



# DISASTERS

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## Preparedness and Mitigation in the Americas

October 2016 Issue 122



Zika prevention during pregnancy control in El Salvador

Photo: Schelland/OIE/PAHO/WHO

## Zika, the Challenges We Face

**PAHO/WHO has taken immediate action to ensure the prevention and control of the epidemic and the complications associated with it... but there's still much to do.**

Following the confirmation of the first cases of autochthonous transmission of the Zikavirus in the American continent, concretely in May 2015 in the state of Bahia, Brazil, it has spread exponentially, due in part to the high prevalence of the disease's transmitting vector in the Region. In early 2016, a total of 46 countries and territories in the Americas presented an autochthonous spread of the virus.

In May 2015, PAHO/WHO issued an epidemiological alert. At the time, available

data stressed the notion that the disease had a more benign course than dengue, in many cases going unnoticed.

The first challenge to the Americas quickly presented itself. In October 2015, Brazil's National Liaison Center notified the detection of an unusual increase of newborns with microcephaly (at a rate 20 times higher compared to previous years), after which PAHO/WHO issued an epidemiological alert.

On 1 February 2016, given the increase

*(continued on page 3) >>*

### Editorial

## PAHO's New Emergencies Program Will Be Consolidated This Year

Each year, disasters cost between US\$ 250-300 billion, with disproportionate effects on low-income countries. These losses are the equivalent of 22% percent of the countries' social spending, with a tendency to increase if disaster risk management is not incorporated into their national development policies<sup>1</sup>. Just the annual losses caused by earthquakes, tsuna-

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## PAHO's New Emergencies Program Will Be Consolidated This Year



mis, cyclones, winds, and tidal waves are estimated to represent between 1.2% and 1.7% of the world's gross domestic product (GDP)<sup>2</sup>.

Behind Asia, the Americas are the second continent most affected by disasters. Almost a fourth (22.9%) of all disasters that occurred in the world between 2006 and 2015 took place somewhere in the Americas, with 254,508 victims and damages of approximately US\$ 436 billion<sup>3</sup>. The most common events were of hydrological and meteorological type, which caused 5.6% of the deaths and 73% of the damages in this period<sup>4</sup>.

In 2015, Dominica was the most affected country in the Antilles after the passage of tropical storm Erika. The phenomenon, that caused the deaths of 30 people, caused losses of approximately US\$

482 million, which correspond to 92.1% of that country's gross domestic product (GDP)<sup>5</sup>.

Beyond their scientific explanation, the great impact of these disasters has posed two questions: What else can we do in terms of prevention, readiness, and response in the health sector? How can we improve technical tools so as to benefit the population under risk?


The new PAHO Health Emergencies Program (PHE) was established on 15 September 2016, by joining the Department of Emergency Preparedness and Disaster Relief with the Unit of International Health Regulations/Epidemic Alert and Response and Water Borne Diseases into a single management structure, which reports directly to PAHO's Director.

The Program's priority is to deliver rapid, predictable, and comprehensive support to Member States in terms of prevention, risk reduction, preparedness, surveillance, response, and early recovery in case of any threat to human health, including outbreaks or disasters caused by natural phenomena, human activities or conflicts.

PHE will respond, as it has always done, to the needs of Member States in

the Americas, such as management of infectious threats, country preparedness measures for health emergencies and International Health Regulations, Information on health emergencies and risk assessment, emergency operations, and disaster risk reduction and special programs.

PHE will be responsible for diseases with a high risk of pandemic and epidemic potential (viral hemorrhagic fevers, influenza, coronavirus, arthropod-transmitted viral diseases—arbovirosis—and bacterial diseases).

In this way, answering the call from PAHO Member States during the most recent World Health Assembly, the PAHO Health Emergencies Program will functionally align its work with the new WHO Health Emergencies Program and will maintain those work areas that have been given priority by the Americas region and are not included in the WHO Program. 

1 Application of the Sendai Framework for Disaster Risk Reduction (2015-2030). Report from the Secretary-General.

2 Ibid.

3 Includes total number of deaths and people affected.

4 All monetary numbers in this document are expressed in US\$.

5 Ibid.



Photo: Sebastian Ojeda PAHO/WHO

(from page 1)

## Zika, the Challenges We Face

in congenital anomalies, Guillain-Barré syndrome, and other neurological manifestations in zones where the virus circulated, WHO declared this epidemic a public health emergency of international concern due to its possible relationship with these side effects.

Up to September of this year, 17 countries or territories of the Americas reported cases of microcephaly or congenital malformations of the central nervous system during pregnancy, potentially associated with zika. These suggest a congenital infection.

PAHO/WHO is working with Member States in order to strengthen their capacities for case detection and confirmation and for the implementation of strategies aimed at trying to reduce the vector, minimizing

in this way the impact of the Zika virus on public health.

A guide has been developed for screening, advising, and clinical management, in the hospital and at home, of newborns and children with complications associated with the congenital Zika virus syndrome. It will be ready before the end of the year.


In a two-year period, a series of public health challenges have presented themselves, due to the introduction of new arboviruses such as Chikungunya and Zika. Each new challenge adds complexity to the prevention and control of diseases transmitted by vectors in the Western Hemisphere. PAHO/WHO is working alongside the region's national authorities to provide answers to these issues. 



Photo: Sebastian Ojeda PAHO/WHO



Photo: Courtesy from Ecuador's Ministry of Security Coordination.

Toalli shelter, Manta, province of Manabí


## Earthquake, Ecuador Strengthens its Technical and Operational Capacities

**16 April 2016. 6:58 p.m. Almost 45 seconds were enough for a 7.8 magnitude earthquake to test Ecuador's operational and resolution capacities during a disaster, particularly in the coastal provinces of Manabí and Esmeraldas.**

One million people were affected, directly or indirectly. Of those, 231,000 were registered as victims (23,112 are children under 5 years old, 18,489 older adults, 10,000 people with disabilities, and 2,000 pregnant women)<sup>1</sup>. There are more than 80,000 displaced people, 8,452 are living in 26 official shelters, 9,786 in relatives' homes. The disaster left 6,274 people

injured and 671 dead<sup>2</sup>.

The Ministry of Public Health (MSP), as part of the Emergency Operations Committee (EOC) at the national and local levels promoted the establishment, unprecedented in the Americas, of a Medical Information and Coordination Cell (CICOM), the coordination of Emergency Medical Teams (EMT), the formation of the Incident Com-

mand System, the implementation of the LSS/SUMA system, the strengthening of the Safe Hospitals in Emergencies and Disasters Policy, as well as the work on mental health, epidemiological surveillance, crisis communication, and health promotion. These actions allowed the country to restart its operations and, almost immediately, its resilience processes. 

<sup>1</sup> PAHO/WHO Mission Report three months after the earthquake (July 28, 2016).

<sup>2</sup> PAHO/WHO Mission Reports three months after the earthquake (July 28, 2016), and Situation Report of the Ministry of Security Coordination (August 05, 2016).

# CICOM – EMT, A Validated Formula for the Coordination and Deployment of Medical Teams

Source: DNAPHUM

Ecuador, through the National Directorate for Pre-hospital Care and Mobile Units (DNAPHUM) and the Ministry of Health's (MSP) Directorate of International Cooperation, with support from PAHO/WHO, was the first country in the region to apply WHO's international standards for Emergency Medical Teams (EMT) in order to: authorize and ensure the orderly arrival and deployment in the field of national and international medical teams, through the EMT Medical Information and Coordination Cell (CICOM).

CICOM established a management chain for referrals, transfers, and references to the national health system. In coordination with the Security Integrated System (SIS Ecu 911), CICOM delivered information to the national Emergency Operations Committee (EOC), to aid executive decision-making.

Available resources were adapted to meet PAHO/WHO classifications (see table), a management model and plan was




Mobile hospital deployed to the area.

readied to receive cooperation pertinent to the disaster's phases, and an international call was made, in accordance with international EMT specifications and standards.

In light of this, Peru's EMT2, "ESSALUD", operated between 29 April and 5

May. Other units are still deployed and providing support in areas with collapsed health structures or infrastructures. For example, the EMT2 "Samaritan's Purse" (United States), which started operations on April 20, is stationed in Chone. It has been administered by the MSP since 30 June.

The first CICOM-EMT joint experience, which also received support from Spain's International Cooperation Agency (AECID), is now being documented, so that the adjustments and lessons learned may serve as a reference and a starting point for other countries in the region. 

PAHO denomination	Type	Deployed MSP resource	Total consultations/surgeries (as of 2016-06-23)
Pre-hospital healthcare transport	SVA	41	683
	SVB – SVA	31	
EMT Level 1	UMG	28	30860
Specialized surgical cells	UMQ	5	256
EMT Level 2	Mobile hospital	5	Surgeries: 1009 Emergencies: 14913 Specialty consultations: 9880

# Safe Hospitals, Its Adoption Allowed the Quick Recovery of the Health System

Source: National Directorate of Health Infrastructure

Ecuador adopted the Safe Hospitals in Emergencies and Disasters Policy in 2007. Its implementation had a significant influence on the recovery and operability of recently built hospital centers close to the epicenter.

Between 17-23 April, the National Directorate of Health Infrastructure, together with damage and needs assessment teams from the Ministry of Public Health, and with technical support from PAHO/WHO, performed the first structural and non-structural damage analyses. They found that, with the exception of the Napoleón Dávila Córdova Hospital (which was built more than 30 years ago in the city of Chone and had to be demolished) and the Miguel Hilario Alcívar Hospital, located in the city of Bahía de Caráquez (its secondary structure collapsed), all the units could continue their normal operations. As a contingency, the “Samaritan’s Purse” (EMT2) mobile hospital was deployed to Chone and, in the case of Bahía de Caráquez, the patients, equipment, materiel and personnel were temporarily relocated to that city’s Penitentiary Guides’ Training Center until the Hospital’s normal operations can resume.

The most recent assessment, which took place during the second week of August 2016, determined that of the 15 damaged and 6 out-of-service hospitals, evaluated right after the earthquake, all had resumed normal operations (except for the two cases mentioned above), although some require reconstruction work.

In the case of the health centers, 24 were damaged and 14 were deemed inoperative. All of these have recovered, except for one, but they still need restoration work. In Pedernales, the most affected area, patients were transferred to the Cojimíes Health Unit (under construction, with 95% of completion), located about 20 minutes away.

In structural terms, the system in the disaster area is working at 80%. The remaining 20%, which includes the construction of hospitals in Pedernales and Chone and minor units (health centers) in other cantons, require an investment of approximately US\$ 100 million. In functional terms, the system is completely operational. ▶

1 PAHO Disasters Newsletter, June 2016, number 121.

2 Ibid

*Delivery of care from the Bahía de Caráquez hospital was transferred to the Penitentiary Training School.*



Photo: Ministry of Public Health, Ecuador

# LSS/SUMA, a Vital Resource for the Supply Chain

Source: CL-PAHO Report, Manta Collection Center

LSS/SUMA, the Humanitarian Supply Management System, which began in 1992, demonstrated again its usefulness in the supply chain of humanitarian aid during emergency situations. The system helped with the storage and distribution of 63 tons of medicines and medical supplies which, through the collection center in Quito, supplied 28 reception centers in shelters, health centers, hospitals, and mobile brigades. The most important recipients of these supplies were the Zonal Headquarters located in Portoviejo and the Rodríguez Zambrano Hospital, in Manta (both in the Province of Manabí), each one receiving approximately 46,000 items.

PAHO/WHO immediately deployed logistics specialists from the Regional Response Team (RRT) to train personnel at the Ministry of Public Health (MSP) in the use of the tool, information flows, and inventory control. They also encouraged the adaptation of the MSP system to the emergency processes for the gathering of requirements and the distribution of medicines and medical supplies. The aim was to provide a timely response to the districts' needs. Strategies, such as visits from district representatives and operational units, as well as permanent telephonic contact, were essential.

Also, personnel at Zone 4 (provinces of Manabí and Santo Domingo de los Tsáchilas) were supported with a situational analysis of requirements and availability of inventory. These actions, of strategic and

operational character, created a structure that eased the reception of donations in accordance to the Ministry's needs, maintained supply, and produced charts and reliable and updated information that aided the authorities in decision-making.

Internationally, the MSP's National Directorates for Cooperation and International Relations, with assistance from the Ministry of External Relations and several international and regional organizations, distributed a list of medicines and medical supplies, with the aim of keeping a single official channel for donors. This allowed an orderly management of donations and a quick gathering of medicines and supplies not considered in the ordinary programming of the health system. 🌐

ITEMS DELIVERED, BY DESTINATION MANTA	
Shelter at Porto Viejo airport	20
Shelter at Manta School	513
Emilio Bowen shelter	309
Felipe Chavez shelter	383
Puerto Cayo shelter	16,868
Salesian Medical Brigade ULEAM	7,593
JAMA Health Center	1,085
Parroquia La Merced Medical Center	1,534
Portoviejo Zone 4 Coordination	46,513
Ecuadorian Red Cross, Manta	4,345
Portoviejo District 13D01	23,007
Manta-Montecristi-Jaramijo District 13D02	35,053
Jipijapa District 13D03	2,807
El Carmen District 13D05	3,965
Calceta Junín District 13D06	10,484
Chone Flavio Alfaro District 13D07	13,314
Jama-Pedernales District 13D10	11,281
San Vicente-Sucre District 13D11	36,157
Roca Fuerte-Tosagua District 13D12	31,520
La Concordia-Santo Domingo District 23D03	6,271
Youth US for Manta's Children Foundation	7,374
Canton Roca Fuerte Municipal GAD	6,383
General Santo Domingo Hospital	5,180
Miguel H. Alcivar Hospital, Bahía de Caraquez	6,340
Esmeraldas Military Hospital	5,133



Collection center in Quito, province of Pichincha.

# Control of Vectors and Other Pathological Agents, Strengthened In the Disaster Area



Photo: Ministry of Public Health, Ecuador

Ecuador's Health Minister, Margarita Guevara, and PAHO/ECU Representative, Gina Tambini, leading a health promotion activity for safe water consumption.

The Ministry of Public Health (MSP), through its epidemiological surveillance, health and environment, and health promotion components: 1) reinforced the ongoing work on vector control in the disaster area, given its location on the littoral zones of the Pacific and the favorable climatological conditions for vector reproduction; 2) tightened water, sanitation, and hospital waste controls; and 3) strengthened training and information sessions on the contagion risks of vector-transmitted diseases, inadequate treatment or disposal of waste, and inadequate storage and consumption of water.

Zika, Dengue, and Chikungunya were the targets of the 56 brigades, and around 500 hundred additional people, mobilized to the provinces of Manabí and Esmeraldas. Their aim was to increase vector control, larviciding, fumigation, and distribution of mosquito nets; this included the use of backpack sprayers, thermal fog generators, and other equipment.

With transportation provided by the military and police, health promotion and primary care technicians trained community leaders and delivered information kits

directed to women of reproductive age, to raise awareness about the risks associated with to diseases transmitted by vectors and the negative effects these may have on fetuses.

## Water and Sanitation

The National Directorate of Environment and Health formed 4 brigades which, between April 18 and 30, worked in shelters and settlements assessing the water supply processes, and the disposal of excreta, food, and solid waste. At the same time, health centers operating in areas affected by the disaster were visited to assess the collection and final disposal of infectious hospital waste.

Water disinfection was performed at the distribution points; that is, at reserve tanks of drinking water systems, mobile plants, and tanker trucks loading sites. This activity, which was coordinated with SENAGUA, the entity responsible for water supply, and had the support of PAHO, made possible the delivery of chlorinated water to shelters and affected communities. The

## Equipment and Material

3,150 kilograms of calcium hypochlorite (at 70%) distributed.

82,000 bags for solid residues and biological waste are currently being distributed.

50 containers for solid waste are currently being distributed.

52,500 families benefited by interventions on water and sanitation.

transport/distribution and storage phases were monitored at least 3 times per week.

In special cases, where there was no residual chlorine in the drinking water of shelters and affected communities, 20 sodium hypochlorite generators (with a 60-liter capacity) and 2200 drums (20 liters) were delivered; this included the training for the operation of the generators. The produced disinfectant was delivered to shelters and communities by the Health Districts, providing each family with the means to purify their drinking water in situ. This work, coordinated by several MSP offices, prevented diseases related to water consumption.

As part of the strengthening and training process, PAHO provided equipment for the monitoring of water quality (turbidity meters, chlorine comparators, multi-parameter equipment, and the corresponding reagents), to ARCSA, SENAGUA, the MSP, water companies, and drinking water administration boards.

The MSP is currently distributing 82,000 plastic bags and 50 containers for the collection of solid waste at shelters and health centers, to improve management and the sanitary conditions at these locations. ▶



## Mental Health

**Source:** “Creation and Implementation of Community Mental Health Services and Public Recovery Centers” Project

Protocols were created and national and international intervention methodologies, first conceived for volcanic contingencies, were adapted. Priorities were set as follows: 1) families; 2) “care for the caregivers” health teams; 3) other organizations with presence in the affected areas aiding in mental health processes.

Specialized personnel (77 psychologists, 1 psychiatrist) and 300 hundred volunteers performed first line interventions (in group settings) directed at the general population, but with a special emphasis on children and teenagers. According to international statistics, these interventions would help in identifying that 20% of the population that are prone to develop severe disorders derived from depression, anxiety, loss, mourning, sleep disorders, consumption of dangerous substances, among others. This group would be treated at various health facilities and referred to hospitals in Quito and Guayaquil, when needed.

The capacities of non-specialized health personnel were also strengthened, so that they are able to recognize possible cases requiring a differential approach, at the various levels and points of care.

Psychotherapeutic support and psychosocial actions were implemented to generate resilience and self-care skills among the population. This was meant to help people in the process of adapting to their new situation and, from there, rebuilding family, work, and academic relationships. This was important, above all, to avoid violent situations in the shelters. These prevention and treatment measures are still delivered today.

Thanks to the international cooperation provided by PAHO, UN Women, and Doctors Without Borders, activities such as community work, psychosocial care with gender approach, the “Return to Joy” initiative (directed to children and teenagers), psychological first aid, and training for health personnel working at the shelters, were all strengthened. 📍

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### Results

- 32,125 individual, family, and group care delivered.
- 42,000 children and teens included in psychosocial processes.
- 724 health and other professionals trained in psychological first aid, psychosocial community support, and emotional discharge facilitation.
- 77 health professionals trained in the *mhGAP* guide (mental and neurological disorders, substance use at the non-specialized care level) for post-traumatic stress disorders.

## Immunizations

**Sources:** National Directorate of Environment and Health, National Directorate of Epidemiological Surveillance, and National Directorate of Strategies

Immediately after the event, the contingency plans for each district were activated, which significantly reduced the loss of vaccines in those places where the cold chain was damaged. The health personnel responsible for the immunization program in Pedernales preserved the stocks of that town’s vaccine bank and 5 Health Units. The same happened in the city of Manta, where the stocks of 27 Health Units were preserved.

The emergency taught some valuable lessons. First, horizontal refrigerators assigned to health units are capable of keeping the ideal temperature for more than 72 hours, even in warm climates. Second, the knowledge, preparedness, and commitment of health personnel, aided by text messages for coordination purposes, made possible the preservation of vaccines. These vaccines were later administered—with absolute safety—to the population and members of the Armed Forces and Police. As of 5 July, 32,376 doses had been administered.

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### Results

- 176,000 people assisted.
- 12,191 mosquito nets delivered.
- 12,585 actions for vector control in shelters and refuges.
- 11,400 hygiene kits delivered.
- 2,500 people sensitized about control measures to limit Zika cases.



# Crisis Communication and Information Management, Key Elements for Decision-Making

Source: National Directorate for Communications, MSP

Communications is a strategic element, in emergency and disaster situations, that allows the population to make the best decisions in order to protect their lives and health.

The day of quake, as communications were progressively re-established, messages sent by text allowed the teams deployed in the affected areas to coordinate information gathering and consolidation with the zonal headquarters, the Ministry of Public Health (MSP) and its situation room, and the national Emergency Operations Committee (EOC).

Communications directed at the population, with key messages from the MSP, and support from PAHO/WHO, had a two-fold purpose. First, to provide information about the location of operational hospital units and, second, to deliver messages about safe water consumption, measures for protection against violence and transmission of diseases such as Zika, among others. Interviews with mass media were essential to spread information about the main health issues and how to face them.

In addition, training was provided to strengthen capacities in educational communication strategies through artistic and ludic activities (music, theater, painting), for the delivery of messages to help with prevention of priority diseases and the provision of psychological first aid. For example, at the Portoviejo shelter, making use of artistic and ludic interventions such as “amorfinos” (musical rhyming traditional to the region), the following topics were covered: water tank sealing, preventing the dissemination of Zika, Dengue, and Chikungunya, as well as diarrhea and gastrointestinal diseases, and insalubrity, waste disposal procedures, and drinking water management.

Information dissemination continues, and the teams trained in ludic techniques are still using these in the affected areas, promoting individual and community resilience, as well as strengthening disease prevention and health promotion. 🌐

## Interview



Dr. Margarita Guevara, Minister of Public Health of Ecuador.

### *How did the MSP activate its response in terms of inter-institutional, pre-hospital, intra- and inter-hospital coordination?*

Immediately after the earthquake, the MSP was activated as part of the Emergency Operations Committee (EOC) at the national and local (provincial, municipal) levels. This enabled an immediate inter-sector coordination. As a parallel action, the Health EOC and the Technical Table 2 were activated with the goal of coordinating the health sector institutional and inter-institutional response actions, so as to ensure, emergency medical care for the population, permanent, non-stop access to health services, and the continuity of public health programs.

Pre-hospital response was initially delivered through the mobile medical teams deployed in the field (ambulances and mobile units), particularly those from Zonal Headquarters 1 and 4. Next, it was decided that the mobile contingent units were to be deployed to the rest of the Zonal Headquarters, to ensure the delivery of health care in the affected areas. These units consisted of 5 mobile hospitals (EMT Level 2), including two from abroad, “Samaritan’s Purse” (USA) and “ESSALUD” (Peru), 29 general mobile units (EMT Level 1), 6 mobile surgical units, and 72 operational ambulances.

Care delivery, location, and production of the mobile teams were monitored from the ECU 911 command centers in Quito, through the National Directorate of Pre-hospital Care and Mobile Units, which was part of the Medical Information and Coordination Cell (CICOM). At the same operations center, the MSP’s Incident Command System was established, its main duty being the organization of activities for each institutional entity. The information generated and managed by CICOM was then reported to

Technical Table 2, enabling coordination and joint-work with the national EOC for executive decision-making.

***How were the resolution capacities of the MSP's health units and the public network affected in relation to the situation before the earthquake?***

The resolution capacity of the health services network was greatly affected, both in first level establishments and in hospitals. However, health delivery was constant and suffered no interruptions. The actions taken within the framework of the Safe Hospitals and Accreditation Program were essential to activate and develop the respective contingency plans.

Despite the earthquake's magnitude and the number of affected units, it was possible to manage the immediate rehabilitation of most of them. The functionality of the Chone and Bahía hospitals was completely lost; however, we had access to mobile hospitals from the MSP, Armed Forces, and the international community to continue with the delivery of services in the coverage areas of the aforementioned hospitals.

***What is your assessment of the care delivered in shelters and refuges by the health system in the affected zones, both in the (immediate) humanitarian aid phase as well as in the (first three months) emergency phase?***

A model for the management of shelters was developed, which ensured the delivery of health services 24-7. Greater complexity cases were treated at the health establishments to ensure that all the service needs of the patient are fulfilled. In emergency cases, the pre-hospital system was activated to transport the patient from the shelter to the health establishment. At the moment, the following services are provided by MSP personnel:

- Care: medical, odontology, vaccination.
- Epidemiological surveillance: notification of epidemiological outbreaks, vector control, mosquito net delivery.
- Sanitation surveillance: control of water and sanitary-hygienic conditions, as well as kitchen personnel controls.
- Social surveillance: health education talks, control of addressed and reported cases of sexual violence.
- Health promotion activities, focused on handwashing, food preparation, nutrition, and sexual and reproductive health.
- In the shelters, aside from medical care, information gathering activities required for monitoring and control have been developed: people in shelters, by age group and priority group, people with disabilities, with non-communicable diseases, among others. The MSP guarantees the delivery of health services to all the population until the end of the reconstruction phase.

***What were the MSP's greatest strengths when responding to***

***the event of 16 April?***

During the last ten years, the government, through the MSP, has invested more than US\$ 14 billion in the health sector. This is more than seven times what was invested between 2000 and 2006, which was little more than US\$ 2 billion. This is reflected in infrastructure projects, such as 55 health centers and 21 hospitals built and retrofitted, the international accreditation of the MSP's 40 public hospitals by Accreditation Canada International (ACI), the improvement of pre-hospital care with service coverage in all the country, hospitals and mobile units.

The improvement of telecommunications within the framework of the national core network, with the installation of radio bases in all health establishments and ambulances, that enable MSP personnel to communicate between these entities and the SIS Ecu 911 command centers; the plan for the strengthening of human resources, which includes a physicians' specialization plan, scholarships for primary care technicians training, postgraduate training in family and community medicine; the 8 hour workday; pay raises; awareness campaigns for disease prevention. These, among other actions taken by the MSP, have contributed to an effective response to the emergencies, such as the one occurred on 16 April..

***As part of the international community's response, PAHO/WHO mobilized regional experts to Ecuador within 24 hours of the emergency. The Organization believes it has contributed to response coordination, damage assessment and needs analysis, water and sanitation, coordination of emergency medical teams (EMT), and, especially, assessment of the health services infrastructure. Madame Minister, how do you see PAHO's role in this emergency? What aspects of PAHO/WHO's support would you highlight? What effective results, do you think, it has delivered?***

The whole country received an unconditional and very important support from PAHO/WHO. In a matter of hours, representatives of this important organization mobilized experts in several medical specialties: infrastructure, communications, etc., to work alongside the MSP. It was another helping hand for our people. Its solidarity and professionalism was timely and immediate. They provided feedback for our decision-making. After the earthquake, they worked by our side to provide psychological support to the victims; they helped us at the medicine collection centers. In my case, I can say that Dr. Gina Tambini, the organization's representative in Ecuador, worked by my side in the disaster affected area throughout the approximately three weeks that I stayed. All of us Ecuadorians felt that support and the results are there for everybody to see. 🌐

## Colombia Ministry of Health Will Strengthen Capacities for Risk Management



Representatives from Colombia's Health System and PAHO speak about strengthening risk management in the health sector.

The Ministry of Health and Social Protection and the PAHO/WHO Office in Colombia recently signed a technical cooperation agreement. The objectives include implementing and strengthening disaster risk management in health and developing the capacities of its professionals in accordance with the priorities set in the Ministry's ten-year plan for 2012-2021.

This alliance will make it possible to make an important advance in the

development of technical guidelines and operational tools. These will be geared towards generating capacities among the national, regional, and local health system actors, along the lines of safe hospitals in disasters and knowledge of disaster risks.

Other important lines considered are: human resource training for mental health during disasters, management of toxicological emergencies, among others, assessment of at least 15 hospitals and implementation

of corrective actions.

Several of the products to be developed are part of the consolidation of knowledge and experience from the Ministry and PAHO/WHO, from the Colombian context, with the intention of making them available to the Americas. Among them:

- Hospital Safety Index evaluation tool for small health institutions (health centers and posts), which will be part of the large and medium tool.
- Update and adaptation of the manual for damage assessment and needs analysis in health.
- Hospital guide for disaster risk management and contingency plans.
- Technical guide for mass gatherings.
- Minimal humanitarian standards, among others. ▶▶

## International Contribution for the Strengthening of the Regulation Center for Urgencies and Emergencies, in Bogota

Delegates from several countries, and Colombian cities and departments, met from 11-13 July at the International Meeting of Emergency Medical Services. The purpose was to be able to have better inputs in the current process of review and creation of the Regulation Center for Urgencies and Emergencies in Bogota.

The Meeting explored the gaps, challenges and opportunities for improvement,

in relation with different contexts and needs. In addition, there was a review of experiences and intervention models from the organization of pre-hospital care systems (SAMU), financing, telecommunications, accreditation and logistical criteria, delivery regulation, and human resources.

Participants came from Mexico (Jalisco and Puebla), Spain, the United States, Ecuador, Chile, Brazil, and the Dominican

Republic, in addition to national delegates from Bogota's Secretariat of Health, the Ministry of Health and Social Protection, representatives from NUSE (emergency services), and the departments and capital cities of Cundinamarca, Boyaca, Arauca, Putumayo, Cauca, Norte de Santander, Valle del Cauca, Cali Antioquia, Medellin, Cordoba, and Bolivar. ▶▶



Participants at the RELACIGER workshop.

## RELACIGER Highlighted the Importance of Technical Knowledge and Information During Disasters

The Latin American Network of Information Centers on Disaster Risk Management (RELACIGER) convened a regional workshop in San Jose, Costa Rica, from 9-12 August 2016. The aim was to share experiences and practices; review results of projects and activities, recent and ongoing; plan future activities; improve its products, resources and the network's organization; and foster collaboration among the member entities.

In the event, participants presented technical information (practical and advanced) on disaster prevention, communication management and dissemination for adverse event readiness, and specific

technologies that can be used for the preparation of information pieces. In this context, experts expressed their perceptions on this issue, particularly, collaboration networks. Other topics included the science behind earthquakes and volcanic eruptions, the specific information needs of the scientific community, and its role in information generation.

Other important results were the establishment of a consultation committee, formed by representatives of the Regional Disaster Information Center for Latin America and the Caribbean (CRIDLAC), the National Emergencies Commission (CNE), the Center for Disaster Informa-

tion of the National Library of Medicine (CIDBIMENA) and the Center for Disaster Protection (CEPRODE) to establish a Board of Directors and facilitate future activities.

The workshop, supported by the National Library of Medicine (NLM), had participation from member institutions from Guatemala, Honduras, Costa Rica, El Salvador, and other actors such as the National University, the Ministry of Public Works and Transportation of Costa Rica, the Fire Corps of that country, and the Japan International Cooperation Agency (JICA). Other delegates, from Chile and the United States, took part in the workshop by teleconference. 📺



## Journal On Prevention

The Costa Rican electronic journal *On Prevention (En Torno a la Prevención)* shares knowledge through technical-scientific articles on disaster prevention, at the national and international levels.

Edited since 2003 by the National Commission for Risk Prevention and Emergency Response of Costa Rica, the journal publishes original works, following parameters set by the editorial committee, external evaluators and the ethical norms of intellectual property and authorship.

*En Torno a la Prevención* is an indexed publication and is registered at:

**Latindex:** online regional information system for scientific journals from Latin America, the Caribbean, Spain, and Portugal.

**REDIB:** Ibero-American innovation and scientific knowledge network, from Spain's Higher Council for Scientific Research (CSIC).

**DOAJ:** a list of free-access, scientific and academic journals that comply with high quality standards, peer-review, editorial quality control, and free for all at the moment of publication.

*En Torno a la Prevención* is a product of the Latin American Network of Information Centers on Disaster Risk Management (RELACIGER), a collaboration network of professionals from Latin America that provides free and reliable information on a variety of topics related to risk management and disasters. It is composed by information centers in higher education, governmental, non-governmental, and international institutions of 11 countries of the Americas.

More information at: [www.relaciger.org/revista](http://www.relaciger.org/revista).

**REVISTA EN TORNO A LA PREVENCIÓN**  
CENTRO DE DOCUMENTACIÓN E INFORMACIÓN  
COMISIÓN NACIONAL DE PREVENCIÓN DE RIESGOS Y ATENCIÓN DE EMERGENCIAS

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**PRESENTACIÓN:**

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El propósito fundamental de esta publicación es difundir conocimiento sobre prevención de riesgos y atención de emergencias, incluyendo aspectos técnicos, buenas prácticas, y notas técnicas relevantes, e informar mediante artículos técnico-científicos provenientes de toda la región de las Américas.

## Information Resources



### Emergency Medical Teams (EMT)

The technical note containing the principles and global standards that EMTs must comply with during disasters can be found at: <http://goo.gl/j8yaT9>.

# Virtual Reality Improves Training for Disaster Preparedness

Ample scientific evidence suggests that videogames may enhance learning. The National Library of Medicine (NLM) is conducting research on some ways to exploit this learning to aid in the preparedness of disaster/emergency managers, medical emergency teams, and public health professionals in local and government medical facilities.

NLM tests the applications with an emphasis on the training of professionals at the Incident Command System and the management of patients with highly infectious/highly morbid diseases (Ebola), in order to assess their abilities and performance in real situations.

During an exercise, participants can interact with each other through voice or text and visualize and interact with the equipment and information tools representing disaster assets in real life.

The simulation also provides access to the enhanced tools that simplify “situational awareness”, due to which students can “compress time” during the exercise and focus on the skills they need to develop. That is why virtual reality equipment (head



*Virtual experimentation platform during a disaster management simulation. Williamson County, Texas, February 2016.*

mounted screen plus a controller set) offers better immersion and realism during the simulation.

Although this type of training has advantages in relation to regular instruction in cost/benefit terms, high interactivity, remote connection or the possibility to assess participants in a more objective way, it still has limitations in the design of exercises or the advanced technical knowledge that may be required.

Nevertheless, this technology may be applied to other training objectives, for example, keeping health facilities safe in case of disasters or public opinion training to improve preparedness against potentially infectious diseases such as Zika.

More information at: <https://dimrc.nlm.nih.gov/dimrccontact.html>.



*NLM intern uses a virtual reality helmet for an immersion experience in a simulated Emergency Operations Center. August, 2015.*

# Upcoming Events

## Habitat III

17 - 20 October 2016, Quito, Ecuador

<https://www.habitat3.org>

HABITAT III is the United Nations Conference on Housing and Sustainable Urban Development.

## International Meeting "Disaster Risk Reduction to Ensure the Response of the Health Sector"

24 - 25 October 2016, Quito, Ecuador

<http://www.salud.gob.ec>

Its aim is to strengthen disaster risk management in the health sector, based on the experience of the earthquake in Ecuador in April of this year, and on the analysis, dissemination, and use of technical and scientific knowledge to enable an adequate response during emergencies and disasters.

## Regional Meeting of Health Disaster Coordinators

16 - 18 November 2016, Bogota, Colombia

[www.paho.org/disasters](http://www.paho.org/disasters)

Event at which the disaster risk management representatives of the ministries of health will define key aspects for strengthening the health sector.

## Towards the implementation of Inclusive Disaster Risk Management in the Health Sector

29 November 2016, Washington D.C., USA

At this regional meeting, key actors will work in the establishment of mechanisms to ensure the inclusion of people with disabilities in health disaster risk management.

## Global Platform for Disaster Risk Reduction 2017

22-26 May 2017, Cancun, Mexico

<http://www.unisdr.org/conferences/2017/globalplatform>

The event will review global progress on the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030.

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