

DISASTERS



PREPAREDNESS AND MITIGATION IN THE AMERICAS



Issue No. 83

News and Information for the International Disaster Community

April 2001

Editorial

Hospital Disaster Mitigation: From Words to Deeds

For more than a decade now, PAHO/WHO has been committed to raising awareness about how to lessen or even avoid those aspects that make health facilities vulnerable to natural disasters. It's a fact that hospitals in the Caribbean and Latin America need *not* be put out of commission by an earthquake or hurricane.

Yet that is often exactly what happens. Literally speaking, many health facilities in the Caribbean are "gone with the wind," storm after storm. The JN France Hospital in St. Kitts and Nevis, which opened in 1966, has suffered significant hurricane damage on ten separate occasions. Having been hit hard by Hurricane Luis in 1995 and subsequently repaired, the roof of the JN France was once again destroyed by Hurricane Georges in 1998.

Far from being among the safest of structures, hospitals in Latin America often head the list of damaged infrastructure following even moderate seismic events. The powerful 8.1 magnitude earthquake in Mexico in 1985 was responsible for the

loss of 5,829 hospital beds in three major health facilities—either because they were completely destroyed or because they had to be evacuated. This earthquake marked a turning point for PAHO/WHO, and the Organization began to focus a great deal of attention on disaster mitigation in health facilities.



The JN France Hospital in St. Kitts and Nevis being repaired once again following Hurricane Georges.

Photo: PAHO/WHO

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Supplement on
**Earthquakes in El
Salvador S-1**



LIDERES 2001 Course Slated to Take Place in Costa Rica

The second international LIDERES 2001 course will take place in San Jose, Costa Rica from 2-19 July 2001, and once again, this training will focus on the management aspects of disaster reduction.

No longer is it enough to simply anticipate the

potential impact of a disaster on a vulnerable population. Today, disaster managers require new skills that reflect the changing political and socioeconomic environment in which decisions are made. When disaster strikes, the decisions taken by governments, NGOs or even civil society

(cont. on page 7)

News from PAHO/WHO



Search the Virtual Health Library for Disasters using the new classification:

- Public health in disasters and emergencies: principles and guidelines
- Emergency preparedness and response
- Disaster mitigation
- Human rights and humanitarian legislation
- Health of refugees and the displaced
- Environmental health and chemical substances
- Communicable diseases
- Parasitic and vector-borne diseases
- Food and nutrition
- Reproductive health, child health and immunization
- Mental health
- Management of humanitarian supplies and essential drugs
- Management of the casualties of war

A New and Expanded Edition of the Virtual Health Library for Disasters

Two years ago PAHO produced the first edition of the Virtual Disaster Library on CD-ROM. Now several other organizations have teamed up with WHO and PAHO and the result is the newly released the 2001 edition.

The latest Virtual Health Library for Disasters incorporates the works of many new partner organizations and consequently offers a much broader variety of information on disaster preparedness, mitigation, management and response. The Virtual Health Library for Disasters is now truly a global collection, the result of a process of consultation and exchange among the disaster and emergency programs of WHO and PAHO, other WHO technical divisions, agencies such as UNHCR, UNICEF, the ISDR, the Red Cross Movement, Project Sphere, NGOs such as OXFAM and national organizations such as Costa Rica's National Emergency Commission. Thanks to support from these organizations, the new Virtual Disaster Library contains more than 300 scientific and technical documents including the most important works published by these agencies on disasters and emergencies. It also:

- Has a powerful and improved search engine to locate information by subject (see list at left), country, keyword, title or publisher. Full-text search is also an option.
- Is available to millions on the Internet (in addition to the CD-ROM) free of charge, any time, anywhere.
- Offers all documents in HTML and many in PDF format.
- Is an open and dynamic collection with room to grow. The interagency collaboration that sparked the creation of this collection should be permanent and ongoing.

Readers can find all back issues of this Newsletter, from the time it was first published in 1979, on this CD-ROM. For more information contact WHO at eha@who.ch or PAHO at disaster-publications@paho.org. This collection is available online at www.who.int/eha/disasters/ or www.paho.org/disasters.

WHO to Host Meeting on Supply Management Systems

The World Health Organization and the Pan American Health Organization will host a working meeting in Geneva from 25-27 July to study existing systems and determine the feasibility of developing an emergency supply management system that would benefit all UN Member States. The World Food Programme (WFP), OCHA and non-governmental organizations will participate in the meeting. Experience

from past disasters in the Americas has confirmed that using one common system has improved coordination and information exchange and promotes transparency in the management of humanitarian assistance. WHO and PAHO will keep the international community abreast of progress in the development of a common system, which will be freely available for use by the entire international community.

Other Organizations

HPN seeks Spanish-language Partners

The London-based Humanitarian Practice Network (HPN) exists to stimulate critical analysis, advance the professional learning and development of those engaged in and around humanitarian action, and improve practice. It produces information, analysis and practical resources on humanitarian policy and practice, aspects of conflict management, disaster prevention, relief and development linkages, and protection. The HPN is looking for potential partner organizations to produce and disseminate its material in Spanish. If your organization has an interest in bringing humanitarian issues and debates to a Spanish-speaking audience, please contact Rebecca Lovelace at the Humanitarian Practice Network of the Overseas Development Institute at fax (44-20) 7922 0399; e-mail: hpn@odi.org.uk. Visit HPN's website to download the latest issue of *Humanitarian Practice*, a twice-yearly magazine for the humanitarian community. <http://www.odihpn.org.uk>

ISDR and PAHO Publish New Book on Hurricane Mitch

The International Strategy for Disaster Reduction, in collaboration with PAHO, has published *Huracán Mitch: Una mirada a algunas tendencias temáticas para la reducción del riesgo* (only in Spanish). The publication is the result of contributions from experts who worked in Central America in the aftermath of Hurricane Mitch. From a local-level perspective, the collection of articles describe how the community participates in the daily process of decision making to reduce disaster risk. Two of the articles from this book are featured in the Selected Bibliography (page 8). The entire book, which has five additional chapters, can be downloaded from the Regional Disaster Information Center's web site at www.crid.or.cr. Print copies are also available from CRID at the address on page 8.



Electronic Resources

<http://www.disaster.info.desastres.net/desplazados/indexen.htm>

Estimates of the number of persons displaced by violence in Colombia range from 500,000 to 2 million, depending on the source. A number of national and international agencies and NGOs working with the displaced population in Colombia have posted information and reports on this collective web site.

<http://www.helpage.org/emergencies/index.html>

Older people in disasters and humanitarian crises: Guidelines for best practice has been produced by HelpAge International and offers key approaches and actions to help the humanitarian community reduce the vulnerability associated with aging. The guidelines also suggest ways to enhance the capacities and contribution of older people in emergencies.

http://www.iadb.org/sds/env/site_2493_e.htm

The Inter-American Development Bank's Natural Disaster Management web site describes its strategy and program of work and offers access to IDB publications on disasters and vulnerability reduction, news bulletins, links to other sites and upcoming events.

<http://www.disaster.info.desastres.net/saludca/desastresCR>

This web page features the disaster preparedness and mitigation activities of four Central American countries (El Salvador, Guatemala, Honduras and Nicaragua) in the framework of the Post-Hurricane Mitch Vulnerability Project (see previous issue of this Newsletter). Learn about activities in each country and upcoming special events.

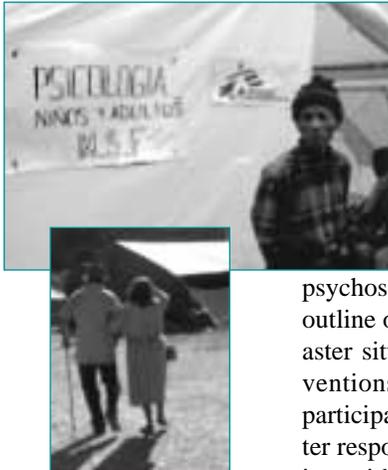
<http://www.opas.org.br/noticias/informa/inun.htm>

Contains a list of links to important sources of information on floods, compiled by PAHO/WHO's country office in Brazil. Brazil has been spared many of the natural hazards common to other countries in the Americas such as earthquakes and volcanic eruptions, but floods are a serious and chronic threat. These links are to English-language sites worldwide.



Member Countries

Guatemala: Mental Health the Topic of Upcoming Meeting



A workshop for 30 professionals working in the area of mental health in Latin America will be held in Guatemala in June to discuss the basic principles of disaster response and recovery as these relate to mental health, particularly in light of experiences in recent disasters in the region. The workshop will present the latest strategies in dealing with the psychosocial aspects of disasters and work on the outline of a regional guide on mental health in disaster situations. In addition to focusing on interventions in situations of crisis and acquainting participants with the main regional actors in disaster response, the workshop will also focus on dealing with the mass media. More information on this meeting will appear in a future issue of this newsletter.

Regional SUMA Team Created in Andean Countries

Since the early 1990s, more than 2,500 people throughout Latin America and the Caribbean have been trained in the SUMA methodology. However, when disasters strike, it often happens that these trained professionals are burdened with other more pressing tasks and therefore unavailable manage

the SUMA system in their country. Given this reality, FUNDESUMA, the NGO that coordinates all SUMA operational activities in the Americas, brought together SUMA-trained experts from a variety of institutions in Bolivia, Ecuador, Colombia, Peru and Venezuela and created a regional SUMA team. In the spirit of collaboration among neighboring countries, this team would support any disaster-stricken country in the Andean Region to manage humanitarian supplies. The Andean SUMA team will also work to improve coordination among institutions, ensure a place for SUMA in appropriate government agencies and prepare a manual of procedures for team members. For more information, contact FUNDESUMA at fax (506) 232-9073; funsuma@sol.racsa.co.cr.

El Salvador: Meeting on Lessons Learned

Disasters such as the earthquake in El Salvador are unpredictable, and in a matter of seconds they can set development back for years. In the immediate aftermath, all attention is focused on saving lives and reducing the health, social, economic consequences of the disaster, thus leaving little time to analyze what went right and what went wrong in the overall nationwide response. Data is perishable and the recollections of those

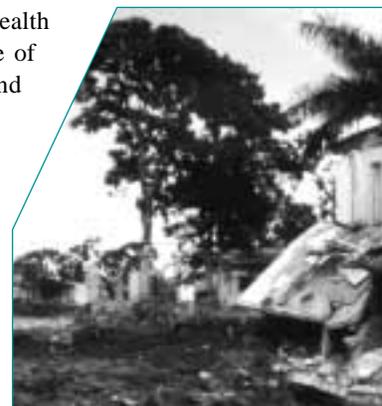
Communities Assess Risk in Honduras

The Ministry of Health of Honduras is aggressively pursuing a strategy of involving communities in reducing their vulnerability to disasters. To date, they have carried out six workshops in which communities have prepared risk maps, taken inventory of existing resources and community emergency plans and formed community-level Emergency Health Committees. The intent is to link these community-based initiatives to the broader range of national health sector disaster activities and to develop local coordination mechanisms and emergency networks at the community level.

This initiative is also looking at developing a methodology and supporting materials that communities themselves can test and endorse and subsequently share with others facing similar risks. The communities in Honduras that have participated in this initiative view risk and vulnerability reduction as a permanent and ongoing task and are committed to using their Emergency Health Committees to improve disaster preparedness, mitigation and response.

For more information contact Dr. Godofredo Andino of the Ministry of Health of Honduras at mssped1@ns.paho-who.hn or Beatriz Velez at velezb@hon.ops.oms.org. Visit the project web site (see address on page 3) for more information.

Communities Work to Reduce Under the framework of the Central American Preparedness in the Countries Affected by Hurricane Mitch communities that suffered the devastation are taking steps to avoid th



involved can fade quickly if not captured as soon as possible. In order to avoid losing the benefit of the El Salvador experience, a meeting will be held in El Salvador next July to analyze the strengths and weaknesses of the response in a variety of technical areas. This will help to prioritize and direct disaster response, preparedness, mitigation and prevention actions in the future.

CRID/NLM Course on Information Management

The Regional Disaster Information Center (CRID) and the U.S. National Library of Medicine hosted a workshop for librarians from Honduras, Nicaragua, El Salvador and Costa Rica, within the framework of their joint Central American project (see the October 2000 Newsletter). Fifteen participants had the opportunity to familiarize themselves with the CRID methodology and gain practice using the Internet for information gathering purposes. Special sessions were held to analyze and evaluate a variety of web pages with technical information on disasters. The purpose of the course was to train trainers so that these professionals can replicate this course in their countries and thus improve access to and dissemination of important disaster information. The NLM will host a follow-up workshop in Washington in June. For more information, contact crid@cid.or.cr.

Caribbean: Stress Management Teams

The Caribbean is moving to establish national Stress Management in Disasters (SMID) teams, as part of PAHO's Stress Management in Disasters program. This initiative began in 1998 to prevent and mitigate psychological stress that many emergency response personnel undergo during traumatic situations like disasters. Under the program, SMID manuals have been developed and to date, more than 250 persons in nine countries trained. SMID training provides knowledge and skills to understand, recognize and manage stress responses to traumatic situations. Training includes the establishment of SMID teams. Starting this year, emphasis is being placed on establishment of national SMID teams as part of the disaster management arrangements. Saint Lucia, for example, has already developed its own team protocols and Standard Operating Procedures. Barbados, Curacao and Trinidad and Tobago are also pursuing similar developments. This ongoing initiative and is planned to be expanded to other countries. For more information contact Dr. Dana van Alphen at vanalphd@cpc.paho.org or fax (246) 436-6447.



Read the review on page 6 of the new PAHO publications on Stress Management.

their Vulnerability to Disasters

can project Vulnerability Reduction and Disaster
ane Mitch (see previous issue of this Newsletter),
astating impact of this 1998 hurricane
e same fate in future disasters.



Social Communication and Disasters

Over time, disaster managers have gained a growing appreciation of the need to incorporate social communication activities into routine management training. However, the field of disaster management is so broad that it has been difficult to establish a standard practice of how and where to integrate these activities. This is particularly true at the local level, where strategies must be tailored to real needs. The Central American Vulnerability Reduction Project is addressing this gap by targeting those in the community who are responsible for a broad range of communications—health educators and promoters, community leaders, NGO workers, and others. At disaster communication workshops they gain knowledge about disasters and disaster-related issues and become aware of the importance of preparing their communities. They are given communication techniques that allow them to share information about disasters and their effects with the community in a non-threatening way. And most important, a local communication network has been created. These networks will be provided with support and the tools to produce disaster-related radio messages, pamphlets, press releases and other information products. The NGO *Centro de Comunicación Voces Nuestras* has collaborated in carrying out these workshops which will be expanded to a growing number of communities. Contact Jacqueline Flentge at flentgej@cor.ops-oms.org or by fax (506) 257-2139.



Review of Publications

Stress Management in Disasters



It is widely recognized that emergencies and disasters are great stressors, not only for the affected population but also for those charged with providing a response. Elevated stress levels reduce response capacity and put physical and mental health at risk. Unfortunately, most Latin American and Caribbean countries have no specific control programs in place to deal with stress-related issues in disaster situations.

To address this gap, in 1998 PAHO/WHO brought experts together and created the Caribbean SMID Program (Stress Management in Disasters).

Although the SMID program was originally created to prevent and mitigate psychosocial problems among disaster response personnel, the methodology can be easily adapted and applied to the community at large, including children and adolescents.

The two new publications on this topic are entitled “*Stress Management in Disasters*” and “*Insights into the Concept of Stress*”. These practical texts can be used to prepare courses on the topic and offer guidance to help those who provide post-disaster mental health assistance.

Download the full text of these publications from www.paho.org/disasters/. A limited number of print copies is available. Contact the Editor of this Newsletter at the address on page 8. For more information on the SMID Program, see page 5.

Establishing a Mass Casualty System. Pan American Health Organization, 2001.



Many lives have been lost in mass casualty situations because resources were not mobilized efficiently. The challenge faced is this: the more scarce the resources, the more efficient the organization must be. This publication describes the steps to designing a mass casualty management system that will ensure the highest possible survival rate. It focuses on the involvement of police, firefighters, Red Cross, health center and hospital staff. If these professionals form part of the structure that is referred to as the mass casualty management ‘system’. in this publication, they can contribute to saving lives. This book was originally published in 1995 and had been out of print for some time. However, disaster managers and health care professionals continued to request this information and it was just reprinted. Request copies of this publication by e-mail from disaster-publications@paho.org or write to PAHO at the address on page 8. This publication can also be downloaded in PDF format at www.paho.org/disasters.



Manual para la mitigación de desastres naturales en sistemas rurales de agua potable (Spanish only). Pan American Health Organization, 2001.



Safeguarding drinking water systems from the effects of disasters is critical to maintaining public health in the aftermath of disasters. This publication focuses on mitigating the effects of disasters on rural drinking water systems, whose characteristics and layouts differ from those in urban areas. This publication explains the methodology of vulnerability analysis and how to conduct one and offers a practical example from a rural community in Ecuador. This publication, available in Spanish only, has been written primarily for technical and administrative personnel who work in these systems. Request copies of this publication by e-mail from disaster-publications@paho.org or write to PAHO at the address on page 8. This publication can also be downloaded in PDF format at www.paho.org/disasters.

Hospital Disaster Mitigation: From Words to Deeds

(from page 1)

Undoubtedly, Latin American and Caribbean countries have made progress during the last 15 years in making health facilities safer. Norms and building codes now set standards to safeguard the structural, non-structural and functional vulnerability of hospitals and health centers. Resolutions have been passed at high-level meetings, including the 1996 multi-agency Conference on Disaster Mitigation in Health Facilities. (Full text of the recommendations online at www.paho.org/english/ped/mitrecs.htm). Perhaps most important, knowledge about how to reduce vulnerability to disasters is being demystified as it spreads beyond the scientific community to all PAHO Member Countries.

However, the recent earthquakes in El Salvador demonstrate that despite the 1996 recommendations on disaster mitigation, more decisive action is needed to reduce the physical vulnerability of key health facilities. The losses sustained in El Salvador—the temporary loss of 1,917 beds or 39% of the installed capacity—are testimony to the need for greater political commitment and investment of resources.

The widespread dissemination of information and knowledge about disaster mitigation in the last decade has led to the creation of a critical mass of health professionals in the Americas who recognize that steps can be taken to lessen the effects of disasters. Consequently, an ever-increasing number of *existing* health facilities are setting

aside funds and conducting vulnerability analyses. However, it is surprising to note that when it comes to the design and construction of *new* hospitals, particularly those funded by bilateral or multilateral agencies, the same standards are not always applied. Too often they fail to take into account the risks posed by natural hazards, whether these be hurricanes, earthquakes or floods.

The most likely explanation for this lapse is inertia rather than an active resistance to change. Be that as it may, when many partners participate in negotiations, the leadership or responsibility for important aspects of a project—such as ensuring the safety of public buildings—is diluted and the end result is that public health suffers.

All parties, but above all the governments of nations in which new hospitals are being designed or constructed, have the ultimate responsibility for reducing vulnerability to disasters. They must ensure that, when accepting contributions from the donor community or loans from international lending institutions, the projects have taken into account the importance of keeping patients and staff safe and medical services operational when most needed. New health facilities must contribute to reducing the vulnerability to disasters—not compound it!

Evacuating patients from damaged health facilities or providing services in an improvised setting causes additional challenges for already overburdened health care providers.

Photo: A. Waak,
PAHO/WHO



LIDERES Course Slated to take Place in Costa Rica

(from page 1)

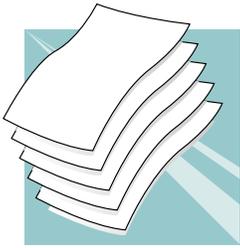
are now influenced by trends like globalization, decentralization and health sector reform, and the mass media and electronic communications. The LIDERES course provides tools geared to this new environment.

This year, the University of Geneva and the University of Costa Rica will co-host an eight-week course in San Jose on multi-hazard assessment for scientists in Latin America. This course will run concurrently with LIDERES and several sessions will be held jointly.

Presently the LIDERES course is only given in Spanish and this year's class roster is limited to 25

participants. The cost of registration, lodging and two meals a day is US\$2,950. This does not include airfare or incidental expenses. If you are interested in joining the LIDERES class of 2001, fill out the electronic registration form at www.disaster.info.desastres.net/LIDERES to fill out the electronic registration form or send a short curriculum vitae by fax or mail to Curso LIDERES, Emergency Preparedness Program, at the address listed on page 8. Please use the e-mail address curso-lideres@paho.org for all correspondence related to this course.

Thanks to an agreement between the Spanish Cooperation, Spain's Ministry of Health and PAHO, a second LIDERES course will be held in October in Colombia. This course will have a certain focus on the Andean Region, discussing topics such as complex emergencies and the displaced population.



Selected Bibliography

The articles listed in this section may be of interest to health professionals and others responsible for disaster preparedness, mitigation and relief. They have been reproduced and recently added to the collection of articles available from the Editor of this Newsletter. A complete list of reprints is available upon request. Please quote the reference code listed to the left of the publication title when requesting articles.

- C.2** Olson, R., Sarmiento Prieto, J.P., Olson, R., Gawronski, V., Estrada, A. "Marginación de las instituciones de respuesta en casos de desastre. La experiencia del fenómeno El Niño de 1997-98 en Perú, Bolivia y Ecuador". Natural Hazards Center, University of Colorado, 2000.
- C.3** Romero, Lorena. "Las municipalidades y el sector salud local en la gestión del riesgo por desastres". *Huracán Mitch: Una mirada a algunas tendencias temáticas para la reducción del riesgo*, pp. 106-125, EIRD, 2000.
- C.4** Ugarte, Ciro R. "Una experiencia interagencial del Sistema de las naciones Unidas en Honduras". *Huracán Mitch: Una mirada a algunas tendencias temáticas para la reducción del riesgo*, pp. 241-252, EIRD, 2000.
- C.5** Emergency Management Australia, "The Good Practice Guide: Community Awareness and Education in Emergency Management." 2000.
- C.6** Melching, Charles S. "Economic Aspects of Vulnerability." Comprehensive Risk Assessment for Natural Hazards, pp. 66-76, 1999.
- C.7** Prewitt Díaz, J., Saballos Ramírez, M. "Salud Psicosocial en un desastre complejo: el efecto del Huracán Mitch en Nicaragua".

Disasters: Preparedness and Mitigation in the Americas is the Newsletter of the Emergency Preparedness and Disaster Relief Coordination Program of the Pan American Health Organization, Regional Office for the Americas of the World Health Organization. The reported events, activities and programs do not imply endorsement by PAHO/WHO, nor do the statements made necessarily represent the policy of the Organization. The publication of this *Newsletter* has been made possible through the financial support of the International Humanitarian Assistance Division of the Canadian International Development Agency (IHA/CIDA), the Office of Foreign Disaster Assistance of the U.S. Agency for International Development (OFDA/AID), and the Department for International Development of the U.K.

Correspondence and inquiries should be addressed to:

The Editor
Disasters: Preparedness and Mitigation in the Americas
Pan American Health Organization
525 Twenty-third Street, N.W.
Washington, D.C. 20037, U.S.A.
Tel: 202-974-3522 • Fax: 202-775-4578
E-mail: disaster-newsletter@paho.org
www.paho.org/disasters/



Regional Disaster Information Center
Apdo. 3745-1000, San José, Costa Rica
Fax: (506) 231-5973
E-mail: crid@crid.or.cr
www.crid.or.cr

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Earthquake

EARTHQUAKES in EL SALVADOR

On Saturday, 13 January 2001, an earthquake with a magnitude of 7.6 on the Richter scale struck El Salvador. This was not the first time that this small and densely populated Central American nation (6.2 million inhabitants living in 21,000 km²) has suffered this fate. The capital of San Salvador has been left in ruins 11 times since the 16th century. Nor is El Salvador's vulnerability a unique case in Central America, as evidenced by the earthquakes in Nicaragua in 1972 and in Guatemala in 1976.

Exactly one month after the first quake, on 13 February, a second earthquake occurred. This quake, which measured 6.6 on the Richter scale, had a different epicenter and generated a new area of destruction in the central and rural part of the country.

Immediately following the first earthquake, 609 persons were reported dead and 2,400 injured. The official figures rose steadily to 827 dead, 4,520 injured and 67,000 displaced. Six hospitals were severely damaged. El Salvador had barely finished calculating its human and material losses from the January earthquake when the second quake struck, killing another 305, injuring 3,153, and damaging another five hospitals and 36 rural health centers. As tragic (and potentially preventable) as the loss of life was, the ratio of fatalities to houses destroyed (approximately 75,000) was low, due to the fact that the earthquake occurred at 11:23 in the morning.

Another 1 200 people were initially reported missing and presumed dead, primarily in Santa Tecla, the site of a massive landslide that buried 488 houses. In hilly Guatemala and El Salvador, landslides are the common result of earthquakes, making the slopes of steep hills particularly unfit for development.



Earthquakers will continue to occur, but there is no reason for hospitals to be out of service when they are most needed.

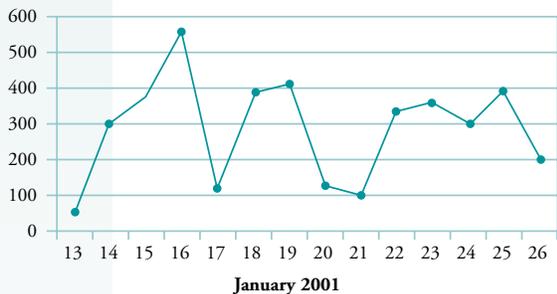
Photo: A. Waak, PAHO/WHO

Mass Casualty Management

As has been the case in past disasters in this region of the Americas, the medical response was swift and, in a demonstration of Panamericanism, involved most of Central America. In a matter of hours, medical teams from Guatemala and Honduras were operational in El Salvador. Later, teams from Mexico, Peru, Colombia and other countries provided so many volunteers that at the principal shelter for the displaced, Cafetalon, there was one doctor for every 100 uninjured survivors.

Compounding the massive task of attending to a large number of injuries (most, however, were not life threatening), the unusually high proportion of lost hospital beds saturated the capacity of El Salvador's remaining unaffected facilities countrywide.

Cases of trauma reported by the Ministry of Health of El Salvador



Daily reports of trauma cases by El Salvador’s epidemiological surveillance system ranged from a low of 74 on the first day to a high of 566 on the fourth day (see figure above). This curve, however, reflects the unavoidable delays encountered in collecting and compiling data following a catastrophic event more than it indicates the occurrence of trauma over an extended period of time.

Communicable Diseases

Just prior to the disaster, the epidemiological situation in El Salvador was extremely alarming. According to the Department of Epidemiology of the Ministry of Health, between weeks 48 and 50 of 2000, there was an increase of approximately 500 cases per day of diarrhea. In this instance, rotavirus was determined to be the cause. Between 23 December 2000 and 2 January 2001, 700 cases a day of diarrheal disease were reported. Laboratory analysis confirmed that 61% were caused by rotavirus. Eighty percent of the victims were children under five years of age. To complicate matters further, vector control measures to prevent dengue were overdue and a routine immunization campaign was scheduled for January to consolidate measles eradication in the Region.

Instead of causing health authorities to take extravagant and ineffective measures, the earthquakes actually boosted their will to move forcefully and strengthen or resume time-proven control measures: routine and well-planned immunization coverage; water quality control and sanitation; food safety; and vector control.

Water and Sanitation

As noted in other earthquakes, the availability of safe drinking water following a disaster is a prime concern. In El Salvador, more than 1 million people were reported without water for several days. Damage to the water supply system in the urban area of San Salvador following the first earthquake was reportedly not extensive. However, the February earthquake, which primarily affected rural areas, had much more serious consequences for water supply systems. Providing chlorinated water to the displaced popula-

tion following a disaster requires not only equipment and material resources, but also expertise. Several countries and NGOs are highly specialized in providing technical assistance in this field. In future disasters, international assistance should perhaps focus less on providing medical doctors (which, as noted earlier, were present in excess in shelters) and more on providing field epidemiologists or water and sanitation engineers.

Management of Donations and International Assistance

In most instances, spontaneous expressions of solidarity from abroad present difficult coordination challenges for health and relief authorities. Although significant improvements in coordination and transparency were noted following the earthquakes, the health sector should play a greater role in the coordination of aid related to other sectors. With support from PAHO, Ministries of Health from neighboring donor countries consulted with extensively with authorities in El Salvador *before* dispatching supplies and personnel.



A resident of the Cafetalon shelter sorts through donated shoes. Once again, donations of clothing, food and other items of dubious worth underscore the fact that the affected community benefits more from cash, channeled through reputable agencies, than from most in-kind donations.

Photo: A. Waak, PAHO/WHO

The quality of donations also seems to have improved. One press report stated that only 15% of donated medical supplies was inappropriate. Although this exact figure could not be confirmed, it was most likely within an accepted range and represents a major improvement in international post-disaster aid worldwide. The fact that prior to the disaster El Salvador had established clear policy guidelines for diplomatic and consular officials abroad regarding donations also helped to stem some of the most unwanted donations.

In the early stages of the emergency, El Salvador activated the SUMA system to inventory, classify and account for all humanitarian supplies. More than 40 national experts, with support from FUNDESUMA, a specialized NGO headquartered in Costa Rica, sorted items according

to priority and registered incoming in-kind donations, contributing to greater transparency and efficiency in the management of resources.

Damage to Health Infrastructure

A team of experts from the WHO Collaborating Center on Disaster Mitigation in Health Facilities in Santiago, Chile helped to carry out an initial assessment of damages. This rapid overview permitted the reopening of hospitals where damages were more cosmetic than life threatening. The following table lists the seven most affected hospitals.

Hospital	Number of Beds	Post-earthquake situation*
San Rafael (3rd level hospital)	222	Severe damages, partially operating outside
Maternidad	308	Damage to obstetrics wing and elevators
Rosales	531	Surgical center out of order
1 de Mayo	239	Obstetric services evacuated
Oncología	52	Totally evacuated
S. Juan de Dios San Miguel	390	Operating outdoors
S. Pedro de Usulután	130	Operating outdoors

*Situation observed during the evaluation of damages carried out by the Ministry of Health, 16 January 2001

Source: WHO Collaborating Center from the University of Chile

The temporary loss of 1,917 beds (39% of the installed capacity) was due to several factors:

- Structural damage that required major repairs or the construction of a new facility. This can be prevented only by performing an in-depth vulnerability analysis and undertaking costly retrofitting measures.
- Non-structural damage, such as destroyed equipment, walls or support systems, that rendered the hospital non-functional for a temporary period of time. Measures to protect against non-structural losses are more economical to enact but require a strong and sustained commitment at the political and administrative level.
- Preventive evacuation, which is sometimes unnecessary or unduly prolonged by unfounded fears for safety. Ranking hospitals according to their vulnerability would help to identify which structures should be evacuated and which are structurally sound and comply with the latest norms. The latter should not be evacuated as a preventive measure, as they were designed to operate without interruption. Once an unnecessary evacuation has taken place, the return is problematic.

Several problems delayed the reopening of structurally sound facilities. Field hospitals that were sent from abroad—a highly visible but not cost-effective form of external assistance—were one of the problems. In several instances, engineers and maintenance personnel were diverted from other more pressing tasks to set up these complex

facilities, which are better suited for conflict situations or complex disasters than as a substitute for a modern facility.

Information Management

Providing reliable and technically sound information in a highly emotional and political environment is generally a challenge for the UN and PAHO/WHO. From the first day, joint teams of health professionals and PAHO/WHO staff visited the most affected areas and initiated a systematic assessment of current and projected needs. The latter is perhaps more critical, as aid from the external world often arrives too late to meet immediate or imminent needs.

Although PAHO/WHO has carried out field assessments in all past disasters, what has changed dramatically in the last few years, including in El Salvador, is the prompt use of the World Wide Web as a key tool for dissemination of information to the international community. The Government of El Salvador made remarkable use of the Internet to guide external assistance toward perceived priorities. However, much remains to be learned about how to best use this powerful new technology in post-disaster response.

In the health field, and particularly in the area of communicable diseases, there is still confusion between providing statistics (data) and offering information that assists in decision-making. One lesson that became evident following the El Salvador earthquakes was that increased technical support is needed from epidemiologists and other information specialists to interpret daily reports and statistics and transform them into practical meaningful information for the public and decision-making tools for managers.

Mental Health

All disasters have a negative impact on the mental health of the affected communities. But in El Salvador, the second earthquake proved to be an unexpected shock, as most people believed that the frequency and intensity of the aftershocks would diminish with time. Twenty-five years ago, the mental health needs of disaster victims were met with the widespread use of drugs, a practice that has now been abandoned. Once a concern that was recognized and addressed only months after the impact, the psychosocial health of disaster victims is now addressed in the immediate aftermath. The Ministry of Health of El Salvador quickly stressed the need for counseling and the integration of mental health concerns into primary health care, definitely a more

modern and humane approach. Universities, NGOs and the American Red Cross collaborated with the Ministry of Health from the early post-disaster stage to provide support to the affected population.

Conclusion

Has the investment made in disaster preparedness over the last decades paid dividends? Did it help to make the response to the earthquakes in El Salvador more effective? The response to any large-scale disaster usually involves some degree of confusion. Regardless of its level of development or preparedness, no society is completely prepared to face a major disaster. In the case of El Salvador, most international observers believed that the existence of an active, dynamic (but understaffed and underfunded) disaster program in the Ministry of Health helped to minimize the lead time required to coordinate and guide the health response. In comparison to the earthquakes in Guatemala (1976) and ten years later in El Salvador (1986), considerable progress has been made. Statements by hospital directors regarding the positive impact of simulation exercises are anecdotal but encouraging.

Preparing to respond promptly and efficiently is no substitute to reducing one's vulnerability to disasters.

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Could the loss of life have been prevented? Earthquakes will continue to occur, but there is no reason for hospitals to be out of service when needed; for houses to collapse and kill their inhabitants; or for settlements to be located in landslide-prone areas. Although economic development is not a health sector responsibility, the health sector must play a more active role in advocating for disaster-resilient development. Preventing death and injuries is a health issue. We can and will learn from our errors and shortcomings only if we resist the temptation to forget them.

SUMA Makes Novel Use of the Internet in El Salvador Earthquake

El Salvador's National Emergency Committee (COEN) activated the country's national SUMA team, following the January earthquake, to sort inventory and classify incoming humanitarian relief at the anticipated points of entry. At the request of El Salvador's government, PAHO and FUNDESUMA, the NGO that manages SUMA's logistical operations, sent a support team from Costa Rica to help in this major operation.



The earthquake in El Salvador marked the first time SUMA used the Internet to alert a disaster-stricken country about what humanitarian aid is on the way. The Government of Colombia (whose national Red Cross Society helped to create the SUMA system and has been one of SUMA's strongest supporters in the Americas) used the specialized SUMA warehouse module to register donations that were collected by the Colombian Red Cross and Caracol, a local radio and TV station. Colombia then sent this detailed information via Internet to El Salvador's SUMA team, in *advance* of its actual arrival.

Similarly, the National Emergency Commission in Honduras (COPECO), in collaboration with the Red Cross and the Fire Department, activated its national SUMA team to register data on emergency supplies. As the supplies were en route to the neighboring country of El Salvador, Honduras' SUMA team also sent an advance report by Internet. This pattern of sending information on donations *before* the supplies actually arrive, using a common methodology and criteria for classifying and assigning priorities to the supplies, greatly aided the recipient country by allowing them to quickly get the most important and urgently needed aid to those who needed it.