

Summary

Health response to the earthquake in Haiti

January 2010

Lessons to be learned for the next
massive sudden-onset disaster



**Pan American
Health
Organization**



Regional Office of the
World Health Organization

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Table of contents

Introduction	1
Haiti prior to the earthquake	1
Socio-economic and political situation	1
Health status	2
Risk reduction and management.....	2
The “uniqueness” of Haiti	3
The earthquake of 12 january 2010	3
Overall impact	3
Impact on health	4
a. Mortality	4
b. Morbidity	4
c. Population displacement	4
d. Nature of injuries.....	5
The humanitarian actors	6
The Haitian actors.....	6
a. National health personnel.....	6
b. Haitians from abroad.....	6
External actors.....	6
a. Actors already in Haiti	6
b. Actors deployed in response to the earthquake.....	6
c. Latin American and Caribbean countries	7
d. Bilateral aid.....	7
Lessons	8
The immediate response	8
Rescue operations from the standpoint of health	8
Treatment of the injured	9
a. Contribution of medical teams and field hospitals	9
b. Triage of the injured	10
c. Specialized medical problems.....	10
d. Post-operative care, referrals, and evacuation of patients.	11
Disposal of bodies.....	13

The secondary reponse: beyond care for the injured	13
Primary health care for the displaced	13
Communicable diseases.....	14
Mental health and psychosocial assistance.....	14
Reproductive health and violence.....	15
a. Reproductive health.....	15
b. Gender-based violence (sexual)	15
Supplies.....	16
a. Programme de Médicaments Essentiels (PROMESS).....	16
b. Donations of medicines and their management.....	16
Rehabilitation of handicapped persons after the earthquake	16
Water, disposal of excreta, and hygiene	16
a. Water supply	16
b. Sanitation in the camps and hospitals.....	17
c. Food and nutrition.....	17
Information management	18
The initial rapid assessment.....	18
Impact analysis.....	18
Specific assessments.....	19
Information on incoming aid	19
a. Lists and maps of agencies and organizations	19
b. Inventory and registration of donations and supplies	19
c. Contribution of the media and social networks.....	20
Coordination	20
National coordination	21
International coordination.....	21
a. Humanitarian Reform	21
b. The Health Cluster	21
Strategic lessons for the next sudden-onset disaster	23
a. Re-establish the authority of national health structures.....	23
b. Ensure quality control of medical assistance	23
c. Improve coordination	23
The link between relief and development.....	24
Conclusion.....	24

Introduction

This publication sets out the key points of a report published by the Pan American Health Organization, Regional Office of the World Health Organization (WHO/PAHO), *Health response to the earthquake in Haiti, January 2010: Lessons to be learned for the next massive sudden-onset disaster*. The objective of this report is to draw the lessons to be learned for improving the health response in future sudden-onset disasters, which will inevitably strike one of the many vulnerable countries across the world.

The publication focuses on the first three months of the response – a critical period during which many errors tend to be repeated.

The authors wish to thank all of their Haitian and international colleagues who shared experiences, information, and views about the health response to what was one of the largest tragedies to ever affect a nation.

Haiti before the earthquake¹

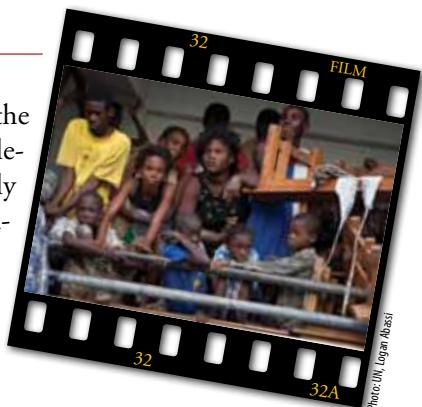
Haiti, an independent nation for over 200 years, shares the island of Hispaniola with the Dominican Republic. The population of around 10 million people is mainly Creole-speaking, with a small more highly-educated French-speaking minority. Approximately 2.3 million people live in the metropolitan capital area (referred to as the Port-au-Prince “agglomeration”).

Socio-economic and political situation

Haiti is one of the poorest countries in the world (gross national product per capita of US\$850 compared to US\$4,860 in the Dominican Republic), and has been classified as amongst the most corrupt. Its index of corruption is one of the highest in the world - comparable to that of Pakistan, another country hit by a large-scale earthquake in 2005 (Transparency International 2011).

Haiti has had a turbulent history. A military coup in 1991 led to an international embargo, military intervention, and finally the disbanding of the army. In 2004, the United Nations established a peace-keeping force, MINUSTAH,² which played a key role following the 2010 earthquake.

State institutions are weak and depend in large part on international financial support in order to function. Donors tend to channel their assistance through non-governmental organizations (NGOs) which support what they consider to be priority programs, thereby bypassing and ultimately weakening the national authorities.



¹ Sources for this chapter include: Institut Haïtien de statistique et informatique (IHSI 2010); World Bank, Haiti at a glance (2006); WHO, Haiti Health Profile (2010); United Nations, World population prospects: the 2008 revision (2009).

² United Nations Stabilization Mission in Haiti.

Health status

Health statistics, although unreliable, show a high level of all communicable diseases, and non-existent access to health care for half the population, particularly the poor and those living in rural areas. Although there is private health care, this is primarily available in the cities and used by the elite. Generally, 75% of health care (of varying quality) is provided by religious and secular NGOs. Most NGOs establish their own priorities and standards, often without taking into account those advocated by the Ministry of Health. This explains why Haiti is often referred to as “a Republic of NGOs”.

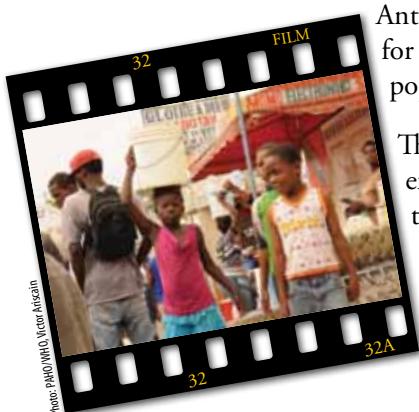
Specialized services, such as post-trauma rehabilitation, mental health, and blood banks - critical in the wake of a catastrophe - do not even meet established modern standards, and are insufficient for needs even under normal circumstances.

Delivery of medicines and other essential supplies to the health sector is handled by PROMESS (*Programme de Médicaments Essentiels*), which is managed by the World Health Organization (WHO) with support from donors.

Finally, 8 million people out of a total population of 10 million lack even minimal access to potable water and sanitation services (i.e. drainage, and treatment of human excreta and solid waste).

Risk reduction and management

Haiti is very vulnerable to climatic and other hazards. Prior to the earthquake, the international community made a concerted effort to strengthen the multi-sector disaster management program of the Directorate for Civil Protection (DPC) over the long-term. This work focused primarily on the most frequent risks - hurricanes and flooding. The risk of a major earthquake in an urban area, although known, was not addressed in an adequate and timely manner.



Anti-seismic construction standards for hospitals and other critical facilities, as well as for private residences, are either non-existent or have simply been ignored, in an over-populated capital city built into mountainsides.

The Ministry of Health, already poorly equipped to respond to the needs of daily emergencies, lacks the capacity to prioritize its disaster preparedness program, and is therefore unable to allocate the resources necessary to make such a program effective.

³ With the exception of cholera, which did not appear in Haiti until nine months after the earthquake.

The “uniqueness” of Haiti

Haiti is in some ways a unique case, not only within the Americas, but also amongst countries recently affected by large-scale disasters, such as the Indian Ocean tsunami (Sri Lanka, Indonesia 2004) or the Pakistan earthquake (2005). Table 1 summarizes some of the key differences. The data suggests that, in terms of development, Haiti is more comparable to Pakistan than to its immediate neighbors or to some of the other countries recently affected by disasters.

Table 1 Indicators in Haiti, the Dominican Republic, and three other countries affected by a massive disaster

Indicator	Haiti	Dominican Republic	Sri Lanka	Pakistan	Indonesia
Population (millions)	10	10	20	161	228
Gross national product/per capita (2010, US\$) ⁴	650	4,860	2,290	1,050	2,580
Life expectancy (years)	62	73	69	63	67
Mortality under 5 years old	76	24	17	97	34
Vaccination against measles (%)	58	95	98	85	83
Doctors per 10,000 inhabitants	3	19	6	8	1

The earthquake of 12 January 2010

Overall impact

On 12 January 2010, shortly before 5 PM, an earthquake with a magnitude of 7.0 on the Richter Scale struck the capital of Haiti. Although the earthquake's magnitude and duration (35 seconds) were not unusual in terms of global occurrence, its impact on an overpopulated metropolis, containing a high concentration of the country's meager resources, as well as many international organizations, was unprecedented.

Most public establishments were destroyed: the Presidential Palace, the Parliament, the Ministries of Justice, Health, and Education, the airport and port, and many other facilities. Overall losses included more than 50 hospitals or health centers, 1,300 schools or educational centers, and 310,000 private homes. For a country as poor as Haiti, the economic losses (US\$7.8 billion) were equivalent to setting back the nation's economic development by 10 years.

The international community was not spared either. The United Nations lost many staff members, including its Head of Mission, in the destruction of its headquarters, and most humanitarian NGOs suffered significant losses (PDNA- Haiti 2010).

⁴ The gross national product (Gross National Income – GNI) comprises the value of all goods and services generated within a country in one year, together with net income received from other countries. Figures are from the World Bank databank (2010).

Impact on health

a. Mortality

Estimates of the death toll vary widely, depending on sources. The highest initial estimate provided by the national authorities was of 220,000 deaths, a figure revised a year later to over 300,000 deaths. These estimates were strongly criticized by the scientific community and the international press. The resultant scientific and political controversy can be linked to the absence of an objective methodology, as well as to the perceived benefits (in terms of mobilizing resources) of reporting a higher death toll. Nevertheless, even the most conservative mortality estimates (i.e. 65,575 and 158,679 deaths),⁵ based on more reliable studies, confirm the magnitude of losses for a country as small as Haiti. These deaths were not the result of a particularly violent earthquake, but rather of the extreme vulnerability of a poor urban population lacking any understanding of risk reduction.

b. Morbidity

Even if overall figures are unreliable, the high number of injured (more than 300,000 people according to Haitian authorities) clearly highlights the discrepancy between demand for immediate or secondary care following the earthquake, and actual in-country capacity, particularly given that most health facilities were in the affected area. The University of Michigan study estimates that more than 20% of deaths (37,301 people) occurred in the six weeks following the earthquake.

These morbidity and mortality statistics take on their true significance when one considers the size of Haiti. Table 2 compares losses per 1,000 inhabitants following massive disasters over the past decade.

Table 2 Health Indicators in Haiti, the Dominican Republic, and three other countries affected by a massive disaster

	Population (Millions)	Deaths	Mortality per 1,000 inhabitants	Injured	Morbidity per 1,000 inhabitants
Indonesia (2004)	228	167,450 ⁶	0.7	25,572	0.1
Sri Lanka (2004)	20	35,322	1.8	21,441	1.1
Pakistan (2005)	161	73,388 ⁷	0.5	128,309	0.8
Haiti (2010)	10	Between 65,225 and 300,000	From 6.5 to 30	>300,000	>30

c. Population displacement

In the weeks following the earthquake, 1.5 million people lived in temporary shelters, including some 1,200 improvised camps set up in public and other available spaces in the capital metropolitan area.⁸ Initially, some 600,000 people also took refuge in unaffected departments across the country. This dispersal of affected populations posed considerable logistical and operational challenges.

5 The figures correspond, respectively, to a study commissioned by USAID (Schwartz, Pierre, and Calpas 2011) and a University of Michigan study (Kolbe et al. 2010).

6 Telford, Cosgrave, and Houghton (2006).

7 CRED EM-DATA database.

8 These figures are also disputed.

d. Nature of injuries

During the first ten days following the earthquake, few medical teams kept detailed records or even summaries of the types of pathologies encountered. It was only after two weeks that a profile of types of interventions began to emerge, based on statistics published by certain field hospitals - although each team used its own system of classification (terminology, numerator and denominator) and timeframe. These data (see table 3), however disparate, underline the relative frequency of injuries to limbs, head and spinal cord injuries, amputations, and crush syndrome.

Table 3 Distribution of types of injuries⁹

Injuries/Interventions	Range
Head or spinal cord	Between 0.5% and 2%
Fractures to limbs	21.9%
Amputations	Between 0.2% and 16%
Crush syndrome	Between 1.7% and 5.6%
Infected wounds	Between 18.4% and 60.4%

The large disparities in the range of figures reflect the diverse nature and role of care providers (ranging from a general medical team at a referral hospital to more sophisticated medical establishments), the mix of diagnoses and types of interventions referred to in reports, and finally, the varying timeframes used.

Certain conclusions can nonetheless be drawn:

- Secondary infections were by far the most common problem encountered once the initial emergency had passed.
- Post-crush renal failure appears less prevalent than in other disasters (Vanholder et al. 2011). It is not clear if this is due to a lack of accurate diagnoses, high mortality caused by insufficient care during the first week, or if it in fact reflects a lower incidence level?
- More than 100 cases of paraplegia were reported in the initial months after the earthquake.¹⁰ Once again, the number of such victims who did not survive the first week is unknown (Burns, O'Connell, and Landry 2010).
- Finally, it was only after two weeks that consultations linked to the earthquake began to reflect normal pathologies.



⁹ Compiled from different sources: Magloire et al. (2010); Handicap International (2010); and Calvot and Shivji (2011).

¹⁰ Confidential database managed by Healing Hands for Haiti.

The humanitarian actors

The most rapid, and therefore most effective, response is carried out by national authorities and organizations already on the ground. The subsequent external response to the earthquake in Haiti was massive, and involved a wide variety of actors, some of whom were of questionable competency.

Haitian actors

a. National health personnel

A number of reports have underlined the dedication of national health personnel during the first days following the disaster, working under much more difficult conditions than those eventually faced by external medical teams. The for-profit private sector, normally reserved for the wealthy elite, opened its doors to all victims.

A survey of public sector medical personnel was not carried out until two months after the earthquake. It showed that only 48 doctors were at their posts in the metropolitan area (MSPP 2010a). This seemingly alarming figure does not reflect a lack of professional ethics, but is due in large part to poaching on the part of many NGOs and external teams, who were offering remuneration four to five times higher than that in the public sector, along with better working conditions and supplies. Médecins Sans Frontières (MSF), for example, employed 2,844 Haitians and only 260 expatriates (MSF 2011, p. 6).

b. Haitians from abroad

Many Haitian doctors who had emigrated to the United States, Canada, or France offered their services during the first weeks after the earthquake. Although their individual contributions were appreciated by local counterparts, the apparent inability of associations of expatriate Haitian doctors to organize self-sufficient medical teams attracted some criticism.

External actors

a. Actors already in Haiti

A number of humanitarian and developmental organizations were in Haiti at the time of the earthquake, in addition to a large medical contingent attached to MINUSTAH. Although these organizations also suffered significant losses, they were nevertheless able to mobilize during the initial hours following the disaster. The International Committee of the Red Cross, MSF, Doctors of the World, Cuban medical brigades, and many others were amongst the ‘first-responders’ on the night of the earthquake.

b. Actors deployed in response to the earthquake

An assessment of the international response to the Indian Ocean tsunami of 2004 remains valid for Haiti (Telford, Cosgrave, and Houghton 2006, p. 55):

“The number of international agencies involved in the response grew unabated. Well-resourced agencies and very small ones, competent and incompetent, well-prepared and unprepared, secular and faith-based, reputable and disreputable, household names and unknown, ambitious and humble, opportunistic and committed, governmental and nongovernmental, national and international, bilateral and multilateral, well-established and just-formed—they all turned up.”

The difference is quantitative: in Banda Aceh (Indonesia), about 180 agencies were registered in all sectors. In Haiti, about 400 agencies were registered in the health sector alone (data from the Center for Coordination in Health/ Cluster).

c. Latin American and Caribbean countries

Practically all countries in the region offered medical or health assistance. Neighboring countries played a particularly important role in this instance of south-south aid:

- The Dominican Republic mobilized all of its health resources to offer immediate care to thousands of Haitians, many of them seriously injured, flowing across its border (WHO/PAHO 2010).
- Cuba, with some 300 health professionals already in place, quickly reinforced these with intervention teams, treating more than 20,000 patients.¹¹
- Jamaica, in addition to its medical assistance on behalf of the Caribbean region, provided Haitian health personnel with short rest and recuperation (R&R) breaks in Jamaica.

d. Bilateral aid

The United States, Canada, France (Martinique and Guadeloupe), and many other countries throughout the world demonstrated their solidarity with Haiti. Aid was both governmental and private in nature, and also took the form of institutional support from universities. Health assistance from the United States was of particular note, ranging from the high-tech medical technology of the USNS Comfort naval hospital to clinical and epidemiological support provided by the Centers for Disease Control (CDC) to the Haitian Ministry of Public Health.

Several lessons can be gleaned from the massive intervention by university groups including, amongst others, Harvard, Miami, and Chicago Universities. In short, being part of a world-renowned group of universities is not in itself sufficient for an effective response:

1. Previous experience in the country, or at least close collaboration with a local partner, is essential.
2. Involvement should not be limited to medical matters, but also extend to administrative, financial, and logistical issues.

11 Information provided to WHO /PAHO by the Cuban medical brigades.

Lessons

In comparison with other recent massive disasters (the Indian Ocean tsunami in 2004 and the Pakistan earthquake in 2005):

- External medical assistance in Haiti fell far short of meeting actual needs, whereas it became quickly superfluous following the tsunami.
- The external response was much more rapid (18 hours instead of three to four days), due largely to Haiti's geographic location.
- The lack of logistics support from local military forces (present in the other two cases) was compensated for by the presence of MINUSTAH and the armed forces of large neighboring countries.
- A novel role was played by the "diaspora" of expatriate Haitian doctors, as well as by large US universities.

Nevertheless, other observations only confirm a trend seen in previous disasters: the increased and uncontrolled proliferation of medical agencies leads to the presence of many ill-prepared, and in some cases incompetent, actors. Filtering and coordination mechanisms were simply overwhelmed by this influx.

The immediate response

A post-disaster health response can be divided into two phases:

1. The immediate response, which focuses on saving as many lives as possible. This phase concentrates on life-saving measures and urgent trauma care.
2. A second phase, during which the focus shifts to post-operative care and rehabilitation, the resumption of normal health programs, and care for the displaced (primary care, food, water, hygiene, etc.).

This section covers the immediate response phase. Due to the magnitude of human losses, and the large gap between immediate needs and available resources, this phase lasted some two weeks in Haiti - much longer than after other disasters.

Rescue operations from the standpoint of health

The UN Office for the Coordination of Humanitarian Affairs (UNOCHA 2010) reports that more than 60 external rescue teams removed 132 persons alive from the debris.¹² These figures do not however refer to the 78 lives saved by the two national teams, which were far less well-equipped and prepared than most international groups.

¹² Most were of foreign nationality.

An analysis of rescue operations from the standpoint of results (lives saved) leads to some questions and preliminary conclusions:¹³

- The level of efficiency, in terms of the number of lives saved versus the cost of deploying large teams, was low. In certain cases, the average cost of extricating one person was almost US\$1 million. Effectiveness declines very rapidly over time. The Swiss, leaders in this field, decided not to deploy their extremely experienced search and rescue team, and sent a medical team instead. It is estimated that 200 lives were saved as a result of this team's medical interventions, a figure greater than the total number of lives saved by nearly 2,000 rescue team members.¹⁴
- The modest investment in training national emergency rescue teams (search and rescue, and first aid) is remarkably effective and should become one of the main international priorities.
- The rescue sector is better organized than the health sector at international level. Basic criteria and standards have been developed over a number of years. The International Search and Rescue Advisory Group (INSARAG) has put in place a quality-control and classification process (to avoid using the term certification), as well as coordination systems (both virtual and non-virtual).¹⁵ Although the impact of these initiatives on the quality and relevance of such specialized assistance in Haiti has not yet been studied in a critical and independent manner, the health sector (at international level) should nevertheless draw on this example of regulation and quality control of external assistance.

Treatment of the injured

During the first 24 to 48 hours, Haiti could only depend on its own resources, even though these had in large part been wiped out by the earthquake. The fact that the disaster took place in the capital, and that there was a lack of backup capacity in the regions and departments outside the affected area, differentiates Haiti from other disaster-stricken countries (Indonesia, Sri Lanka, and Pakistan).¹⁶ The number of injured (estimated at more than 300,000) by far surpassed the meager capacity of all existing health partners put together (public, humanitarian, private). The follow-up study by the University of Michigan estimates that 12% of the injured did not survive the first six weeks following the earthquake (Kolbe et al. 2010).

a. Contribution of medical teams and field hospitals

About eighteen hours after the disaster struck, the first doctors from outside the country presented themselves to the Haitian authorities at the government's University Hospital. In the days and weeks that followed, medical teams and field hospitals came and went without the opportunity, or sometimes the willingness, to get involved in a more coordinated response plan. Twenty-four days after impact, 91 service delivery sites, of which 21 were field hospitals, had been registered in the capital.



¹³ Presentation by Haiti's Directorate for Civil Protection at the INSARAG meeting in Kobe (Japan) in 2010.

¹⁴ Evaluation report by the Swiss Agency for Development and Cooperation (2011).

¹⁵ INSARAG is a coordination and consultation mechanism managed by OCHA and the principal suppliers of rescue teams.

¹⁶ In Sri Lanka, the 35,522 injured from the tsunami were treated at local and departmental levels. The tertiary reference hospital (2,000 beds) in Colombo was practically not involved.

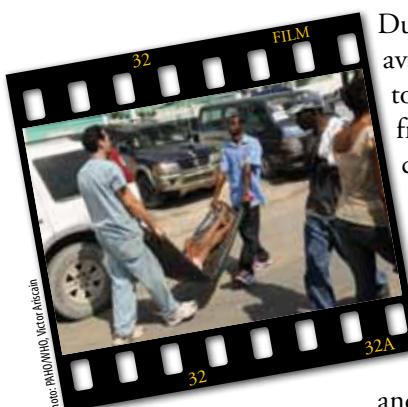
It has often been noted in previous disasters that foreign teams generally arrive too late, after national services and those of neighboring countries have already responded to the most urgent needs. This was not the case in Haiti, where the demand for trauma and/or orthopedic care by far surpassed the available supply, however generous.

External medical assistance included the deployment of five naval hospitals (from Colombia, France, Mexico, Spain and the United States).¹⁷ Offering varying levels of technological capacity, these facilities arrived a week after the earthquake and stayed for periods ranging from 10 to 64 days.

Mobile clinics and hospitals collaborated to varying degrees with local authorities, ranging from respect and cooperation on the one hand, to in effect taking over public facilities and excluding participation by local personnel on the other.

The weakness and marginalization of existing health authorities, as well as a lack of pre-established standards, made it impossible to put a halt to the activities of certain medical teams, seemingly present for purely opportunistic and self-interested reasons, and considered incompetent by the international community. Despite such cases of incompetence and questionable behavior, most foreign teams did contribute to reducing the loss of life and the permanent after-effects of the disaster.

b. Triage of the injured



Due to the disparity between the large number of casualties and the limited resources available during the first weeks after the earthquake, every organization was compelled to apply its own principles of triage (do the most for the greatest number), ranging from basic triage which excluded most sufficiently mobile and vocal patients, to medical examinations with objective criteria governing admission.

This latter approach was used by most military hospitals, whose primary objective was to optimize the use of their surgical resources (human and material). As a result, in-patient stays for recovery from surgery were reduced to a minimum. The existence of such “bubbles of excellence” generated a number of secondary problems, including resentment amongst patients turned away without a clear explanation, and a lack of post-operative care for patients once they had been discharged from intensive care - the sole priority of these facilities.

c. Specialized medical problems

Most medical interventions consisted of treating fractures, lancing infected wounds, and above all, providing follow-up nursing care. Some syndromes or interventions, however, warrant particular attention.

• Renal failure

Crush syndrome is often under-diagnosed. It is generally fatal after a few days if measures are not taken to prevent acute renal failure (Sever, Lameire, and Vanholder 2009).

¹⁷ Colombia: Radio Santa Fe interview with Guillermo Barrera; France: <http://tcd.siroco.free.fr/actulites2010haiti.htm>; Mexico: http://www.navy.mil/search/display.asp?story_id=50975; Spain: Revista Española de defensa (2010); United States: Galeckas (2011).

The International Society of Nephrology, which specializes in the treatment (including dialysis) of such cases, intervened in collaboration with Médecins sans Frontières.¹⁸ Five days after the earthquake, eight dialysis units were operational. However, they remained under-utilized for a variety of reasons, principally a failure to communicate their availability to other partners during coordination meetings (Health Cluster) (Vanholder et al. 2010).¹⁹

• Spinal cord injuries

As in cases of renal failure, spinal injuries do not fit neatly into normal triage criteria – i.e. treating patients with the greatest chance of survival at least cost in terms of resources.

Nevertheless, more than 150 persons received appropriate care thanks to the efforts and services of groups dedicated to this type of treatment and rehabilitation. These groups included NGOs specialized in rehabilitation, as well as the *USNS Comfort* naval hospital.

According to key informants, the probability of survival and rehabilitation in these cases was far greater than that of accident victims prior to the earthquake.



• Amputations

A preliminary report by Handicap International three weeks after the earthquake projected a very high number of amputations. Initial estimates of 2,000 to 4,000 amputations were subsequently revised downward to between 1,200 and 1,500 (O'Connell, Shivji, and Calvot 2010). The percentage of amputations in relation to other interventions varied widely between the various medical teams.

The use of a rapid intervention technique known as the ‘guillotine’ makes it difficult to fit a prosthesis, and patients undergoing this treatment subsequently needed a series of corrective interventions on the stump. The physical extent of the amputation is equally important. Of 107 cases reviewed by Handicap International, 43% involved amputations above the knee (O'Connell, Shivji, and Calvot 2010).

Based on available information, it is however not possible to conclude that a significant number of amputations were unnecessary, especially considering the extraordinarily precarious conditions under which interventions took place. It is nonetheless crucial that standards and a monitoring system be put in place during the first few hours following a disaster.

d. Post-operative care, referrals, and medical evacuations

• Post-operative care

In Haiti, as in many other disaster-affected countries, medical teams concentrated on emergency surgery, to the detriment of follow-up care. Post-operative care requires a lot of time and patience, as well as sufficient nursing personnel - rare commodities in the humanitarian field.

18 The Renal Disaster Relief Task Force (RDRTF).

19 MSF generally abstains from participating in the inter-agency meetings (clusters).

One exception deserves mention: the Jimani Hospital (Dominican Republic) and a Haiti-based NGO (Love a Child), joined forces with WHO/PAHO to convert a school into a post-operative care center in Haiti, capable of handling 400 injured persons.

Taking into account the large proportion of secondary infections, it is critical that more attention be directed to this problem, and to increasing the proportion of nursing personnel among humanitarian personnel.

• Referral between care facilities



Transfer of patients between care facilities was one of the most difficult problems to solve - in large part due to a lack of specialized services to treat patients, but above all because of a severe lack of information and communication between the different teams and hospitals, each one overworked and operating independently ("bubbles of excellence").

Examples of the impact of such poor information-sharing and communication include the under-utilization of the center for dialysis, and the existence of cases of persons with spinal cord injuries being left on mattresses by the roadside due to a lack of awareness of the existence of organizations capable of treating them.

It was not until four weeks after the disaster that those responsible for health coordination (the Health Cluster) circulated a list of specialized services, with telephone numbers.

• Foreign medical evacuations

In Haiti, as opposed to Indonesia, Sri Lanka, and Pakistan, there was no possibility of evacuating more complicated cases to other provinces or departments.²⁰ All in-country specialized medical facilities were in fact located in the very capital city that had been devastated by the earthquake.

The only alternative was therefore to treat people where they were, or to evacuate them out of the country (to the United States, French territories in the Caribbean, etc.).

An indeterminate number of patients were evacuated to host countries during the first few days following the earthquake. However, a number of obstacles subsequently led to a drastic reduction in the frequency of such evacuations. These included immigration issues, ethical (and economic) dilemmas - particularly regarding long-term treatment (i.e. the lack of services in Haiti to ensure follow-up to traumas such as spinal cord injuries upon repatriation), and the need to provide accommodation for family members, amongst other.

The lack of a clear policy in host countries and failure to consult with Haitian authorities (and occasionally with families, in the case of minors) were frequently reported.

Evacuation, as a last-resort alternative, needs to be the subject of more serious review and consultation, prior to the next massive disaster.

²⁰ After the earthquake in Bam, Iran (2003), more than 15,000 injured were moved to the 13 provinces, all in the 48 hours prior to the first foreign field hospitals being set up.

Disposal of bodies

There is now solid documentation to show that the bodies of victims killed by trauma (earthquakes and conflicts) do not represent a significant risk for communicable disease and that there is therefore no health rationale for mass burials (PAHO/WHO 2004). The information campaign launched by WHO/PAHO seems to have borne some fruit. Few alarmist rumors circulated on this subject (with the exception of certain media from outside the Americas).

Traditional burial is very important ritual for Haitians from a personal and cultural standpoint. Logistical constraints nevertheless forced the authorities to adopt measures for the collective and rather unceremonious disposal of tens of thousands of corpses strewn across the capital.

No systematic measures were taken (photos, location of bodies, documents, descriptions, etc.) to facilitate delayed identification of the remains. Given the number of NGOs specialized in every aspect of rescue operations, it is regrettable that none took on this specialized task.

The secondary response: Beyond care for the injured

Search and rescue operations were officially called off ten days after the earthquake. Four days later, the national authorities assigned priority to primary health care, and to the welfare of displaced populations.

Primary care for the displaced

In the second week after the earthquake, the Haitian government set up a commission and working groups tasked with establishing a minimum package of services for the affected population. The Haitian Ministry of Health requested that humanitarian partners direct their efforts towards providing primary health care not only in the settlements and camps, but also in unaffected areas where the displaced population had migrated. The government also insisted that mobile clinics be established to the extent possible on the premises of existing health services.

Although more than 250 temporary clinics were set up during the two weeks after the earthquake, very few were established in cooperation with the nearest health center. The services remained concentrated in the Port-au-Prince metropolitan area, ignoring the surrounding regions and departments overwhelmed by the wave of displaced persons.

A survey of 206 of the temporary settlements, carried out from 18–25 March, revealed that only 10% of the 79 health posts offered the full minimum package. Furthermore, only 72 of the 206 settlements had local access to health care. Another survey carried out in July 2010 showed that out of a sample of 286 mobile clinics / institutions, 115 were not operational or could not be located (MSPP 2010b).

Communicable diseases

Even though epidemics are rare after this type of disaster, the rapid establishment of a basic surveillance system for communicable diseases is generally considered a priority (Watson, Gayer, and Connolly 2007). In Haiti, the magnitude of the impact, coupled with the large number of public health providers, slowed this process. It was not until 12 days after the earthquake that partners agreed on a document listing 25 conditions to be reported on by 51 sentinel sites, selected from among the 94 pre-existing health facilities affiliated with the program to combat HIV/AIDS.²¹

The system had a number of shortcomings:

- A very late start;²²
- A list of conditions to report on that was too complicated and too large, trying to reflect the different priorities of the numerous partners;
- The lack of inclusion of foreign medical teams and facilities (including hospitals) in the surveillance system.

From 25 January to 24 April 2010, no unusual epidemic was detected. The pathology reported corresponded to the normal profile for a country such as Haiti (i.e. respiratory infections, malaria, and fevers) (Magloire et al. 2010).

Among the positive points, it is worth mentioning the effective strengthening of the Haiti National Public Health Laboratory, thanks to support from the CDC, as well as reinforcing routine immunization programs.

In fact, the Ministry of Health wisely decided not to encourage indiscriminate vaccination campaigns, as often happens following massive disasters subject to widespread media coverage. Priorities were directed selectively towards:

- The prevention of post-traumatic tetanus, the number of cases of which remains subject to speculation. It is surprising to note that certain external medical teams did not have anti-tetanus vaccines;
- Proceeding with a planned diphtheria, pertussis and tetanus (DTP) vaccination campaign to contain a prior diphtheria outbreak;
- Strengthening the (very weak) coverage of vaccination of measles, mumps and rubella in the temporary settlements. This directive was ignored by some large humanitarian NGOs that decided to apply their own strategies and criteria.

Mental health and psychosocial assistance

These two terms are often used interchangeably. Before the disaster, mental health care for clinically severe cases was limited to institutionalization in one of two psychiatric facilities. Health centers and hospitals were not in a position to offer specialized assistance (WHO 2010a).

²¹ US President's Emergency Plan for AIDS Relief (PEPFAR).

²² The Dominican Republic authorities established a system of epidemiological surveillance within the first three days.

In previous disasters, there has been a certain obsession with post-traumatic stress syndrome and the ‘medicalization’ of its treatment. As has been noted in WHO directives, mental health and psychosocial assistance during emergencies covers more than just this syndrome. In Haiti, WHO/PAHO estimated that, at one point, more than 110 organizations or groups claimed to offer specialized assistance in this area.²³ This ranged from recreational activities for children, to highly sophisticated psychiatric expertise.

Although the actual impact of psychosocial assistance on beneficiaries cannot be measured, its impact on Ministry of Health policies and staff attitudes has clearly been positive. Mental health has become a priority in primary health care. An opportunity for change has been seized.



Photo: PAHO/WHO/Victor Arcaín

Reproductive health and gender-based violence

a. Reproductive health

Informal reports confirm a high number of premature births during the first days after the earthquake, as is generally the case following disasters. A survey carried out by the Ministry of Health showed a higher rate of post-earthquake pregnancies in the camps – generally, double that of normal levels (12% instead of 6% nationally).

With assistance from the United Nations Population Fund (UNFPA), the Ministry rapidly established a working group to highlight minimum standards. Promoting basic levels of obstetric care in a context ruled by orthopedic care posed a definite challenge to the international community. A survey of 171 camps (July 2010) showed significant shortages, but overall, reproductive health services were better than those available prior to the disaster (MSPP 2010b).

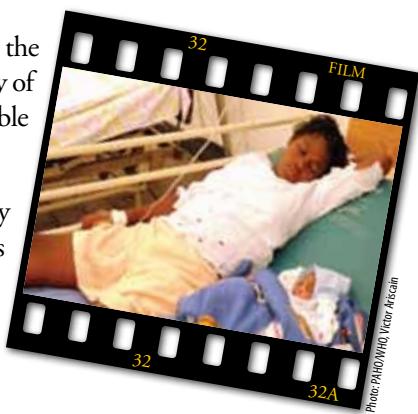


Photo: PAHO/WHO/Victor Arcaín

b. Gender-based violence (sexual)

The prevalence of sexual violence in Haiti is very much under-reported in normal times. After the earthquake, “protection mechanisms deficient before the earthquake became absolutely absent” (Amnesty International 2010). In March 2010, the Ministry of Health launched a standardized care protocol for victims of sexual violence, an initiative rejected by some NGOs who were unwilling to alter their own approaches for handling such cases. Even if it is not always possible to objectively document an increase in gender-based violence, the vulnerability of displaced populations demands rapid and concerted action by the different sectors involved (health, law enforcement, etc.).

23 In other words, about 1% of agencies active in health.

Supplies

a. Programme de Médicament Essentiels (PROMESS)

PROMESS, the Essential Medicines Program in Haiti, acted as a centralized pharmacy, providing both the public sector and NGOs with medicines and essential supplies. Its stock had just been replenished at the end of 2009. During the first 45 days following the earthquake, PROMESS distributed more than 345,000 boxes of essential medicines and supplies, despite logistical difficulties and a lack of awareness of the service on-offer amongst recently-arrived humanitarian organizations.

The high demand for disposable items after this earthquake, as with others, (e.g. dressings, gauze, suture material, syringes) rapidly exhausted existing supplies. Demand for certain less common items, such as externally-attached orthopedic bone fixators, also could not be met. Stockpiling such items globally would be desirable before the next large earthquake.

b. Donations of medicines and their management

For years, WHO and PAHO have advocated the respect of quality standards with regard to donations of medicines during crises. In Haiti, these efforts seem to have borne fruit. In contrast to recent disasters in Asia (the Indian Ocean tsunami and the Pakistan earthquake), the proportion of unusable medicines (expired or lacking proper labelling) was low (Health Cluster Bulletin #8). Inappropriate donations were usually from new humanitarian actors or new donor countries, including from the Americas.

Rehabilitation of handicapped persons following the earthquake

Some 10 years ago, rehabilitation of fractures and fitting of prostheses were the domain of two or three specialized agencies, amongst them Handicap International and the International Committee of the Red Cross (ICRC). In Haiti, 38 groups, not all of them experienced or well-equipped, provided prostheses and launched re-education programs.

Studies and advocacy activities by Handicap International in support of the handicapped (it is estimated that “at least 7,500 persons may suffer permanent disabilities if not treated correctly”²⁴) mobilized the national and international communities to address these health issues and related socio-economic problems. More importantly, changes have been noted in public attitudes (which have tended to reject people suffering from disabilities) and there has been a lessening of governmental inertia in this area. In any event, Haiti is certainly better equipped and more motivated to work in this sector than before the earthquake.

Water, disposal of excreta, and hygiene

Access to potable water, disposal of excreta and waste, and hygiene in general are essential elements of public health.²⁵

a. Water supply

Water supply in Port-au-Prince is atypical: it consists of a commercial distribution system of high-quality water, a network of collective faucets subsidized and managed by local committees, and finally a very limited municipal system supplying water of varying quality at house level.

²⁴ Calvot and Shivji (article forthcoming).

²⁵ It is surprising and regrettable that international coordination in these areas is separate from that of health. Many Haitian interlocutors have deplored the fact that the coordination structures (clusters) established by the Humanitarian Reform project tend to reflect the mandates of United Nations agencies rather than in-country structures and priorities.

Following the earthquake, the principal concern was re-launching the commercial and subsidized distribution systems, and putting in place reservoir systems in line with the levels of population displacement across the city, rather than repairing water pipes.

One of the encouraging developments was the leadership exercised by the National Directorate for Drinking Water and Sanitation (DINEPA), the Haitian agency responsible for this sector. This national institution quickly asserted its primacy in coordinating the international response through the WASH Cluster. This was a notable exception, standing out in contrast to the unassuming and marginalized role of other national institutions, including the Ministry of Health.

The approach adopted by DINEPA was pragmatic: to progressively increase the quantity of potable water available from 3 to 5 liters per person. During interviews, none of the key informants or partners referred to the “minimum humanitarian standard” of 15 liters established by the Sphere Project -considered to be an unrealistic quantity and a counterproductive objective under the circumstances.

b. Sanitation in the camps and hospitals

Port-au-Prince is a city with a very high population density, where excreta- and waste-disposal services are practically nonexistent in the poorest agglomerations at the best of times. Following the earthquake, a lack of space in the temporary settlements made it impossible to dig traditional latrines/trenches. As a result, more than 3,000 portable toilets were installed, requiring a complex and costly maintenance system. Although the theoretical “needs” for latrines according to Sphere criteria were far from met, many actors believe that the services eventually provided were superior to those available before the disaster.

Disposal of medical waste is a chronic problem, exacerbated by the number of temporary service sites and their activities. Syringes, bandages, and even in certain cases amputated limbs, were disposed of without sufficient or specific precautions.

c. Food and nutrition

Widespread food shortages are not normally a serious problem following an earthquake. The major problem tends to be the loss of financial revenue, rather than the destruction of existing stocks.

Once again, the coordination structure (clusters) proved to be less than optimal: nutrition, food aid, and food security were dealt with as distinct issues, each coordinated separately by a specific United Nations agency (Binder and Grünewald 2010).

Nevertheless, the Nutrition Cluster enabled UNICEF to quickly reactivate support for nutritional programs and to issue recommendations concerning, amongst other, nutritional supplements, donations of powdered milk (which was advised against, but without much success), and the particular needs of women who are breastfeeding. Between 40 and 50 organizations participated in the meetings of the Nutrition Cluster, with some 15 of them considered amateurs without any idea of the nutritional value of food.

The Food Aid Cluster, led by the World Food Programme, concentrated on the distribution of high-energy supplements and a corn-soya blend (CSB) to vulnerable populations, as well as the general distribution of basic foods - eventually reaching a total of 4 million beneficiaries. The alternative of cash distributions (without a “for work” component), instead of an onerous and logistically-complicated donation of foodstuffs, was not given serious consideration.



Photo: PAHO/WHO, Sam Iglesia

26 The government of Haiti estimated that about 1.5 million people were directly affected by the earthquake.

Many studies clearly show that the rate of clinical malnutrition did not increase in Haiti. That is not surprising, given the enormous quantities of food distributed, as well as generous transfers of funds by members of the Haitian “diaspora”.

Information management

The information required to guide an effective response is not limited to the number of deaths (a figure of no operational value), the number of injured (impossible to measure until there is no longer a need for it), or a census of displaced persons (a useful but constantly changing figure). Information needs are varied, specific, and potentially unlimited. The difficulty is to differentiate between what one wants to know and what one needs to know.

The initial rapid assessment

An initial assessment, involving most actors, aims to identify essential needs that cannot be addressed through available local resources. Speed is more important than comprehensiveness or a high degree of accuracy. The critical objective is to guide and direct external assistance, not to produce a report or provide data for mobilization of resources several months later. International assistance, however, has its own dynamic and logic (too often political). It is mobilized immediately and without waiting - as shown in a study after the Indian Ocean tsunami of 2004 - and subsequently, without truly taking into account the results of an inter-agency evaluation (de Ville de Goyet and Morinière 2006).

The initial rapid assessment in Haiti was undertaken by the international community eleven days after the earthquake. The results were not shared with partners until more than a month later. The shortcomings of this initial assessment, which cost more than US\$3 million, were many:

- A questionnaire not adapted to the linguistic and cultural context of Haiti;
- A list of indicators that was too long (interviews lasted three hours) and that was of little relevance to immediate operational needs. This was the outcome of a consensual approach, which allowed each interviewer to cover topics of institutional interest in an exhaustive manner ;
- A final report that included hundreds of tables and graphics relating to “needs” without distinguishing between chronic problems linked to poverty, and those caused by the earthquake.

Impact analysis

The Post-Disaster Needs Assessment (PDNA) is a multi-sector exercise under the responsibility of the government. The objective is to determine the physical impact, economic losses (direct and/or indirect), and human and societal consequences of a disaster. The PDNA does not guide the rescue operations, but rather the rehabilitation and recovery processes.

As is often the case, this focused primarily on infrastructure, even though many of the challenges were in fact to do with governance and institution-building. In the health sector, the PDNA allowed for a collective review of innovative ideas for reform, many of which were at the pilot project phase prior to the earthquake.

Specific assessments

In Haiti, as in other countries affected by sudden-onset disasters, there was a proliferation of studies and assessments designed to produce information specifically focused on a particular discipline or on certain groups of beneficiaries. Results were generally more relevant to the agency responsible for carrying out the study.

The challenge was to integrate such specific data into a more holistic view, accessible to all. The conclusions of some of these studies were disseminated, whilst others remained confidential. A positive development was the creation of working groups, established by OCHA at inter-sectoral level and by the Ministry of Health at sectoral level, in order to compile all available information (i.e. an inventory of studies).

Information on in-coming aid

The emergency was met with an uninterrupted flow of personnel and supplies. Efforts to inventory the flow and, if possible, adjust supply to demand were not even remotely successful. However, two initiatives do merit mention:

a. Lists and maps of agencies and organizations

A list of actors - the so-called 3W list ("Who is doing What and Where?") - was prepared at inter-sectoral level and for each sector, including health. The value of this information depends on the collaboration and transparency of all those involved. In the health sector, 390 agencies were registered through the coordination mechanism (cluster). This number probably represented less than half of the total. Many volunteer teams did not see the use of registering. The tasks of validating, completing, and regularly updating information would have had to be undertaken by human resources at the expense of other priorities.

The production of detailed maps was a much-appreciated service. The wide variety of maps facilitated the spatial visualization of all types of interventions and health resources. These geographic information systems, however, could only disseminate the information available in the databases, which was often incomplete and unreliable (based on what actors said they were doing or intended to do).

b. Inventory and registration of donated supplies

Systematic registration of relief goods (regardless of their source or destination) is indispensable to identifying local and overall shortages or surpluses.



Following massive disasters over the past 20 years, WHO/PAHO has offered expertise of a Logistics Support System (LSS/SUMA). Activated in the first days after the earthquake, LSS/SUMA regularly provided detailed reports about medical and other supplies arriving in transit through the Dominican Republic or directly to Haiti. In contrast to other information systems, LSS/SUMA was managed directly by Haiti's Directorate for Civil Protection and not by international organizations.

Although the information provided by LSS/SUMA was based on physical inspection of goods at ports or airports, its utility also depended on collaboration by agencies and organizations (as with all such initiatives directed towards cataloging external aid). Too many actors were reluctant to share this information, or ignored government directives concerning registration.

c. Contribution of the media and social networks

In all disasters, external assistance is mainly governed by media coverage. It is therefore not surprising that humanitarian actors in Haiti - whose criteria for success is measured by the amount of resources mobilized - view the media as a public relations mechanism or as a vehicle to promote their priorities, rather than as a channel for education and public information.

In Haiti, for the first time, social media (Twitter, YouTube, Facebook, Skype, etc.) rivaled the monopoly of broadcast communications media (press and television). In the first 24 hours after the earthquake, numerous images and reports came not through professional media outlets, but from average citizens on-line (MacLeod 2010).

The implication of this trend for future disaster response is not clear. But one thing is certain: the state monopoly of information (with pacyfing comments such as “the situation is under control”), as well as the press monopoly in communicating with the public, will be called in question.

Coordination

Donors invested significant funds in coordination, whilst ensuring that their own bilateral aid was not subject to the very mechanisms they had contributed in creating. Did this financing effort bear fruit? If key informants are in agreement on one point, it is the chaotic nature of the external response. A high-level United Nations official even went so far as to say that this lack of coordination was ultimately advantageous to beneficiaries, because it allowed a number of small volunteer groups to provide services without hindrance.

The first question then is, in the context of a natural disaster, who should coordinate: the international community or the affected country? United Nations documents and their corresponding directives are clear: the national government has this responsibility. In practice, the situation depends on the balance of power. In Haiti, faced with large donors, a plethora of NGOs (“the Republic of NGOs”), and the political presence of an integrated UN mission directly under the aegis of a Special Representative of the Secretary-General, the government simply did not have sufficient leverage, compared to that of the international community and the United Nations.

National coordination

In Haiti, humanitarian agencies and donors marginalized, over a prolonged period, those national institutions judged to be “weak and corrupt.” Even if one cannot deny the need for provisional international leadership during a disaster that so profoundly affects national structures, the operative word here is prolonged (i.e., beyond the three months covered by this study).

The operational arm for emergency coordination in Haiti is the Directorate for Civil Protection (DPC), which receives support from the World Bank, the UK’s Department for International Development (DFID), and the European Union. Lacking any influence over human resources and relief goods entering the country, without direct access to information about who was doing what (Presidential directives for entities to register with the competent ministry were ignored by 90% of the actors), and deprived of logistical means (which were in the hands of bi-laterals or the World Food Programme), the DPC could not fulfill its role in directing either the response or the recovery phases.

The President established numerous commissions, one of which dealt with the health sector. Opinions vary regarding the utility of the latter, given the strong tensions that already existed between the bureaucracy and political levels within the Ministry.

International coordination

a. Humanitarian Reform

The Inter-Agency Standing Committee (IASC) was established in 1992, to act as a forum for coordination and decision-making involving external humanitarian actors. Disaster-affected countries do not participate in meetings of the committee. In 2005, IASC adopted a Humanitarian Reform that introduced, amongst other things, the “Cluster Approach”, according to which activities pertaining to a specific technical area are coordinated by an agency of the United Nations system. The term “cluster” does not coincide with the traditional notion of sector, given that the technical areas covered correspond more to the mandates of the different UN agencies within IASC, rather than to the classic structure of the public sector at the national level. The health sector, for example, is divided between three clusters (nutrition, water/sanitation, and health). Psychosocial assistance (mental health), the medical aspects of sexual violence, and care in the camps are likewise coordinated through several clusters. The leadership of national authorities - in this case the Ministry of Health - is not automatically recognized by the clusters.

b. The Health Cluster

The practical application of clusters in the case of Haiti was not without problems. The functions assigned (coordination, information, and strategic decision-making) require the rapid mobilization of a large number of highly-qualified professionals. In the case of health, this did not happen. Instead of supporting the authorities, the mechanisms of the Humanitarian Reform project in fact contributed to weakening them, without in any way succeeding in coordinating the individualistic world of humanitarian aid any more effectively than the government would have done.



Photo: BHA/WHO/Vécar-Hispan

The experience of DINEPA is an exception that brightens this otherwise dark picture. As mentioned earlier, this recently-created agency was able to establish its technical leadership in the area of water and sanitation, although not without facing initial reticence on the part of the lead agency for the relevant “cluster.” DINEPA emerged strengthened.

Other factors played a role:

- Insurmountable logistical constraints. From day one, some of the experts mobilized lacked transport or the necessary means of communications.
- Constraints to in-country movement, due to UN security concerns and rules. The risk in Haiti was greatly exaggerated, paralyzing not only coordination efforts, but even life-saving operations after sunset.²⁷

The task of coordination was itself probably too ambitious, taking into account the large number of actors with varying degrees of capacity and competence, all of them convinced that their mission was indispensable.

Certain lessons, learned too late in the case of Haiti, may be applied to the next disaster:

- The Ministry of Health should assume from the start the (co-) leadership of the Cluster. Real authority over the coordination of external actors and a mandate for strategic planning can only derive from state institutions. This reality was ignored by the international humanitarian community.
- Real progress is generally achieved through working groups set up within each cluster. Specific topics addressed include: field hospitals, clinics for the displaced, mental health, and surveillance systems. Such sub-groups should therefore be established on the first day, and the less frequent plenary sessions relegated to function as a forum where participants can inform each other of their accomplishments.
- Important operational decisions can only be taken by a “small committee” made up of those agencies and NGOs with the most substantial resources and a stable presence in-country. Working by consensus is not possible in a forum of 400 agencies, many of whom do not understand the context, and some of whose contributions to the relief effort are modest at best.

In short, the cluster approach as it was applied in Haiti rapidly lost relevance, and engendered considerable animosity on the part of the national authorities.

²⁷ The security risk level established by the United Nations for Haiti was the same as that for the Democratic Republic of Congo and Afghanistan.

Strategic lessons for the next sudden-onset disaster

a. Re-establish the authority of national health structures

The active participation of the Ministry of Health is an indispensable condition to improving the professional quality and coordination of the health response. Only the Ministry has the necessary authority and mandate; it is also necessary to ensure that it has the means. Strengthening competencies and capacity certainly has its costs, but the “return on investment” will be significant.

b. Ensure quality control of medical assistance

Coordination and information management are necessary but elusive objectives. A certain degree of chaos is inevitable, and will always be a part of disaster response. On the other hand, the practice of medicine and the provision of pharmaceuticals are normally amongst the most regulated of a country’s activities. In times of disaster, the most basic supervision and quality control are absent, allowing for abuses that would never be tolerated in normal times.

A first step toward the accreditation of medical actors during humanitarian crises is the formulation of basic technical procedures and standards, and prior registration of those organizations deploying medical teams and field hospitals. Such a global database, accessible to ministries of health, would facilitate a prioritized deployment of pre-inventoried teams, and enable scrutiny of the qualifications of other potential actors.

c. Improve coordination

The cluster approach should be adapted to the structures of each particular country. To do so, an agreement must be negotiated in advance with national authorities responsible for emergency coordination. Within the framework of this agreement:

- 1) The government determines the number of clusters and their technical mandate, reflecting its own structures.
- 2) The government, in consultation with the UN Humanitarian Coordinator, designates the international agency responsible for supporting the relevant ministry in the management and coordination of the sector/cluster at national level. This selection is independent of responsibilities assigned at global level.
- 3) Following a disaster, the UN Resident Coordinator mobilizes this mechanism, and manages it for an initial period, the length of which depends on the seriousness of the situation.
- 4) A deadline (e.g, three weeks, re-negotiable?) for the transfer of this responsibility to the government is arranged by common agreement.

The link between relief and development

Relief activities should not hinder development. The ideal is a synergy between relief and reconstruction.

Even the worst disaster can engender positive changes over the long-term. Such was the case in Haiti. Some of the more promising changes are mentioned below:

- Free access to healthcare: Requiring a financial contribution from patients was a factor that limited access to basic healthcare prior to the earthquake. The earthquake prompted the Ministry of Health to adopt a policy of free care during the emergency period. This more equitable approach seems to be taking hold. The international community has supported a WHO/PAHO initiative for on-going free obstetric and pediatric care.²⁸
- A more profound reform of mental health care, as mentioned earlier.
- Social acceptance of the handicapped, and support from the state for post-traumatic physical handicaps.
- An awareness of the significance of sexual violence.
- Strengthening the public health laboratory and the surveillance system.
- Strengthening DINEPA, further to its performance, with international support for this institution.
- Greater awareness of nutritional priorities.
- A more accelerated trend towards decentralization of health resources and services to the departmental level.
- Greater awareness of the need to reduce vulnerability to earthquakes and other natural hazards.

Conclusion

In conclusion, “lessons learned” have a tendency to identify what did not work. But this exercise should not allow us to forget the remarkable accomplishment of the humanitarian community in Haiti. It saved many lives and responded to the immediate needs of hundreds of thousands of survivors, despite deficiencies noted in the management and governance of the response.

If indeed there were many shortcomings, most are not unique to the response in Haiti. Rather, they are repeated in all cases where massive international assistance is deployed, as has been shown in many previous studies and evaluations. The problem is not primarily caused by a lack of governance in the affected country, but rather is inherent to a humanitarian community that seems powerless to put “lessons learned” into practice.

²⁸ Free obstetric care (SOG—in French) and free pediatric care (SIG—in French).

The 12 January 2010 earthquake was the most devastating of many major sudden-impact natural disasters affecting Haiti in the last 10 years. The health impact of the earthquake in absolute terms (number of dead and injured) was among the highest in recent times. When the needs are compared to the country's response capacity, this disaster was truly unprecedented.

The level of response, especially in the health sector, was generous, even overwhelming. Organization of the massive, global response was challenging, and many of the problems seen in past disasters were replayed in Haiti. Information was scarce, decisions were often not evidence-based, and there were serious gaps in overall or sectoral coordination.

This summary (of the original publication from December 2011) presents lessons to be learned from Haiti with the aim of improving the health sector's response in major, sudden-onset disasters in the future. It also identifies opportunities provided by the disaster for making significant changes in health services in Haiti. One of the key lessons of the Haiti tragedy is that coordination can only be effective where national authorities are equipped to assume leadership and establish relief and recovery priorities.

The summary gives particular emphasis to those lessons that are of general interest, i.e., not specific to the case of Haiti. The international community has much to learn from the response in Haiti where it has shown an ability to repeat its errors and shortcomings from past disasters.

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