

### Summary

Date of assessment: 06 October 2022

### Overall risk and confidence (based on information available at the time of assessment)

Overall risk		
National	Regional	Global
Very High	Moderate	Low

Confidence in available information		
National	Regional	Global
Low	Moderate	High

### Risk Assessment

After more than three years with no cases of cholera reported in Haiti, on 2 October 2022, the national authorities reported two confirmed cases of *Vibrio cholerae* O1 in the greater Port-au-Prince area. Clusters of suspected cases and deaths are under investigation in various communes of Ouest Department. In epidemiological week (EW) 39 of 2022 (ending 2 October), healthcare facilities reported an increase in cases of severe acute diarrhea among hospitalized patients, including both children and adults. As of 2 October, more than 20 suspected cases of cholera, including seven fatalities, were detected by healthcare personnel.

Haiti has been experiencing a security crisis due to violence from armed gangs in Port-au-Prince and other cities which has exacerbated the humanitarian crisis in the country. The current vulnerabilities include malnutrition, internally displaced persons (IDPs), non-functional structures, limited or lack of access to health services, fuel shortages, limited access to safe water and poor sanitation and hygiene facilities, amongst others. These factors would have an impact on the dynamics of the cholera resurgence and on the severity of the disease in patients with acute diarrhea. Access to the affected areas is difficult and therefore, timely assessment of the epidemiological situation and provision of health care for cases is complex. The security crisis has also impacted the capacity of the public health system and the international organizations to respond effectively. Haiti experienced the first outbreak of cholera ever confirmed in the country beginning in October 2010, affecting over 820,000 people and killing 9,792 persons until January 2019 (between 2010 and 2016, between 27,000 and 340,000 cases of cholera were reported annually in Haiti, with a case fatality ratio (CFR) between 0.8-2.2%). **Based on this, the national risk is assessed as very high.**

In the Region of the Americas, since 2010, confirmed cases of cholera have predominantly been reported from Haiti, followed by the Dominican Republic, Cuba, and Mexico. Sporadic imported cases have also been reported in other countries in the Region. While there is greater capacity in other countries to detect and control outbreaks of cholera, concurrent emergencies in the region have stretched out and weakened these capacities. **Based on this, the regional risk is assessed as moderate.**

### Risk Assessment Questions

Risk question	Assessment			Risk	Rationale
		Likelihood	Consequences		
Potential risk for human health?	National	Highly likely	Severe	Very high	Haiti has already experienced a devastating outbreak due to cholera, between 2010-2019, with more than 820,000 cases and 9,792 deaths (annual CFR between 0.8%-2.2%). Though cholera is typically mild to moderate in 80-90% of cases, due to the current socioeconomic situation and humanitarian crisis, which includes recent closure of hospitals and reduced ambulance services, as well as overall poor health condition of the population, all contributing to greater likelihood of severe disease and death; this degree of severe presentation is less likely to be experienced by most other countries in the Region that also have stronger health systems to treat patients.
	Regional	Likely	Minor	Moderate	
	Global	Unlikely	Minimal	Low	
Risk of event spreading?	National	Highly likely	Severe	Very high	Cholera transmission is closely linked to inadequate access to clean water and sanitation facilities. Typical at-risk areas include peri-
	Regional	Likely	Moderate	High	
	Global	Unlikely	Minor	Low	

					urban slums, and camps for internally displaced persons or refugees, where minimum requirements of clean water and sanitation are not met. The current situation in Haiti meets all of the aforementioned characteristics and therefore has an increased risk of transmission. Neighboring Dominican Republic is the country with the highest likelihood for disease spreading from Haiti. The disease could also potentially spread with the migration of the Haitian people in the Region. The Dominican Republic and other countries in the region have greater capacity to detect and control the disease although concurrent emergencies in the region have stretched out these capacities.
Risk of insufficient control capacities with available resources?	National	Highly likely	Severe	Very high	Haiti is currently experiencing a security crisis due to violence from armed gangs and breakdown in infrastructure. Additionally, there is a reduced capacity for response by the public health system and international partners who have had a reduction of their personnel in Haiti, coupled with issues with logistics and lack of fuel, including difficulties of importing supplies. Other countries in the Region are more likely to have sufficient control capacity and available resources to respond to potential imported cases.
	Regional	Unlikely	Moderate	Moderate	
	Global	Unlikely	Minor	Low	

## Supporting Information

### Hazard assessment

Cholera is an acute diarrheal infection caused by ingestion of food or water contaminated with the bacterium *Vibrio cholerae*. It has a short incubation period, ranging between two hours and five days. The bacterium produces an enterotoxin that causes a copious, painless, watery diarrhea that can quickly lead to severe dehydration and death if treatment is not promptly given. Vomiting also occurs in most patients. It affects both children and adults and can kill within hours. Person-to-person transmission is not common.

Among people who develop symptoms, about 80-90% of episodes are of mild or moderate severity and are difficult to distinguish clinically from other types of acute diarrhea. Less than 20% of ill persons develop acute watery diarrhea with severe dehydration. People with low immunity, such as malnourished children or people living with HIV, are at greater risk of death if infected.

There are many serogroups of *V. cholerae*, but only two – O1 and O139 – cause outbreaks. *V. cholerae* O1 has caused all recent outbreaks. *V. cholerae* O139 – first identified in Bangladesh in 1992 – caused outbreaks in the past, but recently has only been identified in sporadic cases. It has never been identified outside Asia. There is no difference in the illness caused by the two serogroups.

Cholera transmission is closely linked to inadequate access to clean water and sanitation facilities. Typical at-risk areas include peri-urban slums, and camps for internally displaced persons or refugees, where minimum requirements of clean water and sanitation are not met. The consequences of a humanitarian crisis – such as disruption of water and sanitation systems, or the displacement of populations to inadequate and overcrowded camps – can increase the risk of cholera transmission, should the bacteria be present or introduced. Uninfected dead bodies have never been reported as the source of epidemics.

Cholera is an easily treatable disease. The majority of people can be treated successfully through prompt administration of oral rehydration solution (ORS). The WHO/UNICEF ORS standard sachet is dissolved in 1 litre (L) of clean water. Adult patients may require up to 6 L of ORS to treat moderate dehydration on the first day. Currently there are three WHO pre-qualified oral cholera vaccines (OCV): Dukoral®, Shanchol™, and Euvichol-Plus®. All three vaccines require two doses.

## Exposure assessment

After more than 3 years with no cases of cholera reported in Haiti, on 2 October 2022, the national authorities reported two (2) confirmed cases of *Vibrio cholerae* O1 in the greater Port-au-Prince area. In addition, as of 2 October 2022, community clusters of suspected cases and deaths are under investigation in various communes of Ouest Department, including the communes of Cité Soleil and Port-au-Prince.

During epidemiological week (EW) 39 of 2022, healthcare facilities located in some sectors of the communes of Port-au-Prince and Cité Soleil started reporting an increase in cases admitted with severe acute diarrhea, including both children and adults. As of 4 October, the Haiti Ministry of Public Health and Population (MSPP per its acronym in French) reported 5 confirmed cases (laboratory confirmed as *Vibrio cholerae*), 2 probable cases, and 52 suspected cases of which 41 have been hospitalized. Additionally, one institutional death has been reported. Initial reports included more than 20 suspected cases of cholera, including 7 fatalities detected by healthcare personnel in the mentioned communes. The 2 October update had indicated that 2 confirmed cases were confirmed as *Vibrio cholerae* O1 among the samples processed by the national public health laboratory (LNSP, per its acronym in French).

Prior to 2010, cholera was not endemic to Haiti nor the island of Hispaniola. However, Haiti experienced the first outbreak of cholera ever confirmed in the country beginning in October 2010, following the earthquake that occurred in January of the same year. *V. cholerae* serogroup O1, biotype Ogawa was identified. At that time, the outbreak was the largest worldwide in recent history, affecting over 820,000 people and killing 9,792 persons.

In January 2020, PAHO declared that the country had reached 1-year free of confirmed cases. The last confirmed case of cholera prior to this was reported in l'Estère in the Artibonite department of Haiti during the last week of January 2019. It concerned a boy under the age of 5, who was admitted to hospital on the 24th of January 2019 but recovered shortly thereafter.

From 2010 to 2016, between 27,000 and 340,000 cases of cholera were reported annually in Haiti, with a case-fatality rate (CFR) between 0.8-2.2%. In 2018 there were 1,219 confirmed cases and in 2019, only 28 confirmed cases.

In 2021 as of epidemiological week (EW) 42, among almost 3,000 cases of diarrhea reported in Haiti, only 27 were suspected cholera cases, none of which tested positive for *V. cholerae*.

Due to the current conditions in Haiti (see Context Assessment), a large portion of the population remains vulnerable to the risk of cholera infections and the re-occurrence of person-person transmission. In the affected areas, there are two (2) camps (Shalom and Hugo Chavez) for internally displaced persons (IDP) who have been displaced due to the gang violence. Investigations are ongoing of the recently reported suspected cases in Haiti.

In the Region of the Americas, since 2010, confirmed cases of cholera have predominantly been reported from Haiti (majority of cases), followed by the Dominican Republic, Cuba, and Mexico. Sporadic imported cases have also been reported in other countries in the Region. In 2021, no cholera reports were received by WHO from the Americas.

## Context assessment

Haiti is currently facing multiple crises, related to gang violence, social unrest, and insecurity, and is at high risk/vulnerability for natural hazards.

According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), since June 2021, areas under the control of gangs have expanded considerably in the Port-au-Prince metropolitan area. In a context of widespread insecurity, the population is caught in the middle of intense clashes in neighborhoods ravaged by violence or is unable to move freely to the capital, as the main roads remain under gang control. Moreover, since the end of July 2022, Haiti has been experiencing social protests that

have been gaining momentum, often paralyzing activity in major provincial cities for a few hours or even days, reaching an alarming peak across the country on 12 September. Insecurity, the rising cost of living and the fuel distribution crisis remain at the heart of these protests.

The areas where the cases have been reported are the commune of Cite Soleil and Martissant in Port au Prince which are entirely controlled by gangs and where clashes took place last August, resulting in several thousand displaced people. In the affected areas, there are two internally displaced persons (IDP) camps (Shalom and Hugo Chavez). Circulation is very limited, and some hospitals are beginning to close their doors because of the fuel crisis as well as difficulties for staff to move around and access their facilities. Potential patients also have the same difficulties due to lack of transportation and barricades. Ambulance services significantly reduced. Patients and health care personnel face difficulties in accessing hospitals.

Electricity power supply problems certainly affect the population's access to water, which will aggravate the already precarious situation. In the areas affected by the violence, malnutrition was already present and will worsen and increase vulnerability.

Despite progress, Haiti remains behind the rest of Latin America and the Caribbean in terms of access to potable water and sanitation. Over a third of the population (35%) lack basic drinking water services and two-thirds (65%) have limited or no sanitation services due to the current crisis in lack of drinking water and irregularity in the supply of water services, significant difficulties in ensuring the emptying of latrines and proper waste management.

**Table 1: Capacities and vulnerabilities related to Cholera outbreak in Haiti. October 2022.**

Capacities
<p>The Pan American Health Organization (PAHO) and the Haitian Ministry of Health implemented the Labo Moto project, which works on the ground to enable field nurses to rapidly transport samples from treatment centers to laboratories on motorcycles, which has allowed testing of suspected cases to increase from 21% in 2017 to 95% in 2019. LaboMoto is part of a three-step strategy to ensure that all suspected cases from high-risk areas are tested; that random sampling of patients with diarrhea is implemented in all areas of the country; and that event-based (rumor) surveillance is also carried out by epidemiologists.</p> <p>PAHO has also supported Haiti in equipping primary health clinics with trained personnel that are able to respond quickly and manage cases, and in the implementation of cholera vaccination programs. For example, over 900,000 people were vaccinated following Hurricane Matthew in 2016.</p>
Vulnerabilities
<p>Haiti is facing a dire humanitarian crisis compounded by multiple social crises and is at high risk/vulnerability for natural hazards (the most recent being Hurricane Fiona and the earthquake of August 14, 2021).</p> <p>The current fuel supply crisis has affected the supply of water and electricity to the population, health centers and hospitals.</p> <p>Due to problems of insecurity and violence, patients and health personnel have difficulty accessing hospitals and health services.</p> <p>There is an increased risk of disease outbreaks due to difficulties in monitoring and implementing control measures.</p> <p>In Haiti over a third of the population (35%) lack basic drinking water services and two-thirds (65%) have limited or no sanitation services. Currently, there is a lack of drinking water and irregularity in the supply of water services, including in health structures. Significant difficulties in ensuring the emptying of latrines and proper waste management.</p>

Portions of the population have been displaced, and many are living in IDP camps with lack of appropriate basic services and in poor hygiene and sanitation conditions.

Insecurity and lockdowns are affecting importation of goods which may slow arrival of supplies including oral cholera vaccine.

Global stocks of Oral Cholera Vaccine are low and would be insufficient to vaccinate all at risk populations in Haiti.

## Reference documents

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