



10 Basic Facts to Know

The following are 10 basic facts to know about keeping hospitals and health facilities safe from disasters:

- 1** Many factors put hospitals and health facilities at risk:
- Buildings: The location, design specifications, and resilience of the materials used, all contribute to a hospital's ability to withstand natural hazards.
 - Patients: In normal times, health facilities are occupied 24 hours a day by highly vulnerable people, and are often full to capacity. In disaster situations, damage to hospital components compounds patient vulnerability, as well as increasing the number of patients.
 - Hospital beds: Disasters often cause the loss of hospital beds, frequently just as the demand for emergency care increases.
 - Health workforce: The loss or unavailability of health workers compromises care for the injured. Hiring outside personnel to sustain response capacity adds to the overall economic burden.
 - Equipment: Damage to non-structural elements often surpasses the cost of damage to the building. Even less costly damage can still force a hospital to halt operations.
 - Basic lifelines and services: A hospital's ability to function relies on lifelines and other basic services such as electrical power, water and sanitation, and waste management and disposal. The loss of even some services can affect the entire health facility.

- 2** Components of a hospital or health facility are typically divided into two categories:
- Structural elements: those essential elements that determine the overall safety of the system, such as beams, columns, slabs, load-bearing walls, braces or foundations.
 - Non-structural elements: all other elements that enable the facility to operate. They include elements such as water heaters or storage tanks, mechanical equipment, shelving and cabinets and lifelines. In the case of hospitals, 80 per cent or more of the total cost of the facility can be the price of non-structural components.

- 3** Functional collapse, not structural damage, is the usual reason for hospitals being put out of service during emergencies:
- Functional collapse occurs when the elements that allow a hospital to operate on a day-to-day basis are unable to perform because the disaster has overloaded the system. These include: architectural spaces such as laboratories or operating theatres; medical records; medical and support services; and administrative processes (such as contracting, procurement, and maintenance routines). Although the measures necessary to prevent a functional collapse (such as contingency planning, improved organization and staff training) require a significantly smaller financial investment, they nonetheless remain a major challenge.



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Hospitals and health facilities can be built to different levels of protection:

- Life safety is the minimum level of protection and is the most common approach to protection in the construction of health facilities;
- Investment protection is designed to protect all or part of the infrastructure and equipment, although the facility itself may stop functioning. This level of protection ensures that the facility resumes operations within a reasonable timeframe and cost;
- Operations protection, which is the most costly level, includes life and investment protection but also seeks to ensure the facility continues to function after a disaster.¹

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Making new hospitals and health facilities safe from disasters is not costly

Building a hospital is a significant capital investment. In calculating the cost, one must include both the structure itself and the non-structural elements (non-structural elements account for about 80 percent of the total cost). It has been estimated that the incorporation of mitigation measures into the design and construction of a new hospital will account for less than 4 percent of the total initial investment.

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Field hospitals are not necessarily the best solution to compensate for the loss of a hospital or health facility

Field hospitals have been used successfully in complex disasters (civil conflicts and wars), but experience in the aftermath of disasters caused by natural hazards in developing countries has shown these extremely expensive solutions to be not satisfactorily cost-effective.

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Seeking the right expertise: a check consultant

A “check consultant” is an independent consultant who, on behalf of a client, ensures that norms and building standards are in place. Check consultants can be contracted to oversee the construction of any building, but their thorough knowledge of building codes and natural hazard mitigation measures are particularly important to ensuring the disaster safety of critical facilities such as hospitals.

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Building codes are of utmost importance

One of the earliest mentions of the importance of building codes is found in Hammurabi’s Code²:

- 232: “... he [the builder] shall make compensation for all that has been ruined, and inasmuch as he did not construct properly this house which he built and it fell, he shall re-erect the house from his own means.”

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Creating safe hospitals is as much about having vision and commitment as it is about actual resources

The responsibility of creating safe hospitals must be shared among many sectors: planning, finance, public works, urban and land-use planning, together with the health sector. The political will to make this happen must match the knowledge that already exists.

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The most costly hospital is the one that fails!

⁸ Pan American Health Organization (PAHO/WHO), Principles of Disaster Mitigation in Health Facilities, Mitigation Series, Washington, D.C., 2000.

⁹ Hammurabi was the ruler who chiefly established the greatness of Babylon, the world’s first metropolis. Many relics of Hammurabi’s reign (1795-1750 BC) have been preserved, and this king is recognized as a wise law-giver in his celebrated code of laws, the earliest known example of a ruler proclaiming publicly to his people an entire body of laws.