

Five complementary interventions to slow cholera: Haiti



This year, Haiti might have marked World AIDS Day on Dec 1 with some degree of celebration: as chroniclers of the pandemic have noted, Haiti helped lead the way towards an integrated AIDS prevention and care model that was adopted in many resource-poor settings when funding from new mechanisms became available.¹ The size of Haiti's AIDS epidemic has been halved over the past 15 years;² AIDS-related stigma was reduced when treatment became available; and, in some settings, a significant fraction of HIV funding was steered into strengthening regional and local health systems. In public health jargon, vertical AIDS funding has been used for more horizontal integrated efforts to support and improve a weak health system.³

Why, then, did the first cases of the cholera epidemic, now claiming lives by the thousands, appear in a region to which a substantial fraction of this funding for HIV programmes was applied? One answer concerns the mechanism through which a pathogen with no known non-human host was introduced to an island long spared cholera. Speculations on this topic have caused social and political friction within Haiti in recent weeks because a strain endemic in south Asia, an El Tor biotype of *Vibrio cholerae* serogroup O1, is the culprit strain of the outbreak—and UN peacekeepers from that region are stationed in central Haiti, where the outbreak started. If AIDS and previous pandemics offer lessons, cycles of accusation will continue for years without helping to slow the cholera epidemic.⁴

A second answer to the question lies in insufficient attention to the stressed rural communities hosting hundreds of thousands of displaced persons after January's earthquake. Although cholera was considered "extremely unlikely to occur" in Haiti, an outbreak of acute watery diarrhoea was anticipated.⁵ Not expected, however, was an outbreak erupting rapidly in a rural area, far from any camp for internally displaced persons. Focusing post-disaster support not just on areas directly affected by the earthquake but also on host communities throughout the country would have been a wise investment of aid money.

A third answer is less fraught: very little of the money aimed at implementing HIV programmes went into protecting the water supply. That said, in the regions where Partners In Health and its Haitian sister

organisation have worked on AIDS, malnutrition, and health-systems strengthening, few of the thousands of AIDS patients on therapy, children in malnutrition programmes, or patients in other vertical programmes have fallen ill with cholera. A little bit of medical care can go a long way. But it cannot go far enough when water security is concerned: although some groups, including our own, continued to put resources into small water projects, no non-governmental organisation should or could replace robust public water supplies. So we joined others to push for large-scale water projects across the country.

This effort failed. Between 2000 and 2004, the USA (and other governments) slowed the flow of aid to the Haitian public sector, choosing to route most aid through non-governmental organisations. Some argued that such punitive policies were the prerogative of the donor countries, but blocking access to credit from the region's largest development bank, a funder of public works throughout Latin America, should not have been the prerogative of the USA or any other government. Partners In Health joined forces with two human rights organisations to explore the ways in which Haitians, especially those living in poverty, were denied the right to clean water and primary health care.⁶ A lack of investment by all actors (governmental and non-governmental alike) in long-term and safe distribution programmes for water as a public good

Published Online
December 10, 2010
DOI:10.1016/S0140-
6736(10)62243-X



Children play at camp for people displaced by January earthquake in Port-au-Prince, Haiti (Dec 2, 2010)

has led to the highest rates of waterborne diseases in the hemisphere: globally, Haiti ranked 147th out of 147 countries for water security in 2002.⁷

Even in 2003, cholera was among the diseases mentioned in warnings about the politicisation of water and health projects.^{6,8} Although cholera had not been documented in Haiti for many decades, it has long been the most feared waterborne disease. Health-care providers working in informal settlements and refugee camps, both especially vulnerable to waterborne diseases, know that cholera's profuse secretory diarrhoea can shrivel a healthy adult in less than 6 h. Case-fatality rates of untreated severe cholera can reach 50%, while most agree that aggressive case management can drop this figure to under 1%.⁹

What, then, are the key steps to slow the spread of cholera and to reduce case-fatality rates to under 1%? Five are worth mentioning, all of them drawing on a model of intervention that links prevention to care.

First, we must identify and treat all those with symptomatic cholera. This effort requires both the capacity to identify and refer those with symptoms, and the existence of centres equipped and trained to treat them. In less than a month, dozens of cholera treatment centres have been erected, often in tents. But it is not easy for rural Haitians to reach them. Most of the tens of thousands of patients treated to date have not come to medical attention through aggressive case-finding efforts; they have fallen ill and their families have sought treatment for them, sometimes too late. The ranks of

health-care providers, overwhelmed already and lacking experience with cholera, must be further reinforced. Community health workers can play a critical role as first responders in the epidemic. To refer patients, networks of community health workers (and other providers) need to be able to do more than note the onset of diarrhoea: they must be able to start oral rehydration salts and transport the sick even where roads are poor or flooded. Huge numbers of vehicles now circulate in Port-au-Prince and other Haitian cities; most are owned by humanitarian groups, non-governmental organisations, and UN agencies. Ambulances, however, are in critically short supply—more are needed to move the afflicted to proper care.

There is also a push, from some global authorities, to focus all efforts on oral rehydration and, failing that, on intravenous resuscitation, with lack of sufficient discussion and consideration of the benefits of antibiotic therapy as an adjunct to cholera treatment and control. As of this week, antibiotic therapy is recommended only for the most severe cases, sometimes on the grounds that antibiotics are expensive, difficult to administer, or might lead to antibiotic resistance in the strain of *V cholerae* now spreading rapidly in Haiti. But few providers would not take antibiotics if they were to fall ill, because antibiotics can shorten the course of the disease, decrease volume of diarrhoea, and lessen the amount of time that patients shed viable organisms.¹⁰ There is also some evidence for strain variation, and some cholera experts have concluded that, in El Tor outbreaks, antibiotics are needed to bring the case-fatality rate under 1%.¹⁰ Oral rehydration salts should indeed be a mainstay of therapy, but this public health approach should not be at the expense of critical consideration of the value of deploying other tools against the disease.

Second, a concerted effort should be made to make oral cholera vaccines available in Haiti and elsewhere. This would require a global stockpile of cholera vaccine. Again, vaccine cost and logistics dominate the debate: in the jargon, vaccination is not regarded as logistically feasible or cost effective in the midst of an epidemic. But on the first score, after the earthquake and in the region now affected by cholera, we were able to complete a three-dose course of human papillomavirus vaccine for 76% of the girls who received their first dose before the earthquake: about twice the rate of completion in



Sport centre that has been converted for cholera treatment in Cap-Haitien, Haiti (Nov 23, 2010)

AP Photo/Emilio Morenatti

some US settings for which data are available.^{11,12} On the second, as with therapy for AIDS, the cost of effective cholera vaccines varies enormously, which means that confident claims about cost-effectiveness need to be interrogated. There are two vaccines on the market: one, Dukoral, costs US\$6 per dose to manufacture;¹³ the second, Shanchol, costs \$1 per dose to manufacture.⁹ With economies of scale, the costs would drop further, as we have learned not only with other vaccines but also in following the costs of antiretroviral therapy and other large-scale treatment efforts.¹⁴

Further, cholera is unlikely to disappear from Haiti any time soon. The El Tor strain will probably become endemic in Haiti. Bangladesh is now in its fifth decade of an El Tor epidemic; epidemics caused by other strains have trailed off within 20 years.⁹ But research in Bangladesh and India suggests that, when the efficacy of the vaccine is added to a substantial herd effect, protection rates can climb over 90% and protection can last for up to 3 years.⁹ Although large-scale vaccination might not prevent cholera from becoming endemic in Haiti, it would save thousands of lives. Both Shanchol and Dukoral are needed here, and production of these vaccines should be ramped up, as cholera experts have argued for the past decade.¹⁵

Third, prevention in this context means doing everything we can to remedy Haiti's water insecurity and improve sanitation. This may sound uncontroversial, but in a world in which 1 billion people lack access to safe drinking water, water security is a political and ideological minefield. Within 2 months of the Jan 12 earthquake, some were advising the Haitian Government to stop the provision of free drinking water within the informal settlements and camps, in which 1.3 million displaced people live, on the grounds that this practice was not sustainable. A cost-recovery mechanism—the standard way of moving water to the thirsty within Haiti is to sell it—was counselled as prudent and sustainable. All efforts should be focused on improving access to clean drinking water through public works projects, point-of-use water-purification systems, and other proven means. Public health messages about handwashing or water treatment with chlorine tablets should not be limited to what is termed social marketing, but should instead be linked to a massive effort to make sure soap, treated water, and safe latrines are available to those receiving these messages.

Fourth, all vertical health projects, whether focused on AIDS, cholera, nutrition, women's health, or any other endeavour, must be dedicated at least in part to strengthening Haiti's health system. Only a third of Haiti's health services are currently being delivered in the public sector, so such an effort would necessarily involve the hundreds of large and small non-governmental organisations and other non-state providers which dominate the scene in Haiti.¹⁶ Haitians know that the earthquake has not, thus far at least, revealed a hoped-for silver lining; reconstruction remains stalled. But there are hundreds of humanitarian groups that could be enjoined to participate in regional efforts to integrate cholera prevention and care. We can all do more to strengthen Haiti's public health system. This is what Rwanda, with substantial if smaller numbers of non-governmental organisation partners, has pushed for with success.

Fifth, cholera demands not simply a harmonisation of global health policy, but also raising the bar on our goals. 10 years ago, we argued that AIDS treatment with antiretroviral therapy was possible even in rural Haiti, and pressed for adequate funding of integrated prevention and care programmes.¹⁷ The Haitian cholera epidemic again reveals the weakness of setting goals based on the gross domestic product of the country in question: Haiti is part of a complex web of global social connections, and AIDS, cholera, dengue, and other pathogens will continue to move within this web. But while microbes pass readily through the web, some of the goods that are needed to respond effectively to the epidemic seem to be caught in customs.¹⁸ This is meant literally as well as metaphorically: the goals of responding to cholera in Haiti should look the same as the goals of responding to cholera in the Dominican Republic or Florida, to name two settings already touched by what is widely termed the Haitian epidemic.

No epidemic of cholera is ever local for long, and this one is particularly fast-growing. In just 30 days, Haiti has recorded almost 2000 deaths: nearly half of the number registered in Zimbabwe's year-long epidemic, another case in which international experts failed to recommend vaccination linked to aggressive case-finding and proper care. There may be no way to stop cholera in its tracks in Haiti. But unlike AIDS when it was first diagnosed in Haiti in 1981, cholera is a disease for which we have tools for prevention (from improved sanitation to

vaccines) and effective treatment (from rehydration and replacement of electrolytes to antibiotics). We must move swiftly, aggressively, and together: marshalling not only the tools needed to slow the epidemic in Haiti and its neighbourhood, but also the political will of global health authorities and funders and large-scale implementers. Divisions over the respective roles of prevention and care are as senseless as those over the roles of vaccines and antibiotics; in this dire emergency, we can accept nothing less than complementary prevention and care.

*Louise C Ivers, *Paul Farmer, Charles Patrick Almazor, Fernet Léandre*

Harvard Medical School, Boston, MA 02115, USA (LCI, PF); and Partners In Health/Zanmi Lasante, Port-au-Prince, Haiti (CPA, FL) paul_farmer@hms.harvard.edu

We declare that we have no conflicts of interest.

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