Safe Hospitals Checklist

Pan American Health Organization
Regional Office of the World Health Organization

Area on Emergency Preparedness and Disaster Relief

SAFE HOSPITALS CHECKLIST

1. Elements relating to the geographic location of the health facility to be evaluated (mark with an X where applicable).

1.1 Hospital location Refer to hazard maps. Request the hospital committee to provide the map(s) showing hazards at the site of the building.	**Safety Level** The following elements indicate the level of SAFETY, NOT of hazard.			
	NO	YES		
		LOW	AVERAGE	HIGH
1.1.1 Geological phenomena				
• **Earthquakes** Rate the safety level of the hospital in terms of geological and soil analyses.	☐	☐	☐	☐
• **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.	☐	☐	☐	☐
• **Landslides** Refer to hazard maps to rate the safety level of the hospital in terms of landslides caused by saturated soils (among other causes).	☐	☐	☐	☐
• **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.	☐	☐	☐	☐
• **Others (specify)** Refer to hazard maps to identify other geological phenomena not listed above. Specify the hazard and rate the corresponding safety level of the hospital.	☐	☐	☐	☐
1.1.2 Hydro-meteorological phenomena				
• **Hurricanes** Refer to hazard maps to rate the safety level of the hospital in terms of hurricanes. It is helpful to take into account the history of such events when rating a facility. *[I disagree.]*	☐	☐	☐	☐
• **Flooding** Identify previous events that did or did not cause flooding in or around the hospital. Rate the safety level of the hospital in terms of such events.	☐	☐	☐	☐
• **Storm surge** Identify previous events that did or did not cause flooding in or around the hospital. Rate the safety level of the hospital in terms of such events.	☐	☐	☐	☐
• **Landslides** Refer to geological maps to rate the level of safety of the hospital in relation to landslides caused by saturated soils.	☐	☐	☐	☐
• **Others (specify)** Refer to the hazard maps to identify other hydro-meteorological phenomena not listed above. Specify the hazard and rate the corresponding safety level of the hospital.	☐	☐	☐	☐

1.1.3 Social phenomena				
• **Population gatherings** Rate the safety level of the hospital taking into account its location, the type of population it serves, and its proximity to population gatherings.	☐	☐	☐	☐
• **Displaced populations** Rate the safety level of the hospital considering people who have been displaced as a result of war, socio-political circumstances, or due to immigration and emigration.	☐	☐	☐	☐
• **Others (specify)** If other social phenomena affect the safety of the hospital, specify them and rate the safety of the hospital accordingly.	☐	☐	☐	☐
1.1.4 Environmental sanitation phenomena				
• **Epidemics** With reference to any past incidents at the hospital and specific pathogens, rate the safety level of the hospital in terms of epidemics.	☐	☐	☐	☐
• **Contamination (systems)** With reference to any past incidents involving contamination and specific pathogens, rate the safety level of the hospital in terms of contamination of its systems.	☐	☐	☐	☐
• **Infestations** With reference to the location and past incidents at the hospital, rate the safety level in terms of infestations (flies, fleas, rodents, etc.).	☐	☐	☐	☐
• **Others (specify)** With reference to any past incidents at the hospital specify any other environmental sanitation phenomena not included above that might compromise the level of safety of the hospital.	☐	☐	☐	☐
1.1.5 Chemical and/or technological phenomena				
• **Explosions** Refer to maps showing the hospital's location as well as the building interior, and rate the level of hospital safety in the case of explosions.	☐	☐	☐	☐
• **Fires** Refer to maps of the hospital's location as well as the building interior and rate the level of hospital safety in the case of fire.	☐	☐	☐	☐
• **Leak of hazardous materials** Refer to maps of the hospital's location as well as the building's interior and rate the level of hospital safety in the case of hazardous material leaks.	☐	☐	☐	☐
• **Others (specify)** Considering any past events at the hospital, specify any other chemical or technical hazard not included above that might compromise the level of safety of the hospital, and rate the level of safety to such hazards.	☐	☐	☐	☐

1.2 Geotechnical properties of the soil	Safety Level			
	NO	LOW	AVERAGE	HIGH
• **Liquefaction** Refer to the geotechnical soil analysis and rate the level of hospital safety in terms of risks posed by saturated and loose subsoils.	☐	☐	☐	☐
• **Clay soils** Refer to soils maps and rate the level of hospital safety in terms of hazards posed by clay soils.	☐	☐	☐	☐
• **Unstable slopes** Refer to geologic maps, noting the presence of slopes that could affect the hospital's safety.	☐	☐	☐	☐

Comments on Section 1. The evaluator should use the space below to comment on the results of this section (1), and provide his/her name and signature.

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Name/signature of evaluator _____

2. Structural safety of the building

Columns, beams, walls, floor slabs, etc., are structural elements that form part of the load-bearing system of the building. These elements should be evaluated by structural engineers.

2.1 History of facility's safety	**Safety Level**		
	LOW	AVERAGE	HIGH
• **There 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. *Low = Major damage; Average = Average/moderate damage; High =Minor damage.*	☐	☐	☐
• **Has the hospital been repaired or built using current safety standards?** Verify whether the building has been repaired, the date of repairs, and whether repairs were carried out using current standards for safe buildings. *Low = Standards not applied; Average = Standards partially applied; High = Standards fully applied*	☐	☐	☐
• **Has the hospital been remodelled or modified?** *Low = Major remodelling or modifications have been carried out; Average = Average/moderate modifications; High = Minor changes;*	☐	☐	☐
2.2 Safety of the structural system and type of materials used in the building	**Safety Level**		
	LOW	AVERAGE	HIGH
• **Construction quality** *Low = Deterioration caused by weathering; cracks on the first floor; Average = Deterioration caused only by weathering; High = Good; no deterioration or cracks observed.*	☐	☐	☐
• **Condition of building materials** *Low = Rust with flaking; cracks larger than 3mm; Average = Cracks between 1 and 3 mm; rust powder present; High = Cracks less than 1 mm; no rust.*	☐	☐	☐
• **Interaction of nonstructural elements with the structure** *Low = Separation is less than 0.5% of the height of the shorter building; Average = Separation is 0.5%–1.5% of the height of the shorter building. High = Separation is more than 1.5% of the height of the shorter building.*	☐	☐	☐
• **Proximity of buildings (hazards of pounding, wind tunnel effects, fires, etc.)** *Low = Separation is less than 0.5% of the height of the shorter of two adjacent buildings; Average = Separation is between 0.5% and 1.5% of the height of the shorter of two adjacent buildings; High = Separation is more than 1.5% of the height of the shorter of two adjacent buildings.*	☐	☐	☐
• **Structural redundancy** *Low = Less than three lines of resistance in each direction; Average = Three lines of resistance in each direction or lines without orthogonal orientation; High = More than three lines of resistance in each orthogonal direction of the building.*	☐	☐	☐
• **Structural detailing including connections** *Low = Built before the 1970s; Average = Built in the 1970s or 1980s; High = Built in the 1990s or later*	☐	☐	☐

• **Safety of foundations** *Low = Information is lacking; foundation depth is less than 1.5 m; Average = Plans and soil analysis are lacking; foundation depth is more than 1.5 m; High = Plans, soil studies are available; foundation depth is more than 1.5 m.*	☐	☐	☐
• **Irregularities in the plan (rigidity, mass, and resistance)** *Low = Shapes are irregular and structure is not uniform; Average = Shapes are irregular but structure is uniform; Average = Shapes are regular and structure has uniform plan.*	☐	☐	☐
• **Irregularities in elevation (rigidity, mass, and resistance)** *Low = Stories with different heights, discontinuous, irregular elements; Average = Stories with similar heights (they do not differ by more than 20%); there are no discontinuous or irregular elements. High = Stories of similar height (they do not differ by more than 20%); there are no discontinuous or irregular elements.*	☐	☐	☐
• **Structural adaptation to various phenomena (meteorological, geological, among others)** *The evaluation will be similar but focused on given events (for example, hurricanes and floods).*	☐	☐	☐

Comments regarding results of section 2:_____

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Name/signature of evaluator_____

3. Elements related to non-structural safety

These elements do not form part of the load-bearing system of the building. They include architectural elements, equipment, and necessary systems for the operation of the building.

3.1 Critical systems	Safety Level		
	LOW	AVERAGE	HIGH
3.1.1 Electrical system			
• **Generator has capacity to meet 100% of demand.** 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. *Low =0–30%; Average = 31–70%; High = 71–100%*	☐	☐	☐
• **Ongoing assessments of generator performance are carried out in critical areas.** *Low = > 3 months; Average = 1–3 months; High = < 1 month.*	☐	☐	☐
• **Generator protected from damage due to natural phenomena** *Low = No; Average = Partially; High = Yes.*	☐	☐	☐
• **Safety of electrical cables** *Low = No; Average = Partially; High = Yes.*	☐	☐	☐
• **Backup system for local electric power service** *Low = No; Average = Partially; High = Yes.*	☐	☐	☐
• **Protection for control panel, overload breaker switch, and cable** Check the accessibility as well as condition and operation of the electrical control panel. *Low = No; Average = Partially; High = Yes.*	☐	☐	☐
• **Lighting system for critical areas of the hospital** Review lighting for emergency unit, intensive care unit, sterilization and disinfection unit, surgery, etc., testing the level of lighting and function of lighting fixtures. *Low = No; Average = Partially; High = Yes.*	☐	☐	☐
• **External electrical systems installed on hospital grounds** Determine whether there are electrical substations or transformers that interfere with the safety level of the hospital. *Low =No electrical substation installed on hospitals grounds; Average = Substations installed but does not provide enough power to hospital; High = Electrical substation installed and provides enough power to the hospital.*	☐	☐	☐
3.1.2 Telecommunications system			
• **Technical condition of antennas and antenna bracing** Verify that antennas and lightning rods have bracing/supports that increase the safety level of the hospital. *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
• **Technical condition of low current systems (Internet connections/cables)** Verify that cables are properly connected in strategic areas to avoid system overload. *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐

• **Technical condition of alternative communication system** *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
• **Technical condition of anchors and braces for equipment and cables** Verify that telecommunications equipment are anchored for increased security. *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
• **Technical condition of external telecommunications systems installed on hospital grounds** Verify that no exterior telecommunications systems interfere with the safety level of the hospital. *Low = No external communications system installed; Average = External communications system installed but not fully operational; High = External communications installed and fully operational.*	☐	☐	☐
• **Site has adequate conditions for telecommunications systems.** *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
• **Safety of public communications systems.** *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
3.1.3 Water supply system			
• **Water tank has sufficient reserve to provide at least 300 litres daily per bed for 72 hours** Verify that water storage is sufficient to satisfy user demand for three days. *Low = Sufficient for 24 hours or less; Average = Sufficient for more than 24 hours but less than 72 hours; High = Guaranteed to cover at least 72 hours.*	☐	☐	☐
• **Water storage tanks are in protected site** Visit the water tanks to determine the safety of the installations and of the site. *Low = The site is susceptible to structural or nonstructural failure; Average = Failure would not cause collapse of structure; High = Low possibility of functional failure.*	☐	☐	☐
• **Alternative water supply system to major distribution network.** Identify the agency responsible for timely restoration of water service in case the system fails and service is interrupted. *Low = Provides less than 30% of demand; Average = Provides 30% but less than 100% of demand; High = There is a source certified to supply 100% of daily demand.*	☐	☐	☐
• **Safety of water distribution system (valves, pipes, connections)** Ensure proper function of storage cisterns (free of leaks and harmful agents). *Low = Less than 60% are in good operational condition; Average = between 60% and 80% are in good condition; High = Above 80% are in good condition.*	☐	☐	☐
• **Supplementary pumping system** Identify the agency responsible for timely restoration of service in case the system fails and service is interrupted. *Low = There is no back-up pump and operational capacity does not meet daily demand; Average = All pumps are in satisfactory condition; High = All pumps and back-up systems are operational.*	☐	☐	☐

3.1.4 Fuel storage (gas, diesel)			
• **Fuel tanks have at least 5-day capacity** Verify that the hospital has a fuel storage tank of adequate size and safety. *Low = Less than 3-day capacity; Average = 3- to 5-day capacity; High = Capacity for 5 or more days.*	☐	☐	☐
• **Fuel tanks and/or cylinders are anchored and in secure location** *Low = There are no anchors and the tank enclosure is unsafe; Average = Anchors are inadequate; High = Anchors are in good condition and the tank enclosure is adequate.*	☐	☐	☐
• **Fuel storage is accessible and in secure location** Verify that the tanks containing flammable liquids are accessible but at a safe distance from the hospital. *Low = There is a risk of failure or tanks are not accessible; Average = One of the two conditions have been met; High = The fuel storage tanks are accessible and they are located in a secure site.*	☐	☐	☐
• **Safety of the fuel distribution system (valves, pipes, and connections)** *Low = Less than 60% of system is in good operational condition; Average = between 60% and 80% of system is in good operational condition; High = More than 80% of system is in good operational condition.*	☐	☐	☐
3.1.5 Medical gases (oxygen, nitrogen, etc.)			
• **Sufficient storage for minimum of 15-day supply** *Low = Less than 10-day capacity; Average = Capacity for between 10 and 15 days; High = Capacity for at least 15 days.*	☐	☐	☐
• **Anchors for tanks, cylinders, and related equipment** *Low = Anchors are lacking; Average = Quality of anchors is inadequate; High = Anchors are of good quality.*	☐	☐	☐
• **Availability of alternative sources of medical gases** *Low = Alternative sources are lacking or are in poor condition; Average = Alternative sources exist but their condition is below standard; High = Alternative sources exist and are in good condition.*	☐	☐	☐
• **Secure and accessible enclosure for medical gases** *Low = There is no access to enclosure; Average = There is access but hazards exist; High = The enclosure is accessible and there are no hazards*	☐	☐	☐
• **Safety of medical gas distribution system (valves, pipes, connections)** *Low = Less than 60% of system is in good working condition; Average = Between 60% and 80% of system is in good working condition; High = More than 80% of system is in good working condition.*	☐	☐	☐
• **Protection of medical gas tanks and/or cylinders and related equipment** *Low = No areas used exclusively for this equipment AND no qualified personnel to operate it; Average = Areas exclusively for this equipment OR it is operated by qualified personnel; High = There are areas used exclusively for this equipment AND it is operated by qualified personnel.*	☐	☐	☐
• **Adequate storage areas** *Low =There are no areas reserved for storage of medical gases; Average = Areas reserved for storage but in hazardous location; High = Sites are accessible and do not present hazards*	☐	☐	☐

3.2 Heating, ventilation, and air-conditioning (HVAC) systems in critical areas	Safety Level		
	LOW	AVERAGE	HIGH
• **Adequate bracing for ducts and review of flexibility of the ducts and piping that cross expansion joints** *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
• **Condition of piping, connections, and valves** *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
• **Condition of anchors for central heating and/or hot water equipment** *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
• **Condition of anchors for central air-conditioning equipment** *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
• **Adequate location of enclosures for HVAC equipment** *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
• **Adequate safety of enclosures for HVAC equipment** *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
• **Operational condition of equipment (boiler, air-conditioning systems, exhaust, etc.)** *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
3.3 Office and storeroom furnishings and equipment (fixed and movable) including computers, printers, etc.	**Safety Level**		
	LOW	AVERAGE	HIGH
• **Anchors for shelving and shelf contents secured** Verify that shelves are anchored to the walls and/or are braced and that contents are secured. *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
• **Safety of computers and printers** Verify that computer tables are secure and table wheels are locked. *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
• **Condition of office furnishings and other equipment** Check anchors and/or bracing on furnishings in offices. *Low = Poor; Average = Satisfactory; High = Good.*	☐	☐	☐
3.4 Medical and laboratory equipment and supplies used for diagnosis and treatment	**Safety Level**		
	LOW	AVERAGE	HIGH
• **Fixed medical equipment in surgery theatres and recovery rooms** Verify that lamps, equipment for anaesthesia and surgical tables are secure and that table or cart wheels are locked. *Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.*	☐	☐	☐
• **Condition and safety of fixed radiology equipment** Verify that the X-ray tables are secured and the wheels on X-ray equipment have functional brakes. *Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.*	☐	☐	☐

• **Condition and safety of laboratory equipment** *Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.*	☐	☐	☐
• **Condition and safety of medical equipment in emergency room** *Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.*	☐	☐	☐
• **Condition and safety of medical equipment in intensive care unit** *Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.*	☐	☐	☐
• **Condition and safety of medical equipment in the pharmacy** *Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.*	☐	☐	☐
• **Condition and safety of medical equipment in the sterilization and disinfection unit** *Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.*	☐	☐	☐
• **Condition and safety of medical equipment in neonatal unit** *Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.*	☐	☐	☐
• **Condition and safety of medical equipment in burn unit** *Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.*	☐	☐	☐
• **Condition and safety of medical equipment in nuclear medicine and radiation therapy unit** *Low = The equipment is in poor condition or it is not secured; Average = The equipment is in fair condition or not properly secured; High = Equipment is in good condition and is secured.*	☐	☐	☐
• **Condition and safety of medical equipment in other services** *Low = More than 20% of the essential equipment for a system's operation is at risk of material or functional failure and/or if nonessential equipment puts the entire service's operation at direct or indirect risk; Average = Neither "Low" nor "High"; High = 100% of the essential equipment and at least 80% of the nonessential equipment is secured.*	☐	☐	☐
• **Anchors for shelving and safety of medical contents** *Low = Shelves are anchored or shelf contents are secured in 0% to 20% of cases; Average = Shelves are anchored or shelf contents are secured in 20% to 80% of cases; High = More than 80% of shelves are anchored and the contents of shelves are secured.*	☐	☐	☐

3.5 Architectural elements	Safety Level		
	LOW	AVERAGE	HIGH
• **Condition and safety of doors and entrances** *Low = Damage to doors and/or entrances will impede their performance and that of other components, systems, or operations; Average = Damage to doors and/or entrances will not impede the performance of other components, systems, or operations; High = Doors and/or entrances will suffer no or slight damage, and this damage will not impede their performance or that of other components, systems, or operations.*	☐	☐	☐
• **Condition and safety of windows and shutters** *Low = Damage to windows will impede the performance of other components, systems, or operations; Average = Damage to windows will not impede their performance; High = Slight damage to windows will not impede their performance or that of other components, systems, or operations.*	☐	☐	☐
• **Condition and safety of other elements of the building envelope** *Low = Damage to element will impede the performance of other components, systems, or operations; Average = Damage to element will not impede its performance; High = No or slight damage to element will not impede its performance or that of other components, systems, or operations.*	☐	☐	☐
• **Condition and safety of roofing** *Low = Damage to roofing will impede the performance of other components, systems, or operations; Average = Damage to roofing will not impede its performance; High = No or slight damage will not impede its performance or that of other components, systems, or operations.*	☐	☐	☐
• **Condition and safety of railings/parapets** *Low = Damage to railings will impede the performance of other components, systems, or operations; Average = Damage to railings will not impede its performance; High = No or slight damage to railing will not impede its performance or that of other components, systems, or operations.*	☐	☐	☐
• **Condition and safety of perimeter walls** *Low = Damage to walls will impede the performance of other components, systems, or operations; Average = Damage to walls will not impede their performance; High = No or slight damage to walls will not impede their performance or that of other components, systems, or operations..*	☐	☐	☐
• **Condition and safety of other outside elements (cornices, ornaments, etc.)** *Low = Damage to element will impede the performance of other components, systems, or operations; Average = Damage to element will not impede its performance; High = When element suffers no or slight damage it will not impede its performance or that of other components, systems, or operations.*	☐	☐	☐
• **Safe conditions for movement of patients, personnel, and others, and hospital vehicles outside of building** *Low = Damages to structure or road and walkways will impede access to buildings or endanger pedestrians; Average = Damages to structure or road and walkways will not impede pedestrian and hospital vehicle traffic; High = No or slight damage to structure or road and walkways; this will not impede pedestrian or hospital vehicle access.*	☐	☐	☐
• **Safe conditions for movement of patients, personnel, and others inside the building (corridors, stairs, elevators, etc.)** *Low = Damage to element will impede the performance of other components, systems, or operations; Average = Damage to element will not impede its*	☐	☐	☐

performance; High = When element suffers no or slight damage, and it will not impede its performance or that of other components, systems, or operations.			
• **Condition and safety of internal walls and partitions** *Low = Damage to elements will impede the performance of other components, systems, or operations; Average = Damage to elements will not impede their performance; High = No or slight damage to elements will not impede their performance or that of other components, systems, or operations.*	☐	☐	☐
• **Condition and safety of false or suspended ceilings** *Low = Damage to elements will impede the performance of other components, systems, or operations; Average = Damage to elements will not impede their performance; High = No or slight damage to elements will not impede their performance or that of other components, systems, or operations.*	☐	☐	☐
• **Condition and safety of lighting system** *Low = Damage to element will impede the performance of other components, systems, or operations; Average = Damage to element will not impede its performance; High = No or slight damage will not impede its performance or that of other components, systems, or operations.*	☐	☐	☐
• **Condition and safety of fire suppression system** *Low = Damage to element will impede the performance of other components, systems, or operations; Average = Damage to element will not impede its performance; High = No or slight damage will not impede its performance or that of other components, systems, or operations.*	☐	☐	☐
• **Condition and safety of elevator system** *Low = Damage to element will impede the performance of other components, systems, or operations; Average = Damage to element will not impede its performance; High = No or slight damage will not impede its performance or that of other components, systems, or operations.*	☐	☐	☐
• **Condition and safety of stairways** *Low = Damage to element will impede the performance of other components, systems, or operations; Average = Damage to element will not impede their performance; High = No or slight damage will not impede its performance or that of other components, systems, or operations.*	☐	☐	☐
• **Condition and safety of floor coverings** *Low = Damage to element will impede the performance of other components, systems, or operations; Average = Damage to element will not impede its performance; High = No or slight damage will not impede its performance performance or that of other components, systems, or operations.*	☐	☐	☐
• **Hospital access** *Low = Damage to element will impede the performance of other components, systems, or operations; Average = Damage to element will not impede its performance; High = No or slight damage will not impede its performance or that of other components, systems, or operations.*	☐	☐	☐
• **Other elements** *Low = Damage to element will impede the performance of other components, systems, or operations; Average = Damage to element will not impede its performance; High = No or slight damage will not impede its performance or that of other components, systems, or operations.*	☐	☐	☐

Comments on point 3: _____

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Name/signature of evaluator_____

4. Security aspects of a hospital's functional capacity

This refers to the level of preparation of hospital staff for major emergencies and disasters as well as to the level of implementation of the hospital disaster plan.

4.1 Organization of the Hospital Disaster Committee and the Emergency Operations Center Measure the organizational level achieved by the hospital disaster committee.	**Level of Organization**		
	LOW	AVERAGE	HIGH
• **Committee has been formally established to respond to major emergencies or disasters** Request a copy of the Committee's Articles of Incorporation and verify that the positions and signatures correspond to current personnel. *Low = Non-existent; Average = Exists; High = Exists and is functioning.*	☐	☐	☐
• **The Committee's membership is multi-disciplinary** Verify that the positions in the committee are held by personnel from diverse disciplines. *Low = 0–3 disciplines represented; Average = 4–5 disciplines represented; High = 6 or more disciplines represented (e.g., hospital director, nursing director, maintenance engineer, chief of emergency unit, chief of medicine, chief of surgery, chief of laboratory and support services, among others).*	☐	☐	☐
• **Each member has specific responsibilities** Verify that members' assigned responsibilities are in writing, describing their specific roles. *Low = Responsibilities not assigned; Average = Responsibilities have been officially assigned; High = All members know their responsibilities.*	☐	☐	☐
• **The hospital has an Emergency Operations Centre (EOC)** Verify that a room has been designated for operational command and that all means of communication are present and functional (telephone, fax, Internet, etc.). *Low = Nonexistent; Average = Room has been officially assigned; High = EOC exists and is operational.*	☐	☐	☐
• **The EOC is in a protected and safe location** Take into account accessibility, safety, and protection when checking the room used for the EOC. *Low = The room is not in a safe location; Average = The location is safe and protected; High =The EOC is safe, protected and easily accessible.*	☐	☐	☐
• **The EOC has a computer system and computers** Verify that both Intranet and Internet are installed. *Low = No; Average =Partially; High = The EOC has all computer system requirements.*	☐	☐	☐
• **Both internal and external communication systems in the EOC operate correctly.** Determine whether the telephone switchboard has a public address system and whether the operators know the alarm code and how to use it. *Low = Does not function/ nonexistent; Average = Partially operational; High = Complete and functional.*	☐	☐	☐
• **The EOC has an alternative communications system** Determine whether, besides the switchboard, there is an alternative communications system (cellular, Nextel, Matra network, among others). *Low = Nonexistent; Average = To some extent; High = Yes.*	☐	☐	☐

• **The EOC has adequate equipment and furnishings** Verify that there are desks, chairs, power outlets, lighting, water supply, and drainage. *Low = Absent; Average = To some extent; High = Present.*	☐	☐	☐
• **An up-to-date telephone directory is available in the EOC** Request the directory containing numbers of all support services needed in an emergency (randomly confirm telephone numbers). *Low = No; Average = Directory exists but is not up-to-date; High = Available and current.*	☐	☐	☐
• **"Action Cards" available for all personnel** Request cards that describe the assigned duties of each member of hospital staff and that specify his/her participation in case of an internal or external disaster. *Low = Not available; Average = Insufficient (numbers and quality); High = Everyone has card.*	☐	☐	☐
4.2 Operational plan for internal or external disasters	**Level of Implementation**		
	LOW	AVERAGE	HIGH
• **Strengthen essential hospital services** The plan specifies actions to be taken before, during, and after a disaster in the hospital's essential services (emergency room, intensive care unit, disinfection and sterilization unit, surgery, among others). *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Procedures to activate and deactivate the plan** Verify that there are procedures for how, when, and by whom the plan is activated/deactivated. *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Special administrative procedures for disasters** Verify that the plan includes procedures for contracting personnel and for procurements in case of disaster. *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained in procedures; High = Plan exists, personnel have been trained, and resources are in place to carry out the procedures.*	☐	☐	☐
• **Financial resources for emergencies are budgeted and guaranteed** Verify that the hospital has a specific budget for use in disaster situations. *Low = Not budgeted; Average = Covers less than 72 hours; High = Guaranteed for 72 hours or more.*	☐	☐	☐
• **Procedures for expanding usable space, including the availability of extra beds** The plan should include and specify the physical space that can be equipped to treat mass casualties. *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out expansion of space.*	☐	☐	☐

• **Procedures for admission to the emergency department** The plan should specify the places and personnel responsible for carrying out triage. *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out triage.*	☐	☐	☐
• **Procedures to expand emergency department and other critical services** The plan should include the approach to and actions needed to expand hospital services (for example, to provide water, sewage, and power supply). *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Procedures to protect patients' medical files (clinical history)** The plan describes how to move clinical files and necessary supplies for the patient. *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Regular safety inspections are conducted by the appropriate authority** During safety inspections, the expiration and/or recharge dates of fire extinguishers and dates of flow tests of fire hydrants should be noted. Logbooks with records of tests on this equipment as well as dates of visits of civil defence personnel should be examined. *Low = Inspections do not occur; Average = Partial or outdated inspection; High = Inspections are complete and up-to-date.*	☐	☐	☐
• **Procedures for hospital epidemiologic surveillance** Verify that the hospital's Epidemiologic Surveillance Committee has specific procedures for disaster incidents or treatment of mass casualties. *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Procedures for preparing sites for temporary placement of dead bodies and for forensic medicine** Verify that the plan includes specific arrangements for pathology and a site for the placement of multiple cadavers. *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Procedures for triage, resuscitation, stabilization, and treatment** The plan provides strategy for triage, resuscitation, stabilization, and treatment. *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐

• **Transport and logistic support** The plan provides for ambulances and official vehicles for the hospital. *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Food rations for hospital staff during the emergency** The plan specifies actions to be taken regarding nutrition; food supplies are included in the budget. *Low = Nonexistent; Average = Covers less than 72 hours; High = Guaranteed for at least 72 hours.*	☐	☐	☐
• **Duties assigned for personnel mobilized during the emergency** The plan specifies the duties for personnel called up during an emergency *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Measures to ensure the well-being of additional personnel mobilized during the emergency.** The plan includes arrangements for emergency personnel to rest and receive food and drink. *Low = Nonexistent; Average = Measures cover less than 72 hours; High = Measures are ensured for at least 72 hours.*	☐	☐	☐
• **Cooperative arrangements with local emergency plans** There are written arrangements regarding cooperation between the hospital and community authorities. *Low = No arrangements exist; Average = Cooperative arrangements exist but are not operational; High = Cooperative arrangements exist and are operational.*	☐	☐	☐
• **Preparation of a census of admitted patients and those referred to other hospitals** The plan has specific forms that facilitate the listing of patients during emergencies. *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **System for referral and back-referral of patients** *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Procedures for communicating with the public and media** The hospital disaster plan specifies who is responsible for communicating with the public and media in case of disaster (generally the highest person in the chain of command at the time of the event). *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Procedures for response during evening, weekend, and holiday shifts** *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐

• **Simulation exercises and drills** *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
4.3 Contingency plans for medical treatment during different types of disasters	**Level of implementation**		
	LOW	AVERAGE	HIGH
• **Tsunamis, volcanoes and landslides** *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Social conflict and terrorism** *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Floods and hurricanes** *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Fires and explosions** *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Chemical accidents and exposure to ionizing radiation** *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Pathogens with epidemic potential** *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Psycho-social treatment for patients, families, and health workers** *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Control of infections acquired during hospitalization** Request the corresponding hospital manual and verify whether procedures are in force for controlling infections acquired during hospitalization (nosocomial infections). *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
4.4 Plans for the operation, preventive maintenance, and restoration of critical services Measure the accessibility, legitimacy, and availability of those documents that are essential when attending to an emergency	**Level of Availability**		
	LOW	AVERAGE	HIGH
• **Electric power supply and back-up generators** The maintenance unit should provide the operations manual for the back-up electric generator as well as the logbook showing preventive maintenance. *Low = Documentation and plans do not exist; Average = Documentation and*	☐	☐	☐

plan exist and personnel have been trained; High = Documentation and plan exist, personnel have been trained, and resources are in place to restore electric power.			
• **Drinking water supply** The maintenance unit should provide the operations manual for the water supply system as well as the logbook showing preventive maintenance. *Low = Documentation and plans do not exist; Average = Documentation and plan exist and personnel have been trained; High = Documentation and plan exist, personnel have been trained, and resources are in place to restore water supply.*	☐	☐	☐
• **Fuel reserves** The maintenance unit should provide the operations manual for fuel supply as well as the logbook showing preventive maintenance. *Low = Documentation and plans do not exist; Average = Documentation and plan exist and personnel have been trained; High = Documentation and plan exist, personnel have been trained, and resources are in place to restore fuel supplies.*	☐	☐	☐
• **Medical gases** The maintenance unit should provide the operations manual for the supply of medical gases, as well as the logbook showing preventive maintenance. *Low = Documentation and plans do not exist; Average = Documentation and plan exist and personnel have been trained; High = Documentation and plan exist, personnel have been trained, and resources are in place to restore medical gas systems.*	☐	☐	☐
• **Standard and back-up communications systems** The maintenance unit should provide the operations manual for the communications system as well as the logbook showing preventive maintenance. • *Low = Documentation and plans do not exist; Average = Documentation and plan exist and personnel have been trained; High = Documentation and plan exist, personnel have been trained, and resources are in place to restore communications system.*	☐	☐	☐
• **Wastewater systems** The maintenance unit should ensure that the hospital wastewater drains into the public sewerage system in order to avoid contamination of the drinking water supply. *Low = Plan does not exist or exists only as a document; Average = Plan exists and personnel have been trained; High = Plan exists, personnel have been trained, and resources are in place to carry out the plan.*	☐	☐	☐
• **Solid waste management** The maintenance unit should provide the manual on solid waste management, as well as the logbook showing waste collection and subsequent disposal. *Low = Documentation and plans do not exist; Average = Documentation and plan exist and personnel have been trained; High = Documentation and plan exist, personnel have been trained, and resources are in place to restore solid waste management.*	☐	☐	☐
• **Maintenance of the fire suppression system** The maintenance unit should provide the manual for managing fire suppression systems, as well as the logbook showing preventive maintenance on fire extinguishers and fire hydrants. *Low = Documentation and plans do not exist; Average = Documentation and plan exist and personnel have been trained; High = Documentation and plan exist, personnel have been trained, and resources are in place to restore the fire suppression system.*	☐	☐	☐

4.5 Availability of medicines, supplies, instruments, and other equipment for use in emergency Compare list showing availability of essential supplies for use in an emergency with existing stock.	**Level of Availability**		
	LOW	AVERAGE	HIGH
• **Medicines** Check available medicines against list recommended by the Pan American Health Organization. *Low = Nonexistent; Average = Availability covers less than 72 hours; High = Availability guaranteed for at least 72 hours.*	☐	☐	☐
• **Items for treatment and other supplies** Check that the disinfection and sterilization unit has a supply of sterilized materials for use in an emergency (it is recommended that the supplies be rotated the day after sterilization). *Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.*	☐	☐	☐
• **Instruments** Verify the existence and maintenance of specific instruments used in emergencies. *Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.*	☐	☐	☐
• **Medical gases** Verify the telephone numbers and home address of the provider of medical gases, and ensure that provider guarantees supply during emergencies *Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.*	☐	☐	☐
• **Mechanical volume ventilators** Hospital authorities should know the amount and conditions for use of ventilation equipment. *Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.*	☐	☐	☐
• **Electro-medical equipment** The hospital authorities should know the conditions for use of electro-medical equipment *Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.*	☐	☐	☐
• **Life-support equipment** *Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.*	☐	☐	☐
• **Personal protection equipment for epidemics (disposable)** The hospital should have personal protection equipment for staff working in areas of initial contact. *Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.*	☐	☐	☐
Crash cart for cardiopulmonary arrest The hospital authorities should know the numbers, conditions for use, and location of crash carts for treatment of cardiopulmonary arrest. *Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.*	☐	☐	☐
• **Triage tags and other equipment for managing mass casualties** Verify that the emergency department has a supply of triage tags to distribute in case of mass casualties.	☐	☐	☐

Low = Nonexistent; Average = Supply covers less than 72 hours; High = Supply guaranteed for at least 72 hours.			

Comments on section 4:

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Name/signature of evaluator _____

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