

The “First” Case of Cholera in Haiti: Lessons for Global Health

Louise C. Ivers* and David A. Walton

Division of Global Health Equity, Brigham and Women's Hospital, Boston, Massachusetts; Department of Global Health and Social Medicine, Harvard Medical School, Boston, Massachusetts; Partners In Health, Boston, Massachusetts

Abstract. Cholera is an acute watery diarrheal disease caused by infection with *Vibrio cholerae*. The disease has a high fatality rate when untreated and outbreaks of cholera have been increasing globally in the past decade, most recently in Haiti. We present the case of a 28-year-old Haitian male with a history of severe untreated mental health disorder that developed acute fatal watery diarrhea in mid-October 2010 in central Haiti after drinking from the local river. We believe he is the first or among the first cases of cholera in Haiti during the current epidemic. By reviewing his case, we extracted lessons for global health on the importance of mental health for overall health, the globalization of diseases in small communities, and the importance of a comprehensive approach to the health of communities when planning services in resource-poor settings.

INTRODUCTION

Cholera is an acute watery diarrheal disease caused by infection with *Vibrio cholerae*. The disease has a high fatality rate when untreated and outbreaks of cholera have been increasing globally in the past decade.¹ Ten months after the January 2010 earthquake in Haiti, an epidemic of cholera began in the rural Center Department, miles from the “shake zone” that had suffered the most physical damage in the disaster. The epidemic quickly spread to the Artibonite town of St. Marc and from there, within a month, to every department in the country. A number of articles have been written about this cholera outbreak—ranging from genetic evaluation of the strain to modeling of the likely morbidity and mortality rates.^{2,3} Here, we describe a case history and discuss two lessons that may be extracted for global health from the untimely death of one 28-year-old Haitian man.

CASE PRESENTATION

We report on the history of a 28-year-old man from the town of Mirebalais, Haiti with a history of severe untreated psychiatric disease. On October 12, 2010 he developed the acute onset of profuse watery diarrhea. The patient's psychiatric illness originally presented at 12 years of age, and despite repeated attempts by his family to obtain care over several years, his disease remained untreated and formally undiagnosed. According to his family and reports from the community, the young man suffered from auditory hallucinations, disorganized thought, and paranoia. Although he had access to clean potable water in his home, he would wander nude through the town throughout the day and both bathe and drink the water of the Latem River. The Latem is fed just a short distance away by the Meye River that has since been identified as the presumed source of the cholera epidemic.⁴ Shortly after the onset of watery diarrhea, the patient returned to his home and his family attempted to manage his care conservatively with oral fluids. However, less than 24 hours after the onset of symptoms, the patient died at home without seeking the attention of health workers. The next day he was waked, and 48 hours after the funeral, two people who prepared the body for the wake developed severe watery diarrhea. The

first hospitalized cases of cholera occurred in Mirebalais on October 17, 2010.⁴

DISCUSSION

This patient's case is the first in the community's collective memory to have had symptoms that are recognizable, in retrospect, to be those of cholera. There is no quantitative or laboratory method by which to confirm him as the index patient in this epidemic, given that it was days after his death that his illness became apparent to those outside his neighborhood. It was 1 week later that the outbreak of acute watery diarrheal disease was brought to the attention of the public health authorities and recognized as being caused by *V. cholera*.⁴ Using qualitative methods including community focus groups, discussions with key local leaders, and an extensive local community health worker network, the authors were able to establish this patient as an important early case of presumed cholera. Regardless of whether he was indeed the first patient, he was certainly among the first, and his history is worthy of review because it illustrates a number of important lessons for global health in Haiti.

MENTAL HEALTH

The patient had an underlying mental health condition that led him to frequently drink from the river, placing him at increased risk of waterborne disease, obviously an important contributing factor to his illness. Like many other individuals in villages and towns throughout Haiti and indeed most resource-poor settings, his mental illness was undiagnosed, untreated, and stigmatized. He was known among his neighbors by the pejorative term “*moun fou*,” loosely translated as “crazy person” or “fool” and heavily marginalized by the entire community.

Common mental health disorders are consistently associated with a variety of poverty indicators worldwide⁵ and mental health problems contribute significantly to disability-adjusted life years globally. Despite this, mental health services are routinely under-resourced internationally and are most often an afterthought in health services planning. In a review as part of a 2007 Lancet series of articles, low-income countries were found to have on average 0.06 psychiatrists per 100,000 people, compared with 10.5 per 100,000 in rich countries.⁶ Even acknowledging the overall shortage of healthcare

* Address correspondence to Louise C. Ivers, 641 Huntington Avenue, Boston, MA 02115. E-mail: livers@pih.org

workers (for example, Haiti was reported in the same study to have only 36 healthcare providers per 100,000 people), mental health services suffer. Among 191 countries reviewed, mental health resources were found overall to be disproportionately under-resourced relative to neuropsychiatric burden.⁶ In 2003, only 10 psychiatrists and 9 psychiatric nurses worked in the public sector in Haiti.⁷ Resource allocation is a highly complex issue, particularly in countries such as Haiti with a low human development index and a high burden of infectious and other disease, however, up to 90% of persons with mental disorders in low- and middle-income countries do not receive even basic mental health care.⁸ This patient's case shows clearly the interconnectedness of mental health with overall health. As Prince and others state in their review⁹:

“The [global] burden of mental disorders is likely to have been underestimated because of inadequate appreciation of the connectedness between mental illness and other health conditions. Because these interactions are protean, there can be no health without mental health. Mental disorders increase risk for communicable and non-communicable diseases, and contribute to unintentional and intentional injury.”

The mental health needs of Haiti significantly multiplied in the aftermath of the January 2010 earthquake.¹⁰⁻¹³ Our organization (Partners In Health) began a small formal community-based mental health program in 2009 intended to address common mental health problems such as depression, anxiety, psychosomatic disorders, and less common but serious issues such as psychosis. In the months after the earthquake, this program was expanded to include services to address the mental health needs of survivors of the earthquake; however, alone it was clearly not enough.¹⁴

This case illustrates an important connection between an untreated psychotic disorder and an infectious disease epidemic. Of course the majority of Haitians affected by this cholera epidemic were not suffering from mental health disorders, but examining the case history reminds us that mental health services must be acknowledged as an important component of global health.

GLOBALIZATION

A second lesson may be drawn from the fact that this patient lived far from the capital city of Port-au-Prince, where over 3 million of the 10 million inhabitants of Haiti reside. Mirebalais is a small town, ~35 km from Port-au-Prince. There is little reason for most Haitians or visitors to travel there unless en route to a more distant destination in the Central Department. Until recently the road to Mirebalais from Port-au-Prince was unpaved and in severe disrepair, a 3-hour trip in a four-wheel drive vehicle, largely isolating this small city from the rest of the country. The population surrounding Mirebalais consists mainly of subsistence farmers; the town itself has over 90% unemployment, some secondary schools, and a few small businesses.

Such a town would not have featured highly on any list of places in which public health authorities had concern for an outbreak of a deadly pathogen imported from overseas, however this proved to be the case. The Haitian strain of cholera was analyzed initially to be of South Asian origin, later

confirmed to be identical to the circulating Nepali strain^{2,4,15} and identified to have most likely been inadvertently introduced into the Meye river tributary system in Mirebalais as the result of faulty sanitation practices in the base camp of United Nations peacekeepers. In a matter of weeks after this imported pathogen appeared in Mirebalais, it was exported to neighboring Dominican Republic and further overseas to Miami and Boston.¹⁶⁻¹⁸

Globalization refers to the process of increasing interconnectedness between societies such that events in one part of the world increasingly have effects on peoples and societies far away.^{19,20} Often viewed more in economic terms, globalization has important impacts on public health.²¹ In retrospect, a number of issues can be identified as having been risk factors for Mirebalais as a flashpoint for an epidemic that ultimately became of global medical concern. These risk factors include a newly paved road reducing the time of travel from the capital city to Mirebalais to just 45 minutes, making it an attractive location for the return of family members that had been displaced and/or injured by the January 2010 earthquake. It was estimated that up to 90,000 people moved to the Center Department after the earthquake, many of them locating in or around Mirebalais.²² In the days and weeks after that disaster, there was much fluidity in movement of people. Relief services to those that moved from the disaster area to their family's homes in the countryside—the so-named “home-hosted internally displaced persons” (IDPs)—were not a high priority as efforts focused on the highly visible and more easily accessible displaced in the greater Port-au-Prince area.^{23,24} Our experience showed that this allocation of relief resources led to some degree of a “commuter” form of internal migration. The IDPs moved from one place to the other in search of food during distributions, work with new projects and for relief services that were largely in the capital city. Adults often left their children in the care of relatives in towns such as Mirebalais to offer some stability while they made these trips (Flore M, Director of Zanmi Lasante education activities, personal communication, May 18, 2011). In addition to a small number of new international staff that began work in the area after the earthquake, others passed through en route to evaluate programs and needs and a United Nations peacekeeping force based just outside of town since 2004 received a new contingent of peacekeepers beginning in the weeks before the epidemic. The conflagration of a small rural town with poor infrastructure, no decent sanitation or clean water, and these factors of a new improved road—a compelling reason to move back and forth from the capital and increased movement of international visitors—is globalization at the micro level.

Such discussion is not intended as an attempt to attribute blame. Rather, the case should cause reflection for global health practitioners on the importance of the increasing interconnectedness of globalization for public health—both in terms of importing disease to isolated areas and exporting it from such areas.

CONCLUSION

This patient's case illustrates the relationship between an infectious disease epidemic, mental health, and globalization. It highlights the fact that to provide and maintain health in circumstances of destitute poverty where many factors are at play, addressing no one single factor will result in success and

that mental health is a critical component of health. The risks of globalization must not be seen just as the south to north “spread of disease” or “reintroduction of disease” but also of the inverse—the introduction of deadly pathogens through routes previously not traveled. Global health requires a macro level view of health and an understanding of details at the community level and the interactions between the two, such as those presented in this case. Attempts to address individual pieces of health without consideration of the whole are as the Haitian proverb goes, “like washing your hands and drying them in the dirt.”

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Authors' addresses: Louise C. Ivers and David A. Walton, Division of Global Health Equity, Brigham and Women's Hospital; Department of Global Health and Social Medicine, Harvard Medical School; Partners In Health; Boston, MA, E-mails: livers@pih.org and dwalton@pih.org.

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