

**Nonstructural Vulnerability Analyses of Critical Care  
Units/Emergency Departments and Earthquake Mitigation  
in Memphis, TN**

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**Element I**

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## ABSTRACT

Memphis (Shelby county), Tennessee, is one of the largest metropolitan areas located in the New Madrid seismic zone (NMSZ). Large hospitals and other health care facilities located in Memphis serve people in western Tennessee, northern Mississippi, eastern Arkansas, and southeastern Missouri. These hospitals and other health care facilities are vulnerable to significant damage from a large earthquake and personnel working in these facilities are unprepared.

Nurses are critical members of the response team in their roles as patient care givers and managers. The nursing staff is present in health care facilities 24 hours a day. A registered nurse is most often the designated person responsible for the management of the facility during the off-shifts. Nurse managers and their colleagues must be able to manage the facility under normal circumstances and, in the event of a damaging earthquake, they must be prepared to respond quickly and efficiently.

A two-part project to educate health care professionals and nurses in particular about earthquake preparedness was conducted. Part A of the project was to offer nonstructural vulnerability analyses of critical care units and emergency departments in selected hospitals located in Memphis and Shelby county. Formal reports with recommendations for nonstructural mitigation were presented to the hospital administrators. Part B of the project was to develop, coordinate, and conduct two one-day earthquake mitigation educational programs for nurses and other health care providers working in hospitals and other health care settings. The chosen sites of the educational programs were at 2 of the participating hospitals (Part A).

A major goal of the project was to illustrate the safety aspects of retrofitted critical care units and emergency departments, two vital areas in which there is significant risk to both patients and staff in the event of a damaging earthquake. The educational component was included to emphasize the need, provide a knowledge base, and encourage nurses to become more involved in earthquake mitigation and planning in health care facilities. In addition, this project will continue to further enhance communication links between hospitals and agencies such as the USGS, FEMA, CUSEC, and state and local emergency services.