

Hospital Safety Index

Hospitals Safe from Disasters

EM Forum ♦ October 22, 2008



**Pan American
Health
Organization**

Regional Office of the
World Health Organization

This is a problem that *can* be solved...

- Tools are available to reduce risk
 - ▶ Technical publications on vulnerability reduction in health facilities
 - ▶ Courses on Hospital Disaster Planning
 - ▶ Advocacy print and audiovisual material
 - ▶ **Hospital Safety Index**



What is the Hospital Safety Index?

- Rapid, reliable and low-cost diagnostic tool
- Easy to apply by a trained team of engineers, architects and health professionals
- Values entered in a spreadsheet (mathematic model)
- Four components: Location, Structural, Non-Structural and Functional
- 145 items or areas are assessed
- Three categories of safety: High, Average and Low



What the Checklist Evaluates

- **Location** in relation to hazards (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.)



SAFE HOSPITALS CHECKLIST

Geographic location (mark with an X where applicable).

1.1 Hospital location Request the hospital team to provide the map(s) showing hazards at the site of the building.	Safety Level Note: ranking indicates the level of SAFETY, NOT risk.			
	NO HAZARD	YES		
		LOW	AVERAGE	HIGH
1.1.1 Geological phenomena				
Earthquakes Rate the safety level of the hospital in terms of geological and soil analyses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Volcanic eruptions Refer to hazard maps to rate the safety level of the hospital in terms of its proximity to volcanoes and volcanic activity, lava and pyroclastic flow, and ash fall.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landslides Refer to hazard maps to rate the safety level of the hospital in terms of landslides caused by unstable soils (among other causes).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tsunamis Refer to hazard maps to rate the safety level of the hospital in terms of previous tsunami events caused by submarine volcanic or seismic activity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Non-structural safety

3.1 Critical systems	Safety Level		
Electrical system	LOW	AVERAGE	HIGH
<ul style="list-style-type: none"> Generator has capacity to meet 100% of demand. <p>Verify that the generator begins to operate within seconds of the hospital losing power, covering power demands in the emergency department, intensive care unit, disinfection and sterilization unit, surgery, etc.</p> <p><i>Low = 0–30%; Average = 31–70%; High = 71–100%</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Performance of generator tested regularly in critical areas. <p><i>Low = > 3 months; Average = 1–3 months; High = < 1 month.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Generator protected from potential damage due to natural phenomena <p><i>Low = No; Average = Partially; High = Yes.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Scoring Calculator

2.1 History of facility's safety		CONTROL	Safety Level		
			LOW	AVERAGE	HIGH
1	<p>Has has been prior structural damage to the hospital as a result of natural phenomena Determine whether structural reports indicate that the level of safety has been compromised. If no natural phenomena has occurred in the last 30 years, do not fill in any box – leave blank.</p> <p><i>Low = Major damage; Average = Average/moderate damage; High = Minor damage.</i></p>	BLANK			
2	<p>Was the hospital built and repaired using current safety standards?</p> <p>Verify whether the building was repaired, the date of repairs, and whether repairs were carried out using current standards for safe buildings.</p> <p><i>Low = Standards not applied; Average = Standards partially applied; High = Standards fully applied</i></p>	ERROR	1	1	
3	<p>Has the hospital been adapted or remodeled or modified affecting the structural behavior of the building? Verify whether modifications were carried out using current standards for safe buildings</p> <p><i>Low = Major remodelling or modifications have been carried out; Average = Average/moderate modifications; High = Minor changes or no remodelling or modification was needed.</i></p>	OK			1

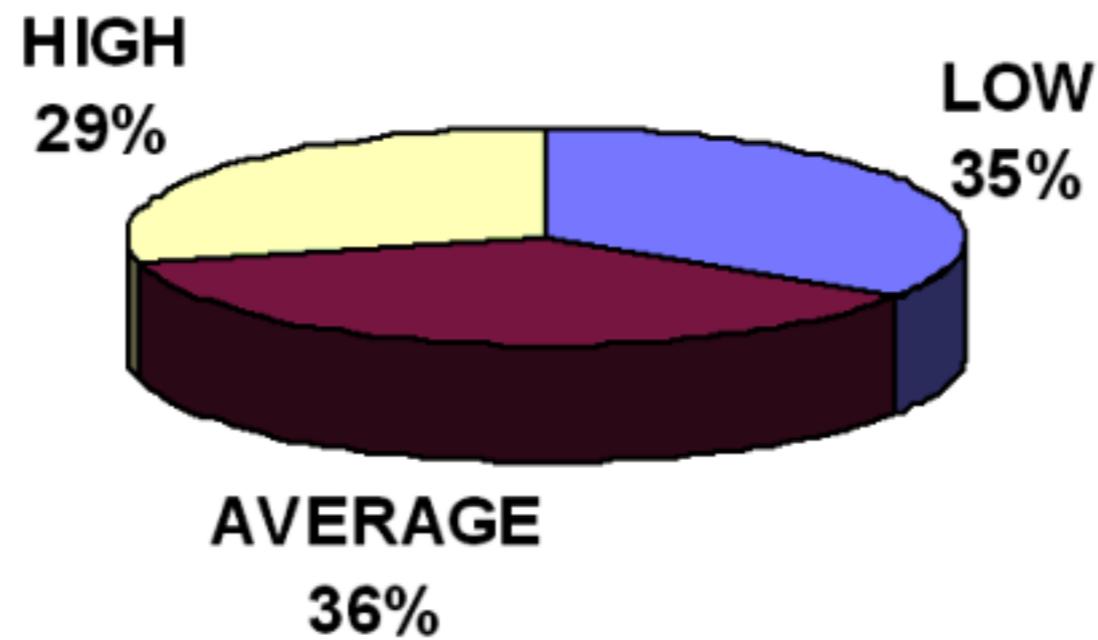
Assessment of the Health Facility

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



Safety of Non-structural Elements

Non-Structural Safety



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**



Role of the Evaluators

Advocacy

- Preliminary meetings with senior managers to explain the rationale and purpose of the “Safe Hospitals Initiative” and the assessment.
- Assurances of confidentiality of the results.



Role of the Evaluators

Interpretation of the results

- Able to explain the basic methodology of scoring the instrument.
- Able to analyze the results, identify and justify priorities based on these.



The good news...

- Well-built or retrofitted hospitals **have** remained functioning following disasters.
- The health sector is working hard to improve the safety health facilities.
- The knowledge exists to assess vulnerability and reduce risk in health facilities.



Two realities...



One choice.

