

Not Doing Enough: Unnecessary Sickness and Death from Cholera in Haiti

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Executive Summary

In October 2010, cholera, a waterborne disease spread by the *Vibrio cholerae* bacterium, first appeared in Haiti and rapidly spread through a vulnerable population that had not been exposed to the pathogen in over a century. This cholera outbreak—having afflicted 420,000 people, 6,000 of whom have perished as a result—is the most catastrophic epidemic the hemisphere has seen in decades. Yet ten months after its first detection, the disease has yet to be decisively halted. In fact, in recent months cholera cases have spiked dramatically. In July 2011, one person was infected with cholera almost every minute, and at least 375 died over the course of the month due to an easily preventable and curable illness.

The present health crisis did not originate as a natural byproduct of the January 2010 earthquake's devastation—the organism was virtually alien to the country. Its inadvertent introduction is the result of the negligence of the United Nations Mission in Haiti (MINUSTAH), which has maintained an international, military troop presence in Haiti since 2004. A Nepalese contingent of UN peacekeeping forces is believed to have spread the illness by contaminating the Artibonite region's water supply through a leaky sewage system and inadequate waste disposal. The specific strain of *V. cholerae* in Haiti is identical to a particularly virulent one endemic to South Asia. It infects the small intestine, provoking severe diarrhea and vomiting that, if left untreated, can fatally dehydrate a healthy adult within a matter of hours.

The health interventions launched to fight cholera have been hobbled by the initial missteps made in the wake of the epidemic. The international community underestimated the virulence of the outbreak; the UN initially denied responsibility for its introduction; and there was hesitation in investigating the circumstances surrounding its appearance. These errors led to a smaller and more delayed mobilization of funds and treatment interventions than could have been otherwise marshaled to contain the outbreak. The UN's cholera appeal, which was based on its low estimate, is still barely more than 50 percent funded. Furthermore, despite myriad warnings, many nongovernmental organizations (NGOs) withdrew from cholera treatment efforts right before this summer's rainy season and the predictable increase in the number of cholera cases that followed. To date, treatment is still unequally focused on urban centers despite the much higher fatality rates in Haiti's more rural areas. With proper treatment, fatality rates should be below one percent. However, in some rural areas, they are as high as 5.4 percent.

Cholera is both eminently preventable and treatable. Much can be done immediately to curb the disturbingly large number of Haitians falling sick, and address cholera's relative deadliness in rural and remote regions. In the short-term, the international community and NGOs should provide firm support for expanding the reach of inpatient facilities in areas hardest hit by the epidemic. Money and human resources should also be invested in the proposals of public health experts who advocate for scaling up treatment efforts through antibiotics and supplements, and integrating prevention and care through education campaigns and a vaccination strategy.

NGOs raised an astonishing \$1.4 billion for Haiti relief efforts from the U.S. alone, yet many some have failed to disburse funds despite the dire situation on the ground. The international community pledged over \$5 billion for Haiti, yet over a year later, less than 40 percent has been disbursed, while far less has actually made an impact on the ground. The U.S., having appropriated over \$1 billion for Haiti, has only disbursed \$180 million. International financial institutions (e.g. World Bank, Inter-

American Development Bank), NGOs, and donor countries should use this opportunity to redouble their efforts to address the cholera epidemic and commit to assisting the Haitian government in carrying out projects for water and sewage treatment—the same infrastructure projects which have rendered cholera essentially nonexistent in most of the world.

Introduction

Cholera is both a preventable and easily cured disease, yet in July 2011—nine months after it was first reported in Haiti—an average of 1300 people were infected each day, and 375 had died over the course of the month. At the time of this writing, a total of 420,000 have been infected and over 6000 have been killed¹ by cholera since its appearance in the country in October 2010. The bacterium, which was almost undoubtedly introduced by United Nations troops into one of Haiti's major water sources, wreaked havoc on a country whose sanitation and public health had languished due to lack of international support for necessary infrastructure projects, and was then further crippled by the 7.0-magnitude earthquake of January 2010. The rapid spread of cholera and the disparities between mortality rates in different parts of the country at present are related to: inadequate funding; a diminution of treatment capacity in the face of the foreseeable consequences of Haiti's rainy season; disproportionate focus on urban centers over rural areas despite cholera's predicted pattern of transmission; and the failure to address long-term public works projects. NGOs, organizations, donor countries and international financial institutions should use the substantial resources they have available to implement a comprehensive, integrated approach to the epidemic, as has been proposed by Dr. Paul Farmer, Jeffrey Sachs and other health and development experts. A concerted push to scale up treatment efforts, build up Haiti's water and sanitation infrastructure, and link prevention to care through education campaigns and a vaccination strategy can prevent unnecessary sickness and death from cholera in Haiti.

Background

On October 21, 2010, health workers confirmed the first case of cholera in Haiti in a century. Within three months the disease had spread to all ten departments of Haiti, afflicting nearly 200,000 and killing 3,800. Although health workers had consistently warned² of the dangers of waterborne diseases in the aftermath of the earthquake, in March 2010, the Centers for Disease Control (CDC) determined that an “outbreak of cholera is very unlikely at this time.”³ The CDC's prediction rested on the fact that “[m]ost current travelers to Haiti are relief workers from countries without endemic cholera, and they are likely to have access to adequate sanitation and hygiene facilities within Haiti,”

¹ Although the Haitian Ministry of Health provides the official statistics, it is likely that underreporting in rural areas means that the actual numbers are even higher. In addition, although the Ministry of Health provides both daily and cumulative figures, there are often large jumps in the cumulative numbers that are not reflected in the daily figures. For this reason, this paper uses cumulative numbers as opposed to daily figures. For daily averages, the cumulative cases have been divided by the number of days to reach an average as opposed to averaging the daily figures as reported by the Ministry of Health.

² Center for Economic and Policy Research (2010).

³ Centers for Disease Control (2010).

while acknowledging that if cholera were introduced, “the current water, sanitation, and hygiene infrastructure in Haiti would certainly facilitate” its transmission.

However, the thousands of relief workers who poured into Haiti in the months following the January earthquake were not responsible for cholera’s introduction. Due to investigations carried out by the UN⁴ and the CDC⁵, there is now no serious dispute that the United Nations Peacekeeping Force (MINUSTAH, as it is known by its French acronym) was the source of Haiti’s cholera outbreak. This means that while the earthquake-related destruction facilitated cholera’s spread in Port-au-Prince and areas of the country where people relocated after the earthquake, its appearance in the country stems from a system of maintaining international troops in Haiti that long predated the natural disaster; forces from many countries around the world have made deployments to Haiti under UN authority since MINUSTAH’s arrival in 2004.

Of the Nepalese peacekeepers deployed to Haiti in October 2010, a contingent was stationed at the UN base in Mirebalais along a main tributary of the Artibonite River, the longest in Haiti and the site of the earliest cholera cases. At the beginning of the outbreak, circumstantial evidence indicated that these troops may have been the source: cholera is endemic in Nepal, most of the foreigners in Mirebalais were UN peacekeepers, and within days, hundreds had died downstream of the base. The Associated Press reported⁶ on the conditions of the septic tanks and sanitation at the Mirebalais base shortly after the first cholera deaths:

[W]hen the AP visited on Oct. 27, a tank was clearly overflowing. The back of the base smelled like a toilet had exploded. Reeking, dark liquid flowed out of a broken pipe, toward the river, from next to what the soldiers said were latrines. U.N. military police were taking samples in clear jars with sky-blue U.N. lids, clearly horrified. At the shovel-dug waste pits across the street sat yellow-brown pools of feces where ducks and pigs swam in the overflow. The path to the river ran straight downhill. The U.N. acknowledged the black fluid was overflow from the base, but said it contained kitchen and shower waste, not excrement.

In May of this year, the UN issued a report on the outbreak that, although seeking to downplay the culpability of the peacekeepers, nevertheless found that the “strains isolated in Haiti and Nepal during 2009 were a perfect match,”⁷ signifying that the disease was introduced “as a result of human activity.” A later study by French epidemiologist Renaud Piarroux, published in the CDC’s medical journal *Emerging Infectious Diseases*,⁸ reached an even clearer conclusion: “Our findings strongly suggest that contamination of the Artibonite and one of its tributaries downstream from a military camp triggered the epidemic.” Both reports indicate that the likely source was a leaky sewage system at the UN base which allowed runoff to enter the river.

The international community’s initial reaction was to downplay the possibility of UN culpability and underestimate the severity of the crisis. Edmond Mulet, then-head of MINUSTAH, flatly denied

4 United Nations. (2011).

5 Piarroux, et al. (2011).

6 Katz (2010).

7 United Nations, (2011).

8 Piarroux, et al. (2011).

responsibility, stating, “It’s really unfair to accuse the U.N. for bringing cholera into Haiti.”⁹ In mid-November, the World Health Organization (WHO) estimated that the cholera epidemic would sicken 200,000 people in “the next 6 to 12 months,”¹⁰ later revising the number up to 400,000 in a “worst-case scenario.”¹¹ Nine months later, the number of Haitians who have fallen ill already surpassed 400,000, and continues to climb. The WHO’s underestimate was detrimental for two reasons: the money mobilized for cholera response was too little and the initial reaction too slow. The UN’s appeal for \$164 million to fight cholera, later raised to \$175 million, was based on the WHO’s estimate that there would be 200,000 cases. At the same time as the WHO underestimated future cholera cases, Médecins Sans Frontières (MSF) warned that “[c]ritical shortfalls in the deployment of well-established measures to contain cholera epidemics are undermining efforts to stem the ongoing cholera outbreak in Haiti,” adding that “[d]espite the huge presence of international organizations in Haiti, the cholera response has to date been inadequate in meeting the needs of the population.”¹² According to the WHO, with proper treatment, cholera’s “case fatality rate should remain below 1%.”¹³ In the early weeks of the outbreak, the fatality rate was close to 7 percent.

The cholera response efforts were also severely undermined by the presidential elections in November 2010, which took place at the apex of case incidence and mortality. The international community, in this case comprised mainly of the U.S., UN, France and Canada, prioritized the elections over almost all else. Although it took months for the UN to raise \$30 million of its \$175 million cholera appeal, the international community financed nearly the entire \$30 million cost of the deeply flawed election that ended up excluding both three-quarters of the electorate, as well as over a dozen political parties, among them the country’s largest party, *Fanmi Lavalas*.¹⁴ State Department cables recently released by Wikileaks show that while acknowledging such structural defects, “the international community has too much invested in Haiti’s democracy to walk away from the upcoming elections, despite its imperfections.”¹⁵ The predictable uproar and strife, a natural result of the intrinsically marred elections, “restricted distribution of critical health supplies and prevented the roll-out of health promotion campaigns,”¹⁶ according to a UN Health Cluster bulletin published November 16, 2010. A subsequent bulletin from December 11 clearly notes that the “violence and instability in Haiti due to results of the November 28th election has had a detrimental effect on the fight against the cholera epidemic. The epidemiological data reported indicates that the disease has reached all 10 department [sic] of the island nation, and will continue to spread.”¹⁷ The election also had the unintended consequence of bringing large numbers of people together just as an epidemic was virulently spreading through the country.

9 Desvarieux (2010).

10 United Nations News Centre (2010).

11 United Nations News Centre. (2010b).

12 Médecins Sans Frontières. (2010).

13 World Health Organization (2010).

14 Johnston, Jake and Mark Weisbrot (2011).

15 Coughlin, Dan and Kim Ives (2011).

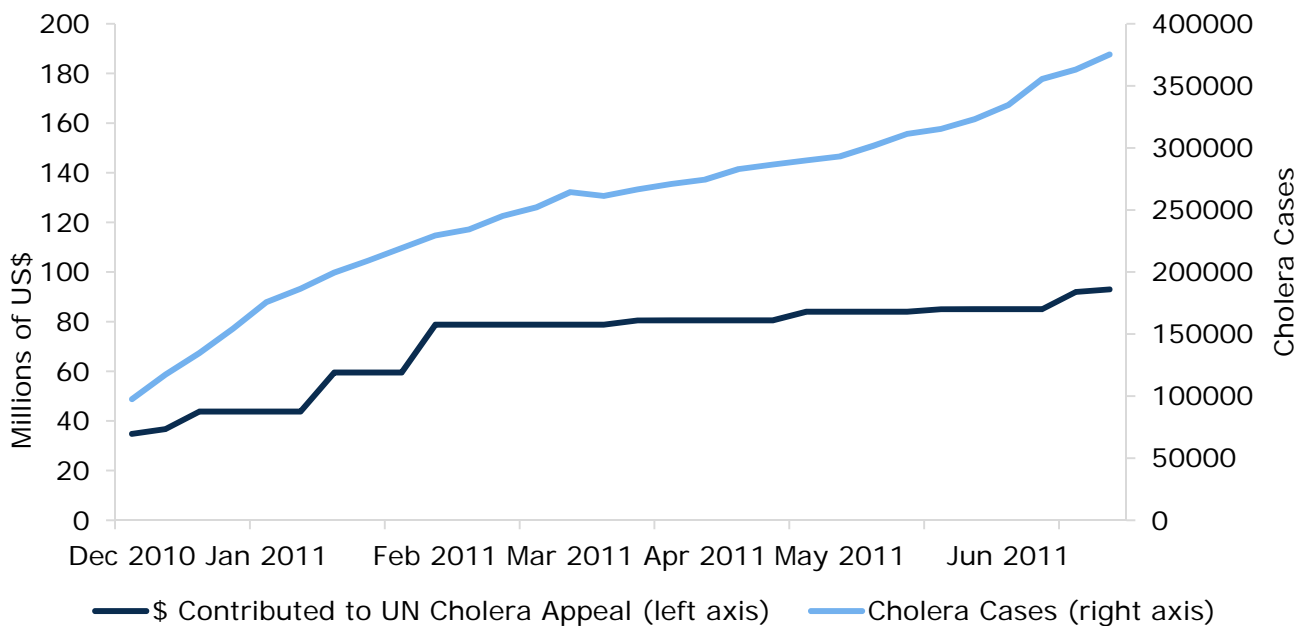
16 PAHO (2010b).

17 PAHO (2010c).

False Confidence

By January, the UN was reporting that “cholera in Haiti has been on a downward trend or has stabilized in all ten of the country’s departments.”¹⁸ After reducing the mortality rate to around 2 percent in January, many health actors began to scale back their responses, and some withdrew from the cholera response entirely. However, much of the stabilization of the disease was due to the dry season—not because the epidemic had been successfully curtailed. A study in the medical journal *The Lancet*, in March 2011 noted that, a “decline in cholera prevalence in early 2011 is part of the natural course of the epidemic, and should not be interpreted as indicative of successful intervention. Substantially more cases of cholera are expected than official estimates used for resource allocation.”¹⁹ Nevertheless, cholera relief funding and preparation for the rainy season began to slow. Figure 1 shows the evolution of the funding level of the UN’s cholera appeal (which has received \$93 million of its \$175 million request) alongside the continual increase in the number of cholera cases.

FIGURE 1
Cholera Funding vs. Cholera Cases



Sources: OCHA, MSPP

While contributions to the UN Cholera Appeal increased substantially from December through January, they largely stagnated from February onward. If spending had continued to increase as it did in the initial two months, many lives could have been saved and infections prevented and/or eliminated.

18 United Nations News Centre. (2011).

19 Andrews and Basu (2011).

NGOs Leaving the Field

On November 11, 2010, a UN Health Cluster bulletin asserted that more than 70 organizations were responding to the cholera outbreak,²⁰ a number that had almost doubled by January 10 to “128 national and international organizations working in the cholera response in the 10 departments of Haiti.”²¹ By July 2011, that number had dwindled to just 48, leaving those that remained stretched to capacity.²² The NGO Partners in Health/Zanmi Lasante (PIH) found its cholera treatment centers in Haiti’s rural Central and Artibonite departments flooded once again. Its Mirebalais treatment center received five times more patients in June than in May. Dr. Louise Ivers, PIH’s Senior Health and Policy Advisor, compared the treatment capacities during the upsurge of June 2011 to the first outbreak of cholera in 2010:

A striking difference now as the epidemic has once again spiked is that many of these partners are no longer working in the Central or Artibonite departments. Citing lack of funds for cholera activities, they have downsized, disappeared, or retreated, handing off their activities ‘to the government.’ In these departments, where the health budget is miniscule, this largely means handing off activities to Zanmi Lasante. This has made the second peak of the epidemic all the more challenging and stressful on our staff and our resources.²³

Additionally, an analysis of the Financial Tracking Service of the UN Office for Coordination of Humanitarian Affairs, a database which records all reported international humanitarian aid, shows that of the 32 funded projects for “cholera response,” 15 of them expired by July 2011, when cases had predictably spiked due to the rainy season. NGOs whose projects expired include some of the world’s largest relief organizations, including World Vision, Oxfam, CARE, Save the Children and Action Against Hunger.²⁴ **Figure 2** demonstrates the current spike in cholera cases beginning in May of this year.

20 PAHO (2010).

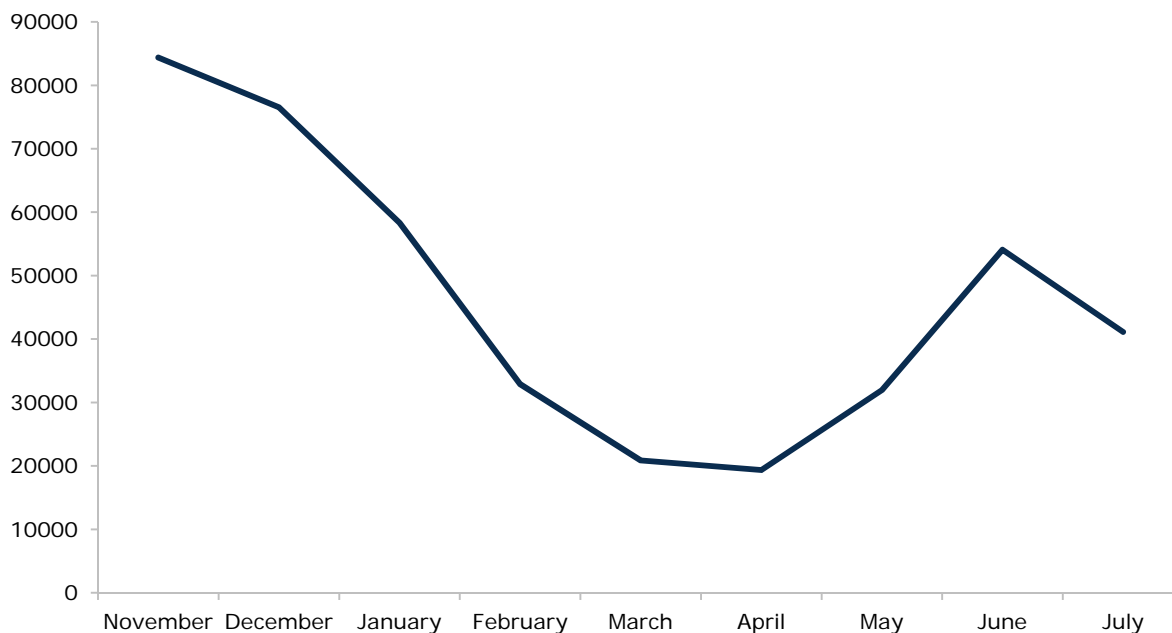
21 PAHO (2011).

22 PAHO (2011e).

23 Ivers (2011).

24 OCHA (2011).

FIGURE 2
Cases of Cholera in Haiti, by Month



Source: MSPP (Ministère de la Santé Publique et de la Population)

Health bulletins warned of the potentially dire effects of a withdrawal of cholera response and treatment projects. The March 25 bulletin provided a clear evaluation: “The departure has raised concerns about the capacity of local health structures and staff to cope with a possible increase in the number of cholera cases, especially in the imminent rainy season.”²⁸ A May bulletin observed that “NGOs are mostly phasing out due to the decrease in cholera cases or due to the lack of funding.”²⁹ The withdrawal of various health organizations led to a decrease in the number of treatment facilities throughout the country, just as the rainy season was about to begin. **Figure 3** shows the evolution in the number of Cholera Treatment Centers (CTCs) and Cholera Treatment Units (CTUs) since February.³⁰ Although the coverage of Oral Rehydration Points (ORPs), which treat less severe cholera cases, increased during this time period, the number of CTCs and CTUs sharply declined. A more detailed breakdown, by department, is contained in **Appendix Table 1** in the appendix.

By June, when torrential rains hit Haiti, the capacity of healthcare providers was near its low point, with 63 fewer CTCs operating throughout the country than in February. In the Artibonite, the department with the highest cholera infection rate in the country (see **Table 1**), there was only one operational CTC. Although some were eventually re-opened, the Artibonite has seen a drastic

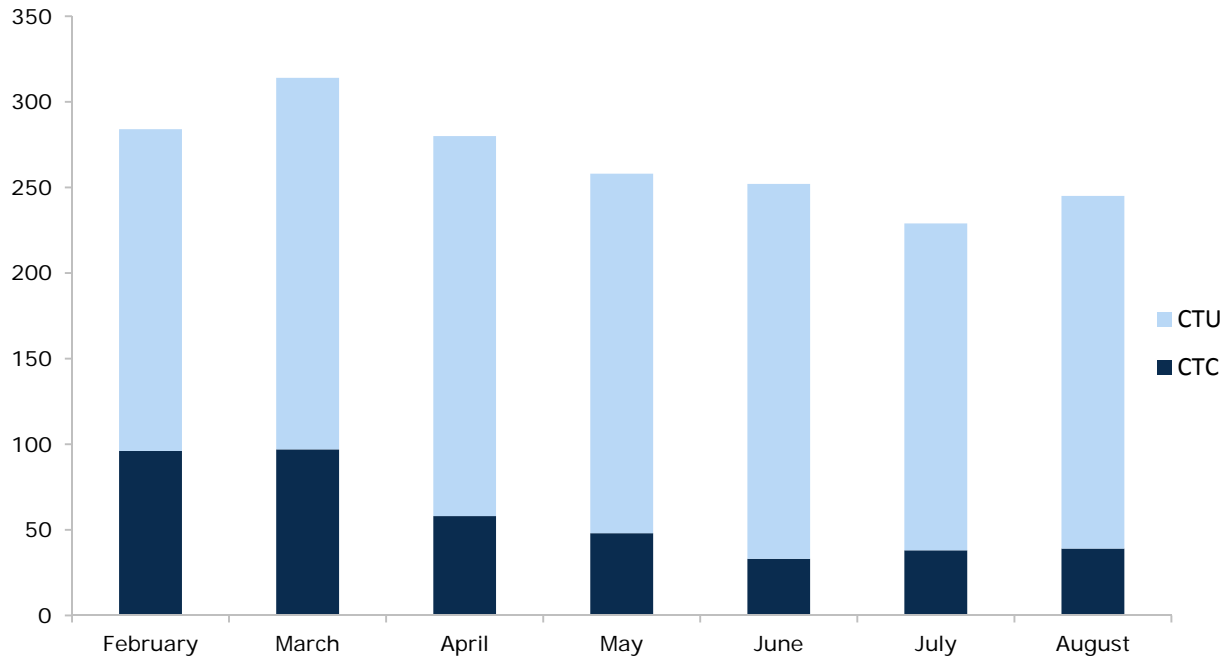
28 PAHO (2011b).

29 PAHO (2011c).

30 The various treatment facilities can respond to different levels of case severity. ORPs are the most basic and are used to treat the least severe cases. CTUs have a greater capacity than ORPs but do not have substantial inpatient capabilities like CTCs do. For a more complete breakdown of the different treatment facilities, see: Centers for Disease Control (2011b).

increase in cases since the rains in early June. The Health Cluster reported in July that “In Gros Morne, Mapou, Marmont, Ennery and Savanne Carre [all towns in the Artibonite] the number of cases have increased between 44% and 168% from week 26 (June 26 – July 3) to week 27 (July 4 – July 10).”³¹

FIGURE 3
Evolution of Cholera Treatment Facilities



Source: Health Cluster (2011).

For the country as a whole, the number of new cases per day throughout June reached an average of 1800—triple the average number in March and April, and nearly double the number of cases in May.³³ And although the mortality rate decreased for the country as a whole, an average of eight people were dying each day in June, as compared to less than 3.5 in May. Health providers deserve praise for significantly reducing mortality rates, but if the number of cases are not reduced, unnecessary deaths will continue. Table 1 shows the current state of the cholera epidemic in each of the departments of Haiti.

31 PAHO (2011e).

33 For cholera case statistics, please see the website of Le Ministère de la Santé Publique et de la Population (MSPP).
http://www.mspp.gouv.ht/site/index.php?option=com_content&view=article&id=57&Itemid=1

TABLE 1
Prevalence and Fatality Rate, by Department

Department	Cumulative Cases	Infection Rate (percent of population)	Fatality Rate (percent of cholera cases)
Artibonite	92449	5.9%	1.3%
Centre	39214	5.8%	1.3%
Grande Anse	20382	4.8%	4.4%
Nippes	4964	1.6%	3.4%
Nord	33746	3.5%	2.1%
Nord Ouest	23894	3.6%	1.4%
Nord Est	18036	5.0%	1.7%
Ouest	47254	4.0%	1.2%
Port-au-Prince	111175	4.5%	0.7%
Sud	18684	2.7%	1.4%
Sud Est	5477	1.0%	5.4%
Total	415275	4.2%	1.4%

Source: MSPP (Ministère de la Santé Publique et de la Population)

Concentration of Resources in the Capital

As can be seen in Table 1, while the overall case fatality rate is below one percent in the capital, throughout the rest of the country it ranges from 1.1 to as high as 5.3 percent. The lack of resources in rural areas remains one of the major impediments to cholera relief efforts, despite the anticipated spread of the disease to all corners of Haiti. In July, the Health Cluster noted that “the cholera epidemic is behaving as expected, having presented earlier in areas with larger populations and currently spreading to smaller rural areas throughout the country.”³⁴

As shown in Table 1, Sud Est is the department with the highest overall case fatality rate, at an alarming 5.4 percent. Fortunately, the Sud Est also has the lowest infection rate thus far, at just 1.0 percent of the population. However, it is also clear that the Sud Est remains extremely vulnerable to a spike in the cholera outbreak. A vulnerability analysis undertaken by the Pan-American Health Organization in April and May found that, along with the Ouest, the Sud Est was the most vulnerable department due to the lack of health facilities and the lack of access to adequate sanitation.³⁵ Indeed, as can be seen in Table 2 in the Appendix, there are currently zero CTCs in the Sud Est, despite the increased vulnerability and high fatality rate.

The Artibonite, despite suffering a similar number of deaths as the Ouest department (including Port-au-Prince), had only one CTC in June. Although the number of CTCs has since risen, the total number of health facilities remains just one-third of the number found in the Ouest.

As Table 1 implies, the Artibonite department has suffered massive fatalities—a cumulative number of deaths totaling 1,200 people. While the table separates Port-au-Prince—Haiti's largest urban

³⁴ PAHO (2011e).

³⁵ PAHO (2011d).

center—from the Ouest department to which it pertains, their combined cases of mortality (1,345) only slightly surpass those of the Artibonite. However, as already noted, only one operational CTC was recorded in the entire Artibonite department in June 2011.

The Way Forward

This paper has thus far focused on problems with the cholera response—chiefly, the initial misjudgment of its severity, the failure to disburse adequate funds, and a failure to adequately prepare for the rainy season. But it is not too late for the international community, health providers and health workers on the ground, and the Haitian government to support a more comprehensive response to the cholera epidemic. A study published in *The Lancet* in March of this year estimates that upwards of 779,000 cases of cholera and 11,000 deaths will be seen by November, but that these numbers could be drastically reduced through various measures. Not only could a sustained and serious response save lives in the short-term, but through an integrated approach that also deals with public health and water systems, the groundwork could be laid for a serious long-term reduction in mortality and disease, and improvement in public health in Haiti.

Scaling Up Treatment

As previously noted, treatment efforts have thus far proved inadequate—the weakness of the initial response and premature withdrawal of health actors have caused unnecessary sickness and death. However, improvements have been made: for example, in recent months, the number of Oral Rehydration Points (ORPs) has substantially increased, from 158 in December to over 850 by July. While the majority of cholera cases can be treated through simple rehydration at these ORPs, more severe cases require access to CTCs and CTUs. At a time of a massive and expected surge in new infections, an emphasis in expanding the reach of CTCs and CTUs, which provide inpatient capabilities, is critical. This is even more urgent when considering the unacceptably high mortality rates that affect certain departments, and the obviously inadequate capacity to treat more serious cases of cholera in such areas.

In May, 44 health and development experts issued a joint statement in *Neglected Tropical Diseases*, a journal published by the Public Library of Science. The statement outlines a “comprehensive, integrated cholera response in Haiti.” They recommend three main goals: the scaling up of treatment efforts, the strengthening of the public water system and the linking of prevention to care, including the development of a vaccine strategy.³⁶

Regarding the strengthening of treatment efforts, they recommend that the use of zinc supplements and antibiotics be amplified in the context of cholera response. The authors point to studies which show that zinc supplements reduce vomiting; the duration and output of diarrhea; and the length of the hospital stay. They cite a review of efficacy studies, which found that zinc treatment reduced diarrhea-related mortality by 23 percent. Increased usage of antibiotics for moderate and severe cases is also recommended, as it shortens the duration and severity of cases, while also reducing

³⁶ Farmer, Almazor, Bahnsen, Barry, Bazile, et al. (2011).

transmission throughout the population.³⁷ In *The Lancet* paper referenced earlier, researchers from Harvard and the University of California at Berkeley estimated that the “proposed extension of the use of antibiotics to all patients with severe dehydration and half of patients with moderate dehydration is expected to avert 9000 cases...and 1300 deaths.”³⁸

Improving Water Treatment Systems

Poor and unequal access to potable water and sanitation was the primary culprit for the rapid spread of cholera, a waterborne disease. Prior to the earthquake, only half of Port-au-Prince had access to latrines or other modes of sanitation, and one-third had no access to tap water; countrywide, 70 percent of Haitians lacked access to potable water, and just 17 percent could access adequate sanitation. Partners In Health, the NYU Law School’s Center for Human Rights and Global Justice, and the Robert F. Kennedy Center for Human Rights explored the relationship between the international community, Haiti’s structural deficiencies and its population’s vulnerability in a 2008 report:

In July 1998, the [Inter-American Development Bank] approved \$54 million in loans for the Haitian government to implement water and sanitation improvements. One of the goals of these loans was to improve potable water and sanitation services and to establish a regulatory framework for the development of sanitation services. The original loan documents identified two communities in Haiti as recipients of the initial potable water assistance: Les Cayes and Port-de-Paix. The IDB had conducted extensive research on the water systems of both municipalities in 1997, focusing on the health impacts of the contemporaneous failures of the public water system and projecting that many of these health concerns would be ameliorated by the implementation of the IDB-funded water project.

IDB officials believed that the socio-economic impact of the project in Port-de-Paix would be overwhelmingly positive, particularly because of its potential to alleviate common and dangerous water-related illnesses, such as gastro-intestinal disease. Further, the IDB anticipated a significant benefit to poverty reduction, largely because its loans would facilitate a decline of up to 90 percent in water costs for the poor. Despite the enormous potential benefits of the loans—and following approval and ratification of the loan package—the United States blocked the scheduled disbursement in 2001, effectively shutting down all prospects for the projects to proceed.³⁹

In the wake of the cholera outbreak, Dr. Evan Lyon, one of the report’s investigators and signatory to the *Neglected Tropical Diseases* joint statement, publicly noted that although the loans had since been disbursed, such water systems had not been meaningfully improved in the intervening decade and

37 Ibid.

38 Andrews and Basu (2011).

39 “New York University School of Law Center for Human Rights and Global Justice, Partners in Health, Robert F. Kennedy Memorial Center for Human Rights, Zanmi Lasante. (2008).

that “it’s reasonable to draw a straight line from these loans being slowed down and cut off to the epidemic that emerged a week ago.”⁴⁰

In March, OCHA warned that “most of the funding to partners to support sanitation, water trucking activities and camp management will be exhausted by June 2011. As a result, it is expected that the number of humanitarian actors able to continue activities will be drastically reduced, which in turn will have serious consequences on the living conditions of camps residents.”⁴¹ The May 2011 joint statement notes:

[S]ome have suggested charging for drinking water within informal settlements and IDP camps on the grounds that free water distribution—a service that has been available in most camps, and one of the principal reasons why they have had low incidence of cholera—is not sustainable. A cost-recovery mechanism requiring payment for access was instead recommended. But camp-dwellers have little (if any) income, most of which goes toward food and other basic needs. Anyone who has worked with Haiti’s urban or rural poor would predict that this brand of “cost-recovery”—shifting the burden of payment onto the poorest people—will lead camp-dwellers to look elsewhere for water; but in post-earthquake Haiti, most other sources are not clean or cholera-free.⁴²

The joint statement’s authors propose increased use of filtration devices and water purification tools in order to expand access to safe drinking water. In addition, they urge NGOs to work in coordination with Haitian authorities in order to “build the capacity of municipal water systems and therefore improve Haiti’s long-term water security.”⁴³ This is an area in which little progress has been made. The Health Cluster noted in July that “the conditions that led to the spread of the epidemic are largely unchanged,” and that “health infrastructure in the country has seen little to no benefit.”⁴⁴ It is because of this that the statement’s authors advise using the cholera response “as a wedge to bolster primary health care services and strengthen the Haitian health system.”⁴⁵ This is consistent with the findings of a report from the UN Special Envoy for Haiti on aid effectiveness, which concluded that “aid is most effective at strengthening public institutions when it is channeled through them.”⁴⁶

In addition to improving the public water system, these efforts can also save lives in the short-term. *The Lancet* study estimates that over a nine-month period, “a 1% per week reduction in consumption of contaminated water would avert 105,000 cases...and 1,500 deaths.”⁴⁷

40 Democracy Now! (2010).

41 United Nations Office for the Coordination of Humanitarian Affairs (2011).

42 Farmer, Almazor, Bahnsen, Barry, Bazile, et al. (2011).

43 Ibid.

44 PAHO (2011e).

45 Farmer, Almazor, Bahnsen, Barry, Bazile, et al. (2011).

46 United Nations Special Envoy for Haiti (2011).

47 Andrews and Basu (2011).

Linking Prevention to Care

The authors of May's joint statement argue that "prevention should not come at the expense of acute care,"⁴⁸ but highlight the importance of increasing prevention through the use of oral vaccines. *The Lancet* study predicted "that the vaccination of 10% of the population, from March 1, will avert 63,000 cases...and 900 deaths."⁴⁹ Unfortunately, there are currently only 400,000 vaccine doses ready for shipment, which would only cover two percent of the population. Nevertheless, the authors point out that new estimates suggest that by March 2012 up to four million doses may be available, demonstrating how quickly production can be increased. Although other criticisms have arisen, including the cost-effectiveness and feasibility of implementation, the authors conclude that:

We recognize that there is insufficient vaccine today for an immediate mass campaign, and that the current epidemic could be curbed before such a supply becomes available. Without significant investment in Haiti's weakened health system, there will continue to be insufficient human and financial resources to deliver a mass vaccination campaign. Nonetheless, we believe a rational vaccine strategy should be pursued immediately. Although the 1 million doses available would provide a complete vaccine course to only 500,000 people (about 5% of Haiti's population), targeting vulnerable populations could help to reduce transmission, decrease the likelihood of resurgence, and put gears in motion toward amassing a global stockpile—an outcome that would be beneficial for this epidemic and the next.⁵⁰

Conclusion

Haiti's cholera outbreak has developed into a protracted, nationwide epidemic, even spreading into the neighboring Dominican Republic. From the start of the rains in May to the end of July 2011, 125,000 people have been stricken by cholera and 1,021 have died. In other words, over the course of those three months, a Haitian was afflicted by cholera every minute; every two hours, an infected person died as a result. At this critical juncture, almost ten months after cholera's first detection, major efforts should be made to reduce the total number of those sickened by the bacterium, while abating the stark disparities in the mortality rates that Haitians face throughout the country. First and foremost, a new push for cholera-specific funding—disbursed by the international community and mediated by the Haitian government's public health sector—should be initiated without delay. According to sources within the U.S. Agency for International Development (USAID), the organization has apportioned \$44 million to cholera treatment since October 2010, but most of this money has already been spent, and Haiti still faces three more hazardous months of hurricane season. In July 2010, the U.S. Congress appropriated \$1.14 billion "in reconstruction funds available through the end of fiscal year 2012," yet as of March, just \$184.3 million had been disbursed⁵¹, three-

48 Farmer, Almazor,, Bahnsen, Barry, Bazile, et al. (2011).

49 Andrews and Basu (2011).

50 Farmer, Almazor,, Bahnsen, Barry, Bazile , et al. (2011).

51 Accountability Office (2011).

quarters of which went to the Haiti Reconstruction Fund.⁵² This leaves a significant pool of money that could be used to address the current public health emergency. In addition, NGOs raised over \$1.4 billion for relief efforts in Haiti from the U.S. alone, yet much of this remains unspent. The American Red Cross, which raised nearly \$500 million, has “spent and signed agreements to spend” only 60 percent of those funds as of June 2011.⁵³ As of the end of November 2010, Catholic Relief Services, the second-largest recipient of donations, had spent just 17 percent of the \$160 million it raised for Haiti relief.⁵⁴

The United Nations’ mission in Haiti, whose gross negligence in October caused this epidemic and once again faces fresh accusations of improper disposal of its troops’ waste, must shift its priorities: the \$850 million annual cost of MINUSTAH’s stated aim of maintaining security is more than nine times what it has raised to fight the cholera epidemic. NGOs and other health actors must take into consideration the pathogen’s pattern of transmission, and sudden but predictable increases caused by long-term weather trends. In addition to reacting to new cases, NGOs should accompany Haitian endeavors in public health and public works, which would provide long-term health solutions and drastically curtail new infections. The maintenance or expansion of health infrastructure like CTCs and CTUs, the promotion of public sanitation projects and the broad implementation of vaccinations can greatly diminish the number of Haitians who unnecessarily suffer and die.

52 Only about 10 percent of the \$351 million that was given to the Haiti Reconstruction Foundation has been disbursed on the ground. For more information see, <http://www.cepr.net/index.php/blogs/relief-and-reconstruction-watch/inside-the-haiti-reconstruction-fund-annual-report>

53 American Red Cross (2011).

54 For a complete listing of the amounts raised by NGOs and how much they’ve spent, see: Lieu (2011).

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Appendix

APPENDIX TABLE 1
Evolution of Cholera Treatment Facilities, by Department

	February		March		April		May		June		July		August	
	<i>CTC</i>	<i>CTU</i>	<i>CTC</i>	<i>CTU</i>	<i>CTC</i>	<i>CTU</i>	<i>CTC</i>	<i>CTU</i>	<i>CTC</i>	<i>CTU</i>	<i>CTC</i>	<i>CTU</i>	<i>CTC</i>	<i>CTU</i>
Artibonite	13	12	14	15	6	12	6	13	1	11	6	11	7	16
Centre	5	13	5	13	5	12	4	10	3	12	4	12	4	12
Grande Anse	5	5	6	24	5	23	5	25	4	35	3	33	4	35
Nippes	2	6	2	6	3	10	3	10	1	11	1	10	1	9
Nord	13	20	13	20	8	22	1	22	1	23	4	23	4	23
Nord-Est	4	22	4	23	3	24	3	24	2	22	2	22	2	22
Nord-Ouest	9	4	9	4	1	14	1	14	0	14	0	12	2	11
Ouest	36	92	36	96	19	88	17	75	18	70	14	48	13	58
Sud	8	5	7	6	7	7	7	7	3	10	4	10	2	10
Sud-Est	1	9	1	10	1	10	1	10	0	11	0	10	0	10
Total	96	188	97	217	58	222	48	210	33	219	38	191	39	206
Overall Total	284		314		280		258		252		229		245	

Source: Health Cluster (2011).