

**Background:** Assessment of hazard vulnerability is a critical stage in the disaster preparation cycle. This process determines the relative priority of each disaster subtype to the organization, and provides guidance to the organization for allocating time and resources. Since 2001, the Joint Commission International requires all hospitals in the United States to perform a hazard vulnerability analysis annually, and use their findings to guide planning efforts. To date, there is no officially recommended method for the hazard vulnerability assessment of health care institutions, and little literature on best practices. As such, methods utilized are heterogeneous and institution specific.

**Methods:** Qualitative and quantitative methodologies are used for this study. Surveys are administered by email and on paper to emergency managers at hospitals in Boston, Massachusetts USA, who are queried regarding their method for hazard vulnerability assessment, the instrument used, who completes the analysis, what guidance/training is given, and if subanalysis is completed when the hazard profile changes from previous years. Responses are analyzed using quantitative and qualitative methods.

**Results:** This study is in progress, with results expected by March 2017.

**Conclusion:** The study is currently ongoing. We anticipate that hazard vulnerability analysis methods and instruments will reflect a lack of standardization of practice in the field. Relative strength and weaknesses of different instruments will be highlighted, and common practices at health care institutions will be reviewed. Our hope is that such discussion will encourage greater standardization, and the development of best practices for this critical stage in the disaster preparation cycle.

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### Hazard Vulnerability Analysis: Practices in Massachusetts Hospitals

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**Study/Objective:** To determine what instruments and methods Massachusetts hospitals and hospital systems use to perform Hazard Vulnerability Analysis (HVA).

**Background:** Assessment of hazard vulnerability is a critical stage in the disaster preparation cycle. This process determines the relative priority of each disaster subtype to the organization and provides guidance to the organization for allocating time and resources. Since 2001, the Joint Commission International requires all hospitals in the United States to perform a hazard vulnerability analysis annually and use their findings to guide planning efforts. To date, there is no officially recommended method for the hazard vulnerability assessment of health care institutions and little literature on best practices. As such, methods utilized are heterogeneous and institution specific.

**Methods:** Qualitative and quantitative methodologies are used for this study. Surveys are administered by email and on paper to emergency managers at hospitals in Massachusetts USA, who are queried regarding their method for hazard vulnerability assessment and the instrument used. Responses are analyzed using quantitative and qualitative methods.

**Results:** This study is in progress, with results expected by March 2017.

**Conclusion:** The study is currently ongoing. We anticipate that hazard vulnerability analysis methods and instruments will reflect a lack of standardization of practice in the field. Relative strength and weaknesses of different instruments will be highlighted and common practices at health care institutions will be reviewed. Our hope is that such discussion will encourage greater standardization and the development of best practices for this critical stage in the disaster preparation cycle.

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### Fitness Requirements for DMAT Teams:

#### A Systematic Review

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**Study/Objective:** To review the physical fitness requirements for disaster responders serving on Disaster Medical Assistance Teams (DMATs) in the United States.

**Background:** The United States has trained and credentialed teams of disaster responders which may be rapidly deployed to assist with search and rescue efforts, and to provide essential medical care. This field work is physically and mentally demanding, placing team members themselves at risk. On prior deployments, literature suggests significant numbers of team members have sustained injury or illness requiring medical attention and, in some cases, extraction for off-site treatment. This significantly depletes teams capabilities, and may involve other team members in the treatment further depleting the DMAT response. Military responders must maintain a level of physical fitness to minimize their risk of injury or illness, should DMAT teams have the same requirement, or do they presently?

**Methods:** Publicly available policy documents were collected for each DMAT from their respective websites. A comparative analysis of physical fitness requirements for DMATs was undertaken.

**Results:** The study is ongoing with results expected by January 2017. Of the DMAT teams in the United States, 14 have publicly available documents referencing fitness requirements.

**Conclusion:** The study is currently ongoing. Based on preliminary work, it appears that no minimum physical fitness standard currently exists for federal disaster responders in the United States. Individuals may deploy with unknown physical liabilities, placing themselves and team members at risk of illness, injury, or mission failure. Given the hazardous nature of deployment to disaster zones which are, by their very nature, resource limited and may be physically remote from care, efforts

should be made to develop and standardize minimum fitness standards for responders. By mitigating the risk of illness or injury to disaster responders, the likelihood of mission success and provider wellness can be increased.

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## Review of Instruments Used in Hazard Vulnerability

### Analysis of Hospitals

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**Study/Objective:** To perform a qualitative comparison of instruments used for hazard vulnerability analysis of hospitals.

**Background:** Analysis of hazard vulnerability is the process by which a hospital determines the relative priority of each potential threat to the organization when allocating resources for disaster preparation and mitigation. While all hospitals in the United States are required to perform a hazard vulnerability analysis annually and use their findings to guide planning efforts, no officially sanctioned instrument exists for this task. Thus, a variety of tools exist in the public domain to assist hospitals in analysis of hazard vulnerability.

**Methods:** Hazard vulnerability analysis instruments were identified using a standardized online search technique. For each instrument, we compare the hazards identified for analysis, the method of determining probability, magnitude, and mitigation for each hazard, as well as the method used to determine risk using qualitative methodology.

**Results:** This study is in progress, with results expected by December 2016.

**Conclusion:** The study is currently ongoing. We anticipate that instruments will vary significantly in the specific threats assessed, calculation of probability, and measure of severity. Relative strength and weaknesses of different instruments will be highlighted. It is of concern that the hazard vulnerability analysis of hospitals in the United States may be skewed by the specific instrument chosen, and that no recommendations currently exist to guide the efforts of emergency managers. Our hope is that this review of available instruments will lead to further research into best practices, resulting in the standardization of the hazard vulnerability analysis of hospitals in the United States.

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## Modern Strategies of Collaborating Centers for Emergencies

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**Study/Objective:** The main goal is an analysis of their particular activities and tools of coordination.

**Background:** The number of Collaborating Centers in Disaster Medicine working under the leadership of the World Health Organization (WHO) has been reduced. There are only seven centers that have been accredited by WHO – Great Britain and France (joint Center), Switzerland, Italy, Indonesia, Netherlands, Russia, and the US. Twenty years ago, there were approximately 20 Collaborating Centers in Emergencies.

**Methods:** Analysis of Disaster Medicine Collaborating Centers and issues addressed at their annual meetings.

**Results:** Main functions of the promoted Centers: GB and France Center – Support of secretariat for certification; registration and training of international emergency medical teams; providing sustainability and preparedness in vulnerable countries; crisis management. Switzerland Center: All problems of refugees and temporary displaced persons. Italian Center: Support of health system resistance to emergencies, disasters, and crisis. Center develops four programs of research activities and four programs of education – training. Center implements a complex program of evaluation in 15 Italian hospitals. Center proposed a system of distant computer education and training, opened for all registered users. This virtual software lends itself to play out practically any intervention in any scenario of emergency. Netherland Center: On-site courses of education, postgraduate education; analysis of national health strategies in emergencies; information sharing and distribution of information about health systems in developing countries. Indonesia: Program of crisis management in emergencies and in large scale disasters – floods and earthquakes. Every year, all collaborating centers arrange a joint coordinating meeting for information sharing and for arranging bilateral and multilateral agreements for their future activities.

**Conclusion:** All collaborating centers participate in the WHO International Programs. There is no collaborating center in Africa or in the Extreme Orient. The US Center realizes its activities in isolation from the network.

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## Understanding the Emergency Preparedness Programs of Academic Health Systems

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**Study/Objective:** We surveyed US academic health systems to understand structure, functions of, and resources dedicated to system-level emergency preparedness (EP) programs.