Recommendations from the Technical Commission on Mitigation Measures for Earthquakes

27 FEBRUARY 1996

During the Technical Commission for Seismic Mitigation convened at the International Conference for Disaster Mitigation in Health Facilities, health professionals, engineers, and architects analyzed design, construction, and operational aspects of new health facilities and retrofitting existing ones in terms of effective disaster mitigation measures. The recommendations made by participants aim at the formulation of hospital mitigation plans, understanding hospital mitigation as those measures taken before a disaster occurs to reduce to a minimum human and material losses, reducing physical, organizational, and functional vulnerability to ensure that the hospital continues to function during and after a disaster.

The group recommends:

1. That it is necessary to mitigate the impact of earthquakes in health facilities through an effective reduction of structural, non-structural, and functional vulnerability. These elements are described as follows:
   Structural elements: Include all those elements that support the structure of a building (beams, columns, foundations, supporting walls, etc.).
   Nonstructural elements: Include all those elements that do not support the structure of a building and its contents, such as: architectural components (ceilings, windows), electrical and water connections, mechanical equipment, laboratory and medical equipment, and supplies.
   Functional and organizational aspects: Include design of physical space (site selection, better distribution of external and internal space, etc.), and organization (emergency plans, drills, multidisciplinary teams, etc.).

Hospital and maintenance staff can, for a minimal investment, protect critical nonstructural elements such as medical equipment and supplies, and water and power connections. Pictured are damages sustained during Hurricane Gilbert in 1988. ***(Photo: J. Vizcarra, PAHO/WHO)***

2. That mitigation concepts should be present from the moment of formulation of the project, both for new buildings and modifications of existing ones.

3. That vulnerability of a hospital should be considered from a global and multi-disciplinary perspective, focusing on design, construction, and operation of the hospital.

4. That even though the decision for implementation of disaster mitigation measures is mainly political, the technicians must provide for the decision-makers an estimation of the level of vulnerability in relation to intervention costs.

5. That countries should promote specific recommendations for the construction of safe health facilities, since current regulations do not

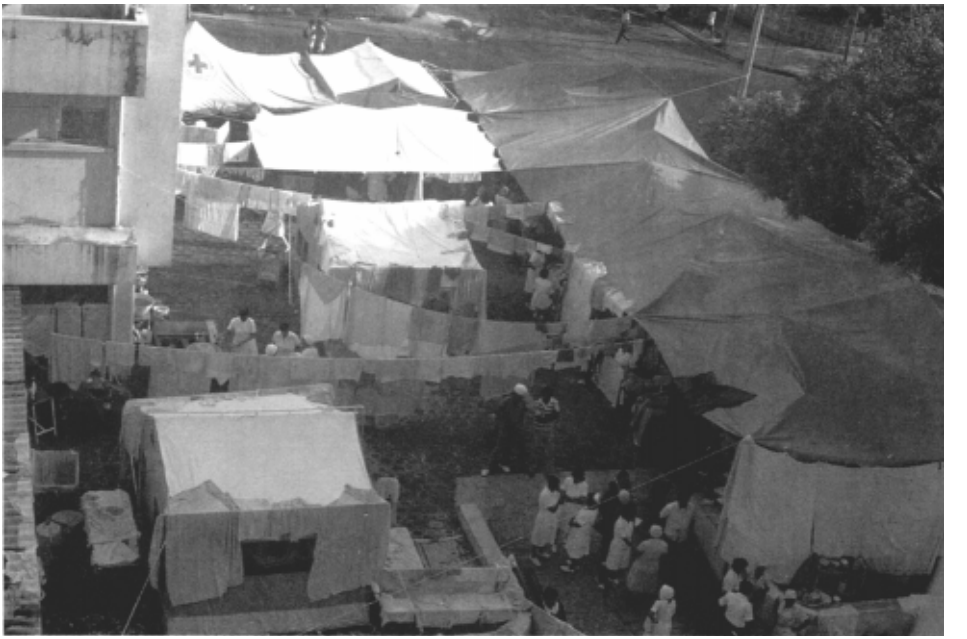
include provisions to guarantee the functionality of the hospital after an earthquake.

6. That accreditation of hospitals should include vulnerability evaluation.

7. That countries should request PAHO to continue its program on disaster mitigation in health facilities in the areas of promotion, training, and regular evaluation of achievements. There is an urgent need for the experiences in several countries with mitigation projects to be compiled and disseminated in the Region.

8. That disaster mitigation and vulnerability reduction for health facilities should be promoted in universities and professional associations.

9. That the design of health facilities should include seismic risk analysis, soil and site conditions, and estimates of expected losses. Experience has



One aim of the Conference was to highlight the need for hospitals to remain functional as well as standing after a disaster. In El Salvador, patients had to be treated in tents erected on the hospital grounds after the 1986 earthquake. ***(Photo: C. Gaggero, PAHO/WHO)***

shown that the inclusion of these factors does not increase project costs by more than 5%.

10. That cost should not be the main factor when deciding upon design of new projects or reinforcement of existing facilities. The terms of reference should include technical and safety criteria.

11. That the need for retrofitting existing hospitals should be based on a cost/benefit analysis in relation to an acceptable level of risk.

12. That priority criteria in selecting hospitals for vulnerability reduction should include: risk level, hospital complexity, and population served. The use of hospitals classified as "high risk" should be limited as long as mitigation measures are not implemented to protect the lives of their occupants.

13. That countries should try to obtain credit and grants from financial institutions, to be used in prevention and mitigation activities for health facilities.

14. That governments and institutions should provide funds for maintaining health facilities to avoid deterioration and consequent increase of vulnerability.

15. That financial institutions should require countries to include minimum disaster mitigation criteria in the preparation of investment projects for health infrastructure.