chiefdom-level codes of conduct—one rule was stopping visitors from outside the geographic area at the borders of each jurisdiction).
- Compared to controls (43.0%), a higher proportion of cases (65.4%) believed touching the blood of an infected person transmits EVD.
- A statistically significantly higher proportion of cases identified contact with urine (53.8% vs. 27.1%) and feces (42.3% vs. 21.5%) of an infected person as a means of transmitting Ebola.
- The same trend was observed in terms of behaviors associated with caring for an Ebola patient. For example, 76.9% of cases indicated that they would not touch him or her. This proportion dropped to less than half (46.7%) among controls.
- Similarly, 69.2% of cases indicated that they would not touch something an Ebola patient has touched (e.g., soiled clothes), versus only 39.9% of controls.
- Of the households included in this study, a significantly higher proportion of case households were sponsored by World Vision, as compared to control households (57.7% versus 34.6%).
- Case households were statistically significantly more likely to send a family member to an Ebola Treatment Unit or health care facility (92.3% versus 60.9%).
- 65% of the case households indicated that they were visited by the World Vision staff or volunteers, with most reporting visits twice a day (29.4%) or once a week (29.4%).
- There was a significant difference in participation in Ebola prevention community activities between cases and controls (73.1% vs. 43.9%).
- Nearly all respondents (94.0%) reported participating in awareness-raising activities.

## Recommended Strategies

Key strategies of community engagement and social mobilization for EVD prevention and management:

- Make **frequent visits at the community level:** The encounters with World Vision staff and CHWs was instrumental in accessing critical information and service utilization for suspected Ebola cases, and subsequent psychosocial and developmental support.

## Study Design

Data was collected over a period of four months (March to June 2016) by local researchers trained by faculty from the Johns Hopkins University. Data collectors utilized standardized data collection forms developed by Johns Hopkins researchers and organized according to the study's core evaluation elements: 1) EVD knowledge, prevention, and treatment; 2) care-seeking behaviors; and 3) perceptions of community engagement interventions. Given the exploratory and descriptive nature of the research, the study utilized both qualitative (i.e. key informant interviews; in depth interviews) and quantitative methods, specifically a survey of heads of households identified via case-control sampling (i.e. based on the outcome). Based on recommendations from researchers with intimate knowledge of the Ebola outbreak and expertise in the field of epidemiology, a case-control strategy was used to calculate sample size and identify households for inclusion. A total of 133 households in Bumpe ADP of Bo District were included in the study, 26 of which had a documented case of Ebola. This area had the highest number of recorded cases and deaths in the area.

- Invest in **trusted local community members** (CHWs, religious, and village leaders) to build community engagement and trust.
- Design effective strategies for **early authentic communication** to provide key messages, mitigate false assumptions, and provide key actions to be undertaken at the household and community level.
- Explore and build capacity of **existing community resources** to establish context-specific community systems to address emergencies.
- Create effective user friendly **community-based monitoring systems** for surveillance, ensuring equity and quality.
- Ensure **integration of services** (health, education, food security and livelihoods) to ensure effective community participation.
- Capacity building, learning and organizational strengthening must be included as an **ongoing process for health systems** in order to ensure they are prepared to respond to future emergencies.
- Implementing an **effective response from the onset** of an outbreak is critical to gaining citizens' trust and ensuring their continued engagement with and use of the health system.

## Conclusions

It is important to emphasize the critical role that effective communication plays in gaining the population's trust in the health care system during a public health emergency. The study found that of all the intervention strategies implemented by World Vision, those based in the community were critical to the decline of the outbreak and even more effective than the international efforts initiated after the epidemic began to lose speed. Thus, an adequate health system response requires that coordination mechanisms are in place prior to the outbreak that are capable of effectively communicating response strategies among stakeholders operating at all levels (international, national and local). In low-income countries, this is particularly challenging given limited economic resources and human resource deficits.

The findings from this study also reinforce the notion that trust in a health system is essential to its use, particularly in countries characterized by fragile and dysfunctional health systems. The community's level of trust in the health care system is directly related to widespread fear and misconceptions surrounding Ebola due to poor communication and ineffective messaging from the onset of the outbreak.



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