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Original Research

‘Between Combat boots and Birkenstocks’—Lessons from HIV/AIDS, SARS, H1N1 and Ebola

R. Crawford^a, D.C. Rutz^a, D.P. Evans^{b,*}^a Rollins School of Public Health, Emory University, Atlanta, GA, USA^b Center for Humanitarian Emergencies, Hubert Department of Global Health, Emory University, Atlanta, GA, USA

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ABSTRACT

Objectives: In late 2013, an Ebola outbreak quickly grew into an epidemic of extraordinary magnitude, killing more people than all previous Ebola outbreaks combined. Although the epidemic was unprecedented, the world had previously experienced several acute public health emergencies requiring global coordination. HIV/AIDS, SARS and H1N1 tested global response, and in each case coordination proved problematic, making the 2013–2015 Ebola epidemic no exception. The purpose of this project was to identify persistent vulnerabilities within global public health emergency response and to identify areas for future research and improvement.

Study design: Non-systematic review and qualitative interview study.

Methods: Using PubMed and Google, a comprehensive search of articles connected to the HIV/AIDS, SARS, H1N1 and Ebola responses was conducted. Then, 21 key responders involved in those emergencies, primarily from the US Centers for Disease Control and Prevention, participated in in-depth interviews. The content analysis and in-depth interview data were analysed using MAXQDA analysis software.

Results: A number of issues emerged, including cultural and political clashes within relevant agencies and a lack of confidence in those agencies, policy barriers that hinder long-term international response, a shortage of personnel and resources, itemized funding streams that limit flexibility to direct resources, and challenges to deploying responders internationally.

Conclusions: The data suggest that the world remains ill prepared to handle sustained responses and global pandemics. The study identified major vulnerabilities persistent within US-led global public health response and offers recommendations for further focused research to fully understand why these challenges persist.

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* Corresponding author. 1518 Clifton Road, NE Mailstop 1518-002-7BB Atlanta, GA 30322, USA. Fax: +1 404 727 1835.

E-mail address: Dabney.Evans@emory.edu (D.P. Evans).

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Introduction

In late 2013, an Ebola Virus Disease (EVD) outbreak quickly grew into an epidemic of unprecedented magnitude, killing ten times more than all previous EVD outbreaks combined. Appearance of the disease in urban centres, community resistance, poor healthcare infrastructures and porous borders between Sierra Leone, Liberia and Guinea, made this outbreak different.^{1–5} Perhaps most importantly, critical months passed before the global community began to respond in earnest. Delayed recognition of the epidemic's severity hampered the initial response, allowing it to gain momentum.^{3,6,7} The response initially depended heavily on non-governmental organizations (NGOs); the subsequent global response was slow, disorganized and poorly executed.^{8–10} The turning point occurred when the virus crossed the ocean into the USA. Human-to-human transmission of the virus outside of Africa changed the epidemic from a humanitarian emergency into a threat to global public health and security.^{3,4,8,11,12}

While the 2013–2015 EVD epidemic was unique, the world had experience with other acute public health emergencies requiring global coordination, including HIV/AIDS, SARS and H1N1 influenza. The HIV/AIDS epidemic began in the US in 1981, but not until 1983 was the human immunodeficiency virus identified as the cause.^{11,13} The mystery of the illness and its transmissibility were large obstacles in the beginning of the response. Although the cause of EVD was not a mystery, the public reacted with similar fear and stigmatization.^{11,12}

In 2000, the World Health Organization (WHO) established the Global Outbreak Alert and Response Network (GOARN),^{8,13} a network of technical and research institutions, universities and global health organizations tasked with aiding global health security.^{14,15} SARS made the difficulties of coordinating multiple simultaneous responses in different countries obvious,¹⁴ and EVD revealed GOARN still needed to be faster, more organized and gain an even broader capacity.¹⁶

Response to SARS also revealed inadequacies in the International Health Regulations (IHR), catalysing a much-needed revision.¹⁷ The IHR revisions give WHO the authority to declare a Public Health Emergency of International Concern (PHEIC) and demanded that Member States begin increasing their response capabilities.

The 2009 H1N1 flu pandemic systematically tested the effectiveness of the provisions of the 2005 IHR for the first time.^{18,19} WHO's H1N1 Review Committee came to an ominous conclusion, 'the world is ill prepared to respond to a severe influenza pandemic or to any similarly global, sustained and threatening global health emergency'.^{18,20} The committee recommended WHO and Member States create a more extensive global health reserve workforce and for Member States to establish a \$100 million contingency fund, readily accessible to WHO to support surge capacity.²⁰ WHO Member States did not adhere to these recommendations; as predicted the world was poorly prepared when EVD struck.

Global responses to PHEICs have been complex and varied depending on the nature of the pathogen and the location of the outbreak. For future responses, it is imperative to understand the complexities of the problems that continue to

plague global health security. The purpose of this project was to identify these persistent vulnerabilities and to identify areas for future research and improvement.

Methods

Using PubMed and Google, a comprehensive search of articles was conducted in March 2015 to understand the background of what was already known before conducting interviews. Records from 1980 to the present that assessed the public health responses to HIV/AIDS, SARS, H1N1 pandemic influenza and EVD were eligible for inclusion. Articles from peer reviewed journals or authored by public health organizations that contained information on pathogen identification, disease containment, treatment and prevention were included. Content analysis was performed using MAXQDA.²¹

In addition, in-depth interviews (IDIs) were conducted with key responders involved in the HIV/AIDS, SARS, H1N1, and EVD responses. To fit the inclusion criteria, participants must have been past or current public health professionals and involved with responses to one or more of the following public health emergencies (PHEs): HIV/AIDS, SARS, H1N1 or EVD.

The interview guide (Box 1) was original and developed according to best practices for crafting open and singular interview questions.^{22,23} Questions were general enough to apply to a broad range of response roles and organized to facilitate answering the research questions (Box 2).

Participants were recruited via email through convenience and snowball sampling. Twenty-one (21) out of 28 invited individuals participated, 10 through convenience sampling vs 11 through snowball sampling, most being US Centers for Disease Control and Prevention (CDC) staff. Of the seven that did not participate, two had scheduling conflicts, one recommended a colleague who did participate, and four did not respond to the recruitment email at all. Almost all of the seven individuals who did not participate held leadership positions within the field of public health at the time of the study. IDIs were conducted over a two-month period, ceasing snowball sampling for the last 11 IDIs due to time constraints. Settings varied; 19 were face-to-face and two took place by telephone. All were recorded, in person via smartphone, and by telephone via the Call Recorder application for iPhone. Using the Transcriptions (version 1.1) application, the IDIs were transcribed verbatim. Both the content analysis and IDI transcriptions were organized, coded and analysed with the aid of MAXQDAplus (version 11) software.²¹

Data were organized into 190 different codes and sub-codes. In all, there were 1548 coded segments: 532 within the transcripts and 1016 within the literature. Codes were assigned to segments of text based on content and relevance to the research questions. Some segments were assigned multiple codes. Data were analysed for frequency of codes and weighted depending upon the participants' role and expertise. Data from participants with leadership roles during responses, experience with more than one response and decades of service in public health were assigned greater

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