

many hospitals have introduced “Good Practices” after coping with a regional disaster. The purpose of this report is to introduce these practices with the expectation that they might contribute to the improvement of hospital disaster preparedness. **Methods:** The disaster preparedness for 20 disaster hospitals involved in regional disasters was investigated. First, an “Investigation Sheet” was distributed to each hospital; this sheet was designed to measure the state of the hospital’s facilities. Second, each hospital was questioned about their “Good Practices”.

**Results:** Based on this investigation, the following components of “Good Practice” were shown: (1) isolated buildings that were seismically retrofitted; (2) water supply system and equipment designed to collect rainwater; (3) electrical supply system derived from a plural transformer substation and co-generation system with gas; and (4) sofas in the reception area that can be converted into beds can be used to receive patients.

**Conclusions:** In many hospitals, compared to ordinary medical services, lower priority tends to be given to the disaster preparedness. Nevertheless, in several hospitals, particularly those located in areas previously affected by disasters, “Good Practices” are in place for their safety and resilience for unpredicted events. It is important that this information is collected and widely disseminated to all hospitals.

**Keywords:** disaster; good practice; hospital; resilience; safe hospital; safety

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### Safe Hospital Program in Sweden

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**Introduction:** Robustness, safety, and security are important to prepare healthcare facilities to respond to different situations. The healthcare sector responds to different kind of disasters, and must function even in case of a failure in critical infrastructure.

**Methods:** During the last 20 years (the last two years in cooperation with the Swedish Civil Contingencies Agency), the National Board of Health and Welfare has conducted a program on safe hospitals. The program has focused on:

1. Prospective planning process;
2. Robust facilities;
3. Maintenance of critical infrastructure;
4. Facility protection of dangerous substances; and
5. Technical facilities for crisis management.

The program has been formulated into guidelines and recommendations known as “The Robust Hospital”, also available in English. Special recommendations also have been formed regarding hospital protection against dangerous substances and crisis management.

**Results:** A majority of Swedish hospitals have followed these programs. Data and experiences will be presented, including the experience from a major electrical supply failure at a major hospital in Stockholm.

**Conclusions:** A systematic work program based on risk and vulnerability analysis, clearly addressed to those in charge of healthcare services, combined with a structured follow-up program can contribute to robust hospital facilities.

**Keywords:** program; robust; safe hospital; Sweden

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### The Robust Hospital

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**Introduction:** Sweden has many years of experience with robust hospitals. The Swedish Civil Contingencies Agency and the Swedish National Board of Health and Welfare have provided development work and support to hospitals and their political principals.

**Objective:** The aim of this study is to disseminate knowledge, experience, and bases of evaluation for improving functional safety in providing health care, thereby securing patient safety and security even amidst large civil emergencies.

**Methods:** With a realistic threat assessment, analyses of operational needs and vulnerabilities can furnish the basis for general investment and prioritizing strategies for optimally pursuing appropriate and functionally secure healthcare provision despite obstacles, interruptions, and extraordinary conditions. The analyses include technical risk and vulnerability assessments of such external services as electricity, information, water, sewage, and heating.

All serious events are monitored and evaluated continuously, such as the eastern Canadian ice storm of January 1998. **Results:** Expert guidance and occasional financial support for technical stand-by systems have considerably improved the physical-plant robustness of Swedish hospitals in recent years.

In addition to ongoing support for the county councils, the authorities also have published a knowledge overview, “The Robust Hospital”, soon available in English.

**Conclusions:** Official support to the Swedish County Councils, by utilizing experienced expert advice, has improved the functional safety of Swedish health care to a number of threats including interruption or disturbances to technical services and to fire, hazardous substances, extreme weather, and terrorism.

Like other social functions, healthcare provision remains vulnerable, albeit less so now.

**Keywords:** preparedness; robust hospital; safe hospital; Sweden

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### Best Practices of Hospital Security Planning for Emergency Preparedness

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**Introduction:** As the frequency of disasters increases, so does the realization of the need for appropriate security measures as they apply to healthcare systems impacted by a disaster. This presentation will emphasize the role of security in the hospital environment during disasters while comparing three international systems: Canadian, Israeli, and the United States. Hospital security systems are described in the context of their national emergency response requirements, surge capacity planning, health coverage, and hospital types. Emergency preparedness systems are explained as they relate to incident management, emergency response for patient surge capacity, and evacuation or