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Understanding the Health Disaster: Research Design for the Response to the 2014 West African Ebola Outbreak

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Abstract

The 2014 Ebola outbreak in West Africa is the largest ever in history, affecting multiple countries and to this date, the World Health Organization has registered more than 6,500 deaths attributed to Ebola. The challenges arising from this outbreak to responders worldwide do not follow the standard characterisation or response patterns of natural sudden onset vs. conflict disasters. Rather, it is a medical emergency, which is intertwined with multiple challenges in the sectors decision-making, coordination, logistics and information management. In this paper, we present our research framework, which is based on desk research and initial interviews with responders. This framework guides on-going field research in Ghana (December2014), and Liberia (Spring 2015).

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1. Introduction

The Ebola crisis continues to threaten the safety and well-being of thousands. The current outbreak in Western Africa, (first cases notified in March 2014), is the largest and most complex Ebola outbreak since the Ebola virus

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was first discovered in 1976. Current statistics by WHO (World Health Organization), as of December 7th, 2014[†] count almost 6,400 deaths across several West African countries, most notably Liberia, Sierra Leone and Guinea.

Although Ebola has been described as "the health disaster" by most of our interviewees, responders continue to struggle with getting reliable and timely information. Only on the basis of data, responders can get a realistic picture of the epidemic in the various districts on the ground, and enable effective prioritisation of the still scarce resources. Once more, we observe that massive amounts of information are created by the aid agencies, authorities, NGOs; 3,429 entries for epidemiological information are listed on reliefweb.int alone (by December 15th, 2015). This information is shared and further processed and enriched remotely, for instance by and volunteers and technical communities such as the Standby Task Force leading to large volumes of volatile and highly diverse – in other words: Big Data. At the same time, remote efforts do not address the problems of missing data or unreliable reporting structures, hiding the present information gaps in a fog of information.

Current approaches to humanitarian needs assessment, planning, or response operations have currently no mechanisms in place to support responders working with large amounts of volatile and diverse data sets over a longer period in time. Typically, in sudden onset disasters the assumption is made that uncertainties decrease after an initial "chaotic phase" [1]. The ongoing and still increasing the spread of Ebola in Sierra Leone, and the high uncertainty about case numbers or contacts, however, highlights the impact of lacking, distorted or even fraudulent reporting and surveillance structures are immature. Thus, the aim to provide a coherent picture of the requirements at local, regional or strategic level is hard to achieve.

Moreover, infographics and maps seem often to be generic, informing media or the public rather than being tailored to address decision makers needs at operational level, especially not in the initial phase of the emergency. When referring to the "initial phase" in sudden onset disasters, typically responders refer to the first 72 hours, which are characterised by high levels of uncertainty and the chaotic conditions of initiating the response [1], [2]. Despite early reports and cases and spread that were reported by Médecins Sans Frontières and WHO[‡], the epidemics reached the urban areas of Conakry, Freetown and Monrovia, requiring a rapid upscaling of the response, essentially following the spread of the disease with installation of Ebola Treatment Units or Community Care Centres, where this was not possible. The uncertainty about the potential paths of the disease is not reflected in the current numbers, neither are the remaining high levels of uncertainty particularly in the rural areas – stretching the initial phases of the Ebola response over months;

In spite of the importance of assessment and addressing different decision-makers' needs in the Ebola disaster, no commonly accepted methodology exists so far to understand the different actors and organizations, and their respective needs to fight Ebola for information; information sharing; and coordination. Numerous methodologies have been developed by individual agencies and within sectors for sudden onset disasters and relatively small data sets, on which this project will build. Humanitarian logistics will be our central field of application and testing for our findings around decision-makers needs, providing a qualitative *and* quantitative framework to address decision-makers' needs.

In this paper, we first provide the background for our work. Subsequently, we outline our research approach starting from data collection and initial interviews that were used to build concepts that guide our field research.

2. Background

The Disaster Resilience Lab (DRL) was established in the response to Haiyan in 2013 as a joint initiative of researchers working in different fields of humanitarian information management, decision support and logistics. To conduct research that is relevant to practitioners' while applying scientifically sound and rigorous methodologies, we have developed an approach that is based on cooperation between research teams deployed to the field during the response while providing continuous remote expert support during the team's operations [3]. For the specific

[†] WHO Ebola Situation Reports available on http://www.who.int/csr/disease/ebola/situation-reports/en/

[‡] For case numbers in early April reported by WHO, see instance http://www.afro.who.int/en/clusters-a-programmes/dpc/epidemic-a-pandemic-alert-and-response/outbreak-news/4089-dashboard-ebola-virus-disease-in-west-africa-07-april-2014.html