Hospitals Safe from Disasters:

Public opinion: the ultimate decision maker

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A long history of damage to health facilities

In just a 15-year period in Latin America and Caribbean:

- **93 hospitals and 538 health units were damaged by natural disasters.**
- **According to ECLAC, economic losses were greater than US$ 3.1billion.**

Each disaster comes with its unique story of human errors

Hospital Juarez in Mexico, 1985

A major search and rescue operation

- **561 bodies recovered over a period of 38 days**
- **Children rescued alive 7 days after the impact**

The real lesson learned:
Medical contingency planning is not sufficient

- In 1984: The PEMEX LPG terminal explosion killed over 500 persons in the city.
- Medical response to burn injuries was poor and uncoordinated
- Hospital Juarez (and other hospitals) had been the target of mass casualties training

El Salvador Earthquake 2001

Risk Reduction

- Hospitals are centuries old. There was little incentive to invest in costly retrofitting
- Case studies of vulnerability did not trigger corrective action
- Emphasis was on preparedness and, in particular, evacuation procedures and drills

Evacuation after the 2001 earthquake

- Most hospitals in the capital, including relatively modern and safe installations, were "spontaneously" evacuated.
- Once evacuated, return to normal operations was problematic.
- Many factors from fear to greed played a role.

Temporary Hospitals

- Reconstruction is always taking more time than expected.
- Field hospitals did not meet requirements for mid term temporary facilities.
- Earthquake resistant design is not automatically built in the process of reconstruction

Cyclone in the Caribbean

Protecting from cyclones

- Wind and flood protection is simpler and more economical than mitigation against earthquakes
- However, for decades, mitigation measures were not implemented. One hospital lost its roof ten times over 35 years!

Cyclone in Jamaica

Damage from cyclones

- Damage may be extensive but structural collapse is rare.
- Cost is in economic and public health terms, not directly in lives lost

Floods: Argentina

Santa Fé, Argentina

- Poor design of levees
- Modern facility on land donated by the municipality
- Conflict between convenience and safety of location

Haiti: Flash food

- Patients trapped in wards died
- The only hospital in the city
- Repaired: as vulnerable as ever

Montserrat Volcanic Eruption

Losses are not limited to the Americas

Gujarat, India (2001)
Hospital in Grave

Bam Earthquake (Iran, 2003)

Bam new hospital (under construction)

Last minute improvements

Goma, Congo

Pakistan 2005

Tsunami in Indonesia

Hospitals need not be physically damaged to be out of operations

Vulnerability of Hospitals

In developed countries	In less advanced countries
• Losses are mostly economic	• High fatality and economic losses in public facilities
• Standards are strict and evolving	• No specific standards for hospitals and others unenforced
• Public and political support are present	• Public awareness and support lacking

SAFE HOSPITALS IN LATIN AMERICA:

THE PRECURSOR OF THE ISDR CAMPAIGN

WHO and PAHO interest in mitigation of damages to health facilities started in the Americas following the 1985 Mexico earthquake.

The trigger

- **Before 1985, safety of hospitals was not a concern for health managers.**

A long process has been initiated…

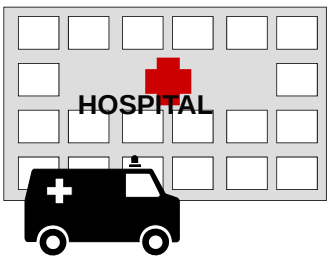
- **First step was raising awareness and commitment within PAHO itself in order to broaden our technical cooperation… (several years…)**

A long process

- **Next: To build a technical basis on hospital safety in low income countries**
  - **A. A core team experts in Latin America and the Caribbean…leading to a collaborating Center in Chile**
  - **B. A set of manuals and guidelines**

Identifying activities & goals

- **vulnerability analysis**
- **improved design of new facilities**
- **retrofitting existing facilities**



PAHO/WHO sponsored analysis of vulnerability of specific facilities… (not always a productive step)

Technical print and video material

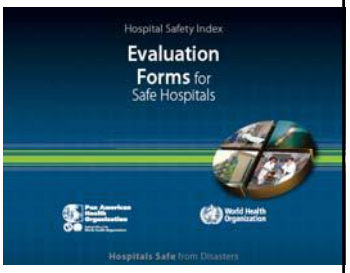
- Broad and free proactive distribution
- Coproduction with ISDR and the World Bank

PAHO Hospital Safety Index

•A rapid, reliable and low-cost diagnostic tool.

•Easy to apply by a trained team of engineers, architects and health professionals.

•Results take into account the safety level of structural, nonstructural and functional components.



http://www.paho.org/english/dd/ped/home.htm

Hospital Safety Index

- Safe Hospitals Checklist (Evaluators' Guide)
- Scoring module (calculator)
- The result: a score for a health facility's level of safety

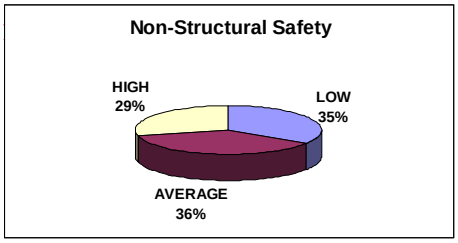
What the Checklist Evaluates

- Location (geological, hydro-meteorological, environmental etc)
- Structural safety (history of the buildings, structural systems, construction materials etc)
- Non-structural safety (electrical, communications water supply systems etc.)
- Organization and management (disaster plans, EOC, preventive maintenance, etc.)

Scoring Module Used to Obtain Results

- Different weight applied to each item
  - Structural safety 50%
  - Non-structural safety 30%
  - Functional safety 20%
- Formulas applied automatically

Yields safety score for each component



Assessment of the Health Facility

Category	Unlikely to function	Likely to function	Highly likely to function	Total
Structural	7.50	24.38	18.13	50.00
Non-structural	10.36	10.98	8.67	30.00
Functional	6.93	6.92	6.15	20.00
Total	24.79	42.37	32.94	100.00

The Result

Safety Score	Category	What should be done?
0 – 0.35	Category C	Urgent measures are required immediately, as the health facility's current safety levels are not sufficient to protect patients and staff during and after a disaster event.
0.36 – 0.65	Category B	Necessary measures are required at some point, as the health facility's current safety levels can potentially put at risk patients and staff during and after a disaster event.
0.66 – 1	Category A	Preventative measures are suggested at some point, as the health facility's current safety levels can cause acceptable damages, which nevertheless reduce the overall safety level of the installation.

Result for this facility: Category B

Learning from case studies

- **Documenting health facilities failures following natural disasters**
- **Documenting success stories in risk reduction (eg: Costa Rica)**

- **Hospital de Niños,**
  - **US$ 1,100,000 i.e 4.2% of the hospital cost**
- **Hospital México**
  - **US$ 2,350,000 i.e. 7.8% of the hospital cost**

Lessons learned by PAHO

- **The technical and scientific issues are easily addressed but are insufficient to effect changes**

Lessons learned by PAHO

- **The key challenge: low public awareness and political support in countries faced with competing priorities**

Lessons learned

- The decision makers are not from the health sector
- Major disasters offer a window of opportunity for incremental progress

A long process

- International Conference on Disaster Mitigation in Health Facilities (Mexico, 1996)
  - Political awareness was lacking
  - Commitment of financing institutions was inexistent
  - There was a need to build a special case for risk reduction in health facilities

Lesson learned: A Piecemeal approach does not work

- Preparedness alone
- Vulnerability survey alone
- Non-structural measures alone

Authorities are not fully convinced by the economic argument….

- Average cost estimates of protective measures are variable and questionable
- Case studies focus on losses avoided in the few affected hospitals but disregard "unproductive" investment in facilities not affected by a disaster

Direct Versus Indirect Costs

(ECLAC Methodology)

- Indirect costs are more difficult to estimate:
  - Efficiency losses
  - Temporary services: field hospitals, etc.
  - Lost income and business productivity
  - Long term public health impact…

Temporary facilities are costly

Bam earthquake:

- The cost of the dispatch of 12 foreign field "hospitals" was over $12Million (reports to OCHA)
- The permanent reconstruction of all health facilities, nursing school and accommodation for staff and students was estimated at $12.7 M

The moral argument

- Secure access to safe health facilities is a right as implied in WHO definition of health as a "state of well being"
- DRR should not be contingent upon an economic return on the investment

Hyogo Framework for Action

World Conference on Disaster Reduction 2005

HFA (2005) Key activities

- *" Integrate disaster risk reduction planning into the health sector; promote the goal of "hospitals safe from disaster" by ensuring that all new hospitals are built with a level of resilience that strengthens their capacity to remain functional in disaster situations and implement mitigation measures to reinforce existing health facilities, particularly those providing primary health care"*

A process initiated in a region becomes a global priority

ISDR assumes the leadership

ISDR Public Awareness Campaigns

- 2006-2007: Schools safety
- 2008-2009: Safe hospitals

Hospitals are different from schools or other essential utilities

- Hospitals are occupied 24 hours a day, 7 days a week.
- Evacuation is very difficult

Medical equipment may cost more than the building

- The survival of the occupants depends on the continuity of the services.
- Health facilities should remain operational in the immediate aftermath of disasters

The highest level of building protection

- Protection of life: the building should not collapse and kill the occupants
- Protection of the capital: Damage should not affect the structure and …the investment
- Protection of the function: the building should remain operational

Our expectations from the Campaign

- Multisectorial visibility and credibility to the issue
- Reach non-health decision makers and public opinion
- Make politically difficult to design and build new facilities without considering the risk factor

A time-limited campaign

The health sector and WHO must prepare themselves to follow up and maintain / expand the progress achieved by the campaign.

Past tragedies should not be repeated

Little progress will be achieved without an educated public:

The public opinion is the ultimate decision maker.

Thank you for your attention