Pan American Health Organization

Regional Office of the World Health Organization

Outbreak Prevention and Control, Epidemiological Surveillance and Early Warning and Rapid Response

Background Health Situation in Haiti

Located in the Caribbean, Haiti's 27,700 km2 take up the western half of the island of Hispaniola, shared with the Dominican Republic. The country is divided into 10 departments (Nippes became the 10th in 2004), 41 *arrondissements* (similar to districts), 135 *communes* (similar to parishes), and 565 communal sections.

According to the 2003 General Population and Housing Census, Haiti's annual population growth rate was 2.5% and the country has a population of 8,373,750 persons with a life expectancy at birth of 52.7 years for males and 56.8 years for females (60% of population was under 24 years old in 2003 and 36.5% was under the age of 15); and the population density was estimated in 302 inhabitants per km2. Over one million people are settled in the capital city Port-au-Prince.

The vast majority of Haitians has historically lived under precarious conditions, in poverty and marginalization and from 2000 to 2004, the country experienced negative growth, along the order of –1.1% per year. Haiti is considered to be the poorest country in the Americas, with an unequal income distribution (4% of the population has 66% of the nation's wealth, while 10% has practically nothing) forcing the poor to turn to nature for survival. Deficient farming practices on steep terrain have accelerated soil erosion, as the run-off from tropical rains flushes arable land toward the sea, obstructing urban drainage systems in its wake. Surface water is polluted by ineffective excreta and household waste management.

According to the 2001 Haiti Living Conditions Survey, 55% of the population lives in households that are below the extreme poverty line of US$ 1 per person per day, and 71%—more than six million people—live below the poverty line of US$ 2 per person per day. That same survey shows that poverty is far worse in the country's rural areas and involves 82% of the country's population.

Prior to the earthquake, routine vaccine coverage and epidemiological surveillance in the country was weak. Slightly over half of children in Haiti were immunized against diphtheria/pertussis/tetanus (53%) and measles/rubella (51%) before their first birthday. However, indigenous measles recently had been eliminated from all countries in the Americas and polio has been eradicated in Haiti.

According to the Food and Agriculture Organization (FAO), 3.8 million people in Haiti, most of them living in rural areas, experience hunger; 23% of children under 5 years old suffer from chronic malnutrition. More than 40% of households experience food insecurity and a high proportion of women (12%) are below the critical threshold for chronic energy deficiency.

Nutritional manifestations of food insecurity are numerous in Haiti. Worth citing are low birth weight; protein-energy malnutrition; micronutrient deficiencies, such as iron and folic acid deficiency, that lead to anemia in women and children; and vitamin A and iodine deficiency.

In 2003, only 53.3% of the population—some 1,709,081 people—had access to safe drinking water. Drinking water coverage rates in 2000–2004 showed a modest 2.7% increase. Drinking water supply coverage in urban areas in 2003 reveals that only 52% of the rural population, or around 2.4 million persons, had access to safe drinking water. This represents a 4.8% reduction in the population served since 2001. In urban areas, 1.8 million people, or 58% of the population, have no access to excreta disposal services, and in rural areas, the figure is 3.6 million, or more than three-quarters of the rural population. In sum, roughly 5.5 million people, or 69% of Haiti's total population, do not have access to excreta disposal services.

Impact of the Disaster on Health

According to Haiti's Civil Protection, the 12 January earthquake killed more than 200,000 people, caused approximately 300,000 injuries and displaced more than one million Haitians.

At one point, more than 600 organizations were providing humanitarian aid to Haiti, and currently, 274 organizations are conducting health activities in at least 15 communities. Immediately following the quake, the most pressing need was to rescue people buried in the rubble and provide immediate emergency care for trauma patients.

PAHO/WHO is working closely with national authorities and other organizations, specifically partners of the Health Cluster, to monitor and prevent outbreaks. One of the first priorities of the Ministry of Health was to set up the epidemiological Early Warning System (EWARN) in selected sites with rapid response capacity, including field laboratories. EWARN was originally developed following the floods in Gonaives in 2008. In that disaster, the system was manageable because EWARN was implemented in a limited number of sites in the Department of North (the affected region was much smaller than the current area impacted by the earthquake.) The EWARN system must be adapted to the current emergency in order to restore the epidemiological surveillance—a major post-disaster concern.

Situation with Surveillance and Early Warning

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The extreme impact of the quake has increased the risk of disease outbreaks due to poor sanitation and crowded conditions as hundreds of thousands of people are currently living in approximately 300 temporary shelters, with difficulty in accessing clean water. Preliminary reports by medical teams in these areas indicate respiratory and diarrheal diseases as well as skin infections; however, despite harsh conditions in Haiti, there were no reported outbreaks of communicable diseases including cholera, measles and rubella in the first two weeks after the earthquake.

Immediately following the earthquake, PAHO/WHO deployed a team of epidemiologists to support surveillance activities in Haiti and along the border with the Dominican Republic. Information is being collected in two ways:

- Through the 52 government-defined sentinel sites in Haiti to monitor diseases.
- Reports from health cluster partners.

Haiti's Ministry of Health lost more than 200 staff members in the earthquake. Much of the Ministry's operating capacity has been seriously compromised, thereby necessitating significant support from PAHO/WHO and health partners. Dual mechanisms for gathering information have been established.

Strong partnerships now exist with regard to surveillance activities. In Port-au-Prince, the Ministry of Health along with PAHO/WHO, the U.S. Centers for Disease Control and Prevention (CDC), MINUSTAH, the Public Health Agency of Canada and other partners have worked to set up the EWARN emergency surveillance system. A situation room was created in the National Public Health Laboratory for national and international partners to monitor and investigate cases and provide information to decision makers. Starting 1 February, a CDC epidemiologist is assisting PAHO in the coordination of the health cluster regarding outbreak detection and control; there are plans for a rotation of staff on a monthly basis. Two CDC laboratory specialists are providing direct technical assistance to the National Public Health Laboratory until the end of February. Discussions are underway to have a Canadian microbiologist and a logistician based at the National Public Health Laboratory for a three-month period beginning in March 2010.

PAHO helped Haiti to establish the EWARN system following the severe flooding in Gonaives in September 2008. The purpose was to bolster the national epidemiological surveillance system during this period in which early detection was critical to outbreak control. The objective in 2008 was to reestablish the current surveillance system as quickly as possible, and as such, EWARN was slowly phased out. However, it was revamped and updated to the post earthquake situation and all donors contributing to the Flash Appeal are supporting this. In order to reinitiate surveillance networks and include the various field hospitals and mobile clinics, the updated 2008 EWARN surveillance form was distributed to Health Cluster partners and Ministry staff to capture daily surveillance information. (See attached surveillance form and reports, example January 24 – February 10).

Twelve of Haiti's 52 sentinel sites are located in the metropolitan area (Port-au-Prince and surrounding area). The number of reporting sites is increasing week after week. Currently,

three mobile teams are conducting investigations and supervision including MOH, PAHO and CDC staff. The epidemiology team based at the situation room is receiving information from the sentinel sites, process the information and prepares a weekly report on the epidemiological situation including graph and trends. Some health conditions as suspected Measles are to be immediately reported by the sites and investigated by a field team. The weekly report is disseminated to MOH, development agencies and NGOs who use the listserv developed by the health Cluster through One Response.info.

The PAHO project with the MOH situation room will improve the MOH capacity to detect and respond to public health event of concern including outbreak of diseases of international concern. The PAHO DFID project senior staff would ensure the training of MOH surveillance staff through two different approaches (a) the direct technical cooperation to the team at central level and (b) the supervision of MOH staff from reporting sites and the local public health departments in the interior of the country.
The MOH surveillance unit will benefit of new computer equipments and software to process and analyze information and will equip sentinel sites with cell phones for alerting and reporting. Furthermore the project support in terms of field sampling kits, reagents and laboratory equipments will strengthen the integration of the laboratory in the surveillance network. Finally

During the first month of the response the main threats identified by PAHO/MOH epidemiology team on the field were community outbreaks of epidemic prone diarrheas (including *Shigella spp*), sporadic cases of bacterial meningitis and vaccine preventable diseases.
The following is a summary from surveillance reports:

- Measles: As of 6 February, a total of 6 suspected measles cases have been reported; the 3 cases from Port-au-Prince were discarded. The other 3 suspected cases were reported from Jacmel (located 2 hours from Port-au-Prince).
- Polio: On 2 February, a case of acute flaccid paralysis (AFP) was reported in a three-year old child from the West Department who had previously received three doses of oral polio vaccine (last dose 20/5/09). The case is currently under investigation. The specimen was shipped to the Caribbean Epidemiology Center (reference laboratory) in Trinidad,
- Diphtheria: The last case of diphtheria was reported in January 2010 in the North Department.
- Tetanus: the University Hospital of Haiti has registered one case of tetanus; MSF has reported four cases; the Cuban Brigade has registered more than 9. Cases have been clinically confirmed and require review and analysis of case investigation.

As the beginning of the rainy season is expected soon (March-April) there will be a high risk of emergence of vector-borne diseases including Malaria, Dengue and Leptospirosis.

For further information on Communicable Diseases Risk Assessment in Haiti refer to the annex document published in January 2010 by PAHO/WHO.

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General Objective of the Project

The aim of the this project is to strengthen and ensure appropriate coordination of the epidemiology situation room with Haiti's National Public health Laboratory and to coordinate from the situation room the investigation of rumors and suspected cases of diseases under surveillance and to prepare and disseminate a weekly epidemiological report to the Health Cluster Partners.

Specific Objectives

1. Strengthen the early warning system established by MOH during the first emergency phase, to detect, assess and monitor priority health events that may represent a public health concern, including:
    a. Mobilize and deploy teams to investigate rumors and report of suspected cases of diseases under surveillance;
    b. Strengthen laboratory capacity to complete EWARN needs;

2. Ensure the reestablishment of a basis for specific surveillance systems, in support of prioritized control programs as immunization, tuberculosis, malaria and HIV/AIDS.

Outcomes

1. Reestablished capacity to detect public health threats through the improvement of an emergency early warning alert and response network (EWARN) to cover critically affected areas;
2. Direct supervision of key sentinel sites, which may not remain constant, depending on the movement of people, both within Port-au-Prince and to outlying departments;
3. Reestablished mechanisms for detection, verification, risk assessment and monitoring of public health threats including laboratory network;
4. MOH surveillance staff from the team based at central level and from reporting sites trained by PAHO expert(s);
5. Reestablished basis for medium term public health surveillance including the prioritized control programs as Immunization, TB, Malaria and HIV/AIDS.

Activities

1. Organization of daily (periodicity will be re assessed depending of the situation) joint risk assessment meetings involving MOH, PAHO and key partners from the Health Cluster. Epidemiologists and Laboratory specialists from CDC, Canada, MSF and Cuba will be closely associated to the process;

2. Supervision of key reporting sites;
3. Field investigation of rumors and outbreak reports from MOH sentinel sites and from Health Cluster and other partner agencies;
4. Production and dissemination of a MOH Weekly Epidemiological report, this report will be disseminated to the Health Cluster network and MOH programs.
5. Immediate alerts for specific diseases will be disseminated through the established Health Cluster list server;
6. Integration of laboratory support to the epidemiological surveillance.

Indicators

1. Daily risk assessment meetings organized
2. Weekly Ministry of Health epidemiological report prepared and disseminated
3. Number of reporting sites supervised
4. Number of outbreaks investigated by field teams
5. Number of sampling kits deployed and available for the field teams

Duration of the Project

One year (in line with the Revised Flash Appeal launched on 17 February 2010).

Budget

Budget Narrative

- **Personnel:** A senior epidemiologist (Medical epidemiologist with field experience on EWARN) will be hired for a period of 6 months as the Situation Room coordinator. The senior advisor work will also be related to the re establishment of prioritized control programs as Tuberculosis, Malaria, Neglected Tropical Diseases and Zoonotic Diseases.

- **Supplies & Materials:** Procurement of laboratory equipment and reagents for screening and diagnosis of major outbreak prone diseases will be necessary, including mobile equipment for immediate field work. Communication equipment, computers and software must also be acquired.

- **Logistics:** Gasoline for the field activities including outbreak investigation and sample collection and transportation to reference laboratories

- **Personnel Support:** To cover all planned and unexpected activities concerning air and ground transportation, personnel mobilization and housing.

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Budget table

Budget line / sub-line	Items	Unit cost	No. of units	In-country cost	Off-shore costs	Total
A1 - Health						
	Sampling Kits	5,000	15		75,000	75,000
	Laboratory reagents	various			80,000	108,000
	Computers	2,000	14		28,000	28,000
	Various informatics			5,000		5,000
	Cell Phones + package	300	60	18,000		18,000
	VHF radios	500	10		5,000	5,000
Sum A	**Supplies & Materials**					**239,000**
B1	Procurement					
B2	Transport (vehicle rental)	6,000	2 X 6 months			72,000
B3	Storage					
B4	Office					5,000
B5	Others (gasoline, drivers)					15,000
Sum B	**Logistics**					**92,000**
C1	In country National Staff					
C2	In country Expatriate Staff					90,000
C3	Off-shore					
C4	Monitoring					15,000
Sum C Personnel						**105,000**
D1	Staff subsistence / housing					9,000
D2	Staff travel					8000
D3	Communications					
D4	Security					
D5	Training					
Sum D	Personnel support					**17,000**
Sum E	Capital items					NA
Sum F	Organisational Management Support 7%					**NA**
Sum G	Contingency					NA
Sum H	Total Project Cost					**453,000**

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