

July 2006

# DISASTER PREPAREDNESS

## Limitations in Federal Evacuation Assistance for Health Facilities Should be Addressed





Highlights of [GAO-06-826](#), a report to congressional committees

## Why GAO Did This Study

Hurricane Katrina demonstrated difficulties involved in evacuating communities and raised questions about how hospitals and nursing homes plan for evacuations and how the federal government assists. Due to broad-based congressional interest, GAO assessed the evacuation of hospital patients and nursing home residents. Under the Comptroller General's authority to conduct evaluations on his own initiative, GAO examined (1) the challenges hospital and nursing home administrators faced, (2) the extent to which limitations exist in the design of the National Disaster Medical System (NDMS) to assist with patient evacuations, and (3) the federal requirements for hospital and nursing home disaster and evacuation planning. GAO reviewed documents and interviewed federal officials, and interviewed hospital and nursing home administrators and state and local officials in areas affected by Hurricane Katrina in Mississippi and Hurricane Charley in Florida.

## What GAO Recommends

GAO recommends that DHS clearly delineate (1) how the federal government will assist state and local governments with the transportation of patients and residents out of hospitals and nursing homes, and (2) how to address the needs of nursing home residents during evacuations. In its comments, DHS stated that it will take the recommendations under advisement as it revises the NRP.

[www.gao.gov/cgi-bin/getrpt?GAO-06-826](http://www.gao.gov/cgi-bin/getrpt?GAO-06-826).

To view the full product, including the scope and methodology, click on the link above. For more information, contact Cynthia A. Bascetta at (202) 512-7101 or [bascettac@gao.gov](mailto:bascettac@gao.gov).

# DISASTER PREPAREDNESS

## Limitations in Federal Evacuation Assistance for Health Facilities Should be Addressed

### What GAO Found

Hospital and nursing home administrators faced several challenges related to evacuations during recent hurricanes, including deciding whether to evacuate or stay in their facilities and “shelter in place”, obtaining transportation necessary for evacuations, and maintaining communication outside of their facilities. Administrators took steps to ensure that their facilities had needed resources—including staff, supplies, food, water, and power—to provide care during the hurricane and maintain self-sufficiency immediately after. However, when evacuations were needed, facility administrators said that they had problems with transportation, such as securing the vehicles needed to evacuate patients. Although facility administrators had contracts with transportation companies, competition for the same pool of vehicles created supply shortages when multiple facilities in a community had to be evacuated. In addition, communication was impaired by hurricane damage. For example, a nursing home in Florida was unable to communicate with local emergency managers.

NDMS is a partnership of four federal agencies, and has two limitations in its design that constrain its assistance to state and local governments with patient evacuation. The NDMS partners are the Department of Defense, the Department of Health and Human Services (HHS), the Department of Homeland Security (DHS), and the Department of Veterans Affairs; DHS is the lead agency. The first limitation is that NDMS evacuation efforts begin at a mobilization center, such as an airport, and do not include short-distance transportation assets, such as ambulances or helicopters, to move patients out of health care facilities to mobilization centers. The second limitation is that NDMS supports the evacuation of patients needing hospital care; the program was not designed nor is it currently configured to move people who do not require hospitalization, such as nursing home residents. Although NDMS moved nursing home residents due to Hurricane Katrina who were brought to mobilization centers, NDMS officials had to make special arrangements for people in need of nursing home care because NDMS lacked preexisting agreements with nursing homes. Neither of these limitations is addressed in other documents GAO reviewed, including DHS's National Response Plan (NRP).

At the federal level, HHS's Centers for Medicare & Medicaid Services (CMS) has requirements related to hospital and nursing home evacuation planning as a condition of participation in the Medicare and Medicaid programs. CMS requires that hospitals maintain the overall hospital environment to assure patient safety, including developing plans that consider the transfer of patients to other health care settings. For nursing homes, CMS requires that plans meet all potential emergencies and disasters; however, requirements do not specifically mention the transfer of residents. In addition to assessing compliance with CMS requirements, the Joint Commission on Accreditation of Healthcare Organizations, the American Osteopathic Association, and states can also have additional emergency management requirements.

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### **Abbreviations**

AOA	American Osteopathic Association
CMS	Centers for Medicare & Medicaid Services
DHS	Department of Homeland Security
DMAT	Disaster Medical Assistance Team
DOD	Department of Defense
DOT	Department of Transportation
EOC	emergency operations center
ESF	emergency support function
FEMA	Federal Emergency Management Agency
HHS	Department of Health and Human Services
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
NDMS	National Disaster Medical System
NRP	National Response Plan
QAPI	quality assessment performance improvement
VA	Department of Veterans Affairs

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United States Government Accountability Office  
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### Congressional Committees

On August 29, 2005, Hurricane Katrina struck near the Louisiana-Mississippi border and became one of the worst natural disasters in U.S. history. Hurricane Katrina affected a large geographic area and necessitated the evacuation of parts of the area. Among those needing to be evacuated were people in health care facilities such as hospitals and nursing homes. During disasters such as Hurricane Katrina, administrators of hospitals or nursing homes must make decisions about the best way to care for their patients or residents under such circumstances, including whether to evacuate if the facility becomes unable to support adequate care, treatment, or other services.<sup>1</sup> Moreover, if administrators decide to evacuate, hospital patients or nursing home residents may need special equipment or have other complicating factors which inhibit their movement, thereby increasing the risk to their safety during the evacuation process. Due to Hurricane Katrina, efforts were made to evacuate hospital patients and nursing home residents. In the storm's aftermath, congressional reports raised questions about how health care facility administrators plan for hurricanes, how they implement their plans, and how the federal government assists health care facilities and state and local governments with facility evacuations.<sup>2</sup>

Federal, state, and local governments, as well as individual health care facilities, have plans for how they will respond to emergencies such as hurricanes. At the federal level, the National Response Plan (NRP)<sup>3</sup> provides a framework for how the federal government is to assist states and localities in managing domestic incidents, including both incidents of

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<sup>1</sup>For our purposes, evacuation refers to moving all hospital patients or nursing home residents out of both the facility and the affected area.

<sup>2</sup>See U.S. House of Representatives, *A Failure of Initiative: Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina* (Feb. 15, 2006). See also Committee on Homeland Security and Governmental Affairs, U.S. Senate, *Hurricane Katrina: A Nation Still Unprepared* (May 2006).

<sup>3</sup>This report reflects the NRP as updated on May 25, 2006.

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national significance and those of lesser severity.<sup>4</sup> A program identified in the NRP, the National Disaster Medical System (NDMS), can assist state and local governments with evacuations of patients who need hospital care.<sup>5</sup> NDMS is a partnership of four federal agencies, and the Department of Homeland Security (DHS) is the lead agency.<sup>6</sup> At the state and local levels, governments often have comprehensive emergency management plans that mirror the NRP. At the individual facility level, hospitals and nursing homes that participate in the Medicare and Medicaid programs must comply with requirements established by the Department of Health and Human Services' (HHS) Centers for Medicare & Medicaid Services (CMS).<sup>7</sup> Compliance with these requirements is assessed by accrediting organizations such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and the American Osteopathic Association (AOA), and state agencies.

Due to broad-based congressional interest, we assessed the evacuation of hospital patients and nursing home residents due to hurricanes. We performed this work under the Comptroller General's authority to conduct evaluations on his own initiative.<sup>8</sup> In February 2006, we reported on

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<sup>4</sup>Under the NRP, the Secretary of Homeland Security will consider, but is not limited to, the four criteria stated in Homeland Security Presidential Directive 5 (HSPD-5) when deciding whether to declare an incident of national significance. These criteria are: (1) a federal department or agency acting under its own authority has requested the assistance of the Secretary of Homeland Security, (2) the resources of state and local authorities are overwhelmed and federal assistance has been requested by the appropriate state and local authorities, (3) more than one federal department or agency has become substantially involved in responding to an incident, or (4) the Secretary of Homeland Security has been directed to assume responsibility for managing a domestic incident by the President.

<sup>5</sup>Public Health Security and Bioterrorism Preparedness and Response Act of 2002, Pub. L. No. 107-188, § 102(a), 116 Stat. 595, 599 (formally establishing a program otherwise in operation since 1984; to be codified at 42 U.S.C. § 300hh-11).

<sup>6</sup>The NDMS partners are DHS, Department of Health and Human Services (HHS), Department of Veterans Affairs (VA), and Department of Defense (DOD). The Homeland Security Act of 2002 transferred overall NDMS responsibility to DHS from HHS. Pub. L. No. 107-296, § 503(5), 116 Stat. 2135, 2213 (codified at 6 U.S.C. § 313(5)). H.R. 5438, 109th Cong. (2006), which was introduced May 22, 2006, would transfer overall NDMS responsibility back to HHS.

<sup>7</sup>CMS issues interpretive guidelines that contain authoritative interpretations and clarifications of statutory and regulatory provisions, and these are to be used to make compliance determinations. Throughout this report, we refer to both CMS regulations and interpretive guidelines as "requirements."

<sup>8</sup>31 U.S.C. § 717(b)(1) (2000).

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preliminary observations from our work,<sup>9</sup> and in May 2006, we testified on our preliminary observations before the Senate Special Committee on Aging.<sup>10</sup> To complete our assessment, we examined (1) the challenges hospital and nursing home administrators faced related to recent hurricanes, (2) the extent to which limitations exist in the design of NDMS or other federal programs to assist state and local governments with patient evacuations, and (3) the federal requirements for hospital and nursing home disaster and evacuation planning.

For our first objective related to the challenges hospital and nursing home administrators faced related to recent hurricanes, we reviewed documents, including emergency management plans from state and local governments and hospitals and nursing homes in Florida and Mississippi. We interviewed officials in Mississippi who experienced Hurricane Katrina, including officials from five hospitals, three nursing homes and assisted living facilities, state officials, and local emergency management officials in two counties. We also interviewed officials in Florida in areas that experienced hurricanes in 2004, particularly those affected by Hurricane Charley, which was the strongest hurricane to hit the United States since Andrew hit southern Florida in 1992.<sup>11</sup> In Florida, we spoke with officials from three hospitals and three nursing homes, state officials, and local emergency management officials in two counties. We also interviewed officials from national hospital and nursing home associations, Florida hospital and nursing home associations, and a Mississippi nursing home association. For our second objective concerning the extent to which limitations exist in the ability of NDMS or other federal programs to assist state and local governments with patient evacuations, we reviewed federal documents such as the NRP, including the September 2005 draft Catastrophic Incident Supplement to the NRP. We also interviewed officials from the Department of Defense (DOD), HHS, DHS, the Department of Transportation (DOT), and the Department of Veterans Affairs (VA), including officials who are responsible for NDMS,

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<sup>9</sup>GAO, *Disaster Preparedness: Preliminary Observations on the Evacuation of Hospitals and Nursing Homes Due to Hurricanes*, [GAO-06-443R](#) (Washington, D.C.: Feb. 16, 2006). Also see related GAO products at the end of this report.

<sup>10</sup>GAO, *Disaster Preparedness: Preliminary Observations on the Evacuation of Vulnerable Populations due to Hurricanes and Other Disasters*, [GAO-06-790T](#) (Washington, D.C.: May 18, 2006).

<sup>11</sup>Hurricane Charley struck the Gulf Coast of Florida on August 13, 2004. The hurricane continued across Florida to exit the state on the Atlantic Coast on August 14, 2004.



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asking about moving patients out of facilities and out of the affected areas. For our third objective on federal requirements for hospital and nursing home disaster and evacuation planning, we reviewed CMS documents describing hospital and nursing home emergency planning requirements that specifically relate to evacuations. We also interviewed officials from CMS, JCAHO, and AOA concerning these requirements, as well as officials from national hospital and nursing home associations, Florida hospital and nursing home associations, and a Mississippi nursing home association. In addition, we interviewed officials and obtained documents from the Florida Agency for Healthcare Administration and Mississippi Department of Health concerning state hospital and nursing home requirements for evacuation. For additional information on our scope and methodology, see appendix I. Our work was performed from October 2005 through July 2006 in accordance with generally accepted government auditing standards.

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## Results in Brief

Hospital and nursing home administrators faced several challenges related to evacuations during recent hurricanes, including deciding whether to evacuate or stay in their facilities and “shelter in place”, obtaining transportation necessary for evacuations, and maintaining communication outside of their facilities. Administrators said they generally prefer to shelter in place, but when doing so they must have sufficient resources to provide care during a hurricane, and maintain self-sufficiency immediately after a hurricane to continue to care for patients until help can arrive. For example, during hurricanes Katrina and Charley, administrators had to ensure that their facilities had needed resources, including staff who could stay at the facility for 3 or more days; sufficient food, water, and supplies to account for the inability to replenish resources during the hurricane; and power, which required having enough fuel to run generators for multiple days. When evacuations were needed, facility administrators said that they had problems with transportation, such as securing the vehicles needed to evacuate patients. Although facilities had contracts with transportation companies, competition for the same pool of vehicles created supply shortages. In addition, communication was impaired by hurricane damage to the local infrastructure. For example, a nursing home in Florida was unable to communicate with local emergency managers.

NDMS has two limitations in its design that constrain its assistance to state and local governments with patient evacuation, and which are not addressed elsewhere in the NRP. The first limitation is that NDMS evacuation efforts begin at a mobilization center, such as an airport, and do not include short-distance transportation assets, such as ambulances or helicopters, to move patients out of health care facilities to mobilization

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centers. Moreover, based on the documents we reviewed, including the NRP, we found that there are no other federal programs that assist with this transportation function. The second limitation is that NDMS supports the evacuation of patients needing hospital care; the program was not designed nor is it currently configured to move people who do not require hospitalization, such as nursing home residents. Although NDMS moved nursing home residents during Hurricane Katrina who were brought to mobilization centers, NDMS officials had to make special arrangements for people in need of nursing home care because NDMS lacked preexisting agreements with nursing homes. The movement of nursing home residents during evacuations is not addressed elsewhere in the NRP.

At the federal level, CMS has requirements related to hospital and nursing home disaster and evacuation planning as a condition of participation in the Medicare and Medicaid programs. For hospitals, CMS requires that the overall hospital environment must be maintained to assure the safety and well-being of patients. According to CMS guidelines for interpreting this regulation, hospitals must develop and maintain comprehensive emergency plans, and when developing plans, should consider the transfer of patients to other health care settings or hospitals if necessary. For nursing homes, CMS requires that facilities must have plans to meet all potential emergencies and disasters, although CMS guidelines for interpreting the regulation do not specifically mention transfer of residents. In addition, JCAHO, AOA, and states can also have additional emergency management requirements. For example, JCAHO requires that hospitals it accredits have emergency plans that include provisions for evacuating the entire building and transporting patients, supplies, staff, and equipment to alternate care sites if necessary.

We are recommending that DHS clearly delineate how the federal government will assist state and local governments with the transportation of patients and residents out of hospitals and nursing homes to a mobilization center where NDMS evacuation begins. We further recommend that DHS, in consultation with the three other NDMS partners, clearly delineate how to address the needs of nursing home residents during evacuations, including the arrangements necessary to relocate these residents.

We received written comments on a draft of this report from DHS, DOD, HHS, and VA. DHS stated that it will take our recommendations under advisement as it reviews the National Response Plan. According to DHS, all of the NDMS federal partners are currently reviewing the NDMS memorandum of agreement with a view toward working with state and

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local partners to alter, delineate, and otherwise clarify roles and responsibilities as appropriate. HHS and VA generally agreed with our recommendations. DOD disagreed with our conclusion regarding NDMS limitations, noting that state and local governments are responsible for the provision of short-distance transportation, rather than it being a federal responsibility. However, DHS confirmed that while the primary responsibility for evacuations remains with state and local governments, the federal government becomes involved when the capabilities of the state and local governments are overwhelmed, as we reported. We therefore believe that it is important for DHS to clearly delineate how the federal government will assist state and local governments in these instances.

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## Background

At the federal level, the NRP provides a framework for how the federal government is to assist states and localities in managing emergencies and major disasters. NDMS is one of the programs identified in the NRP that can supplement state and local medical resources during emergencies, including providing resources to assist with evacuation. At the individual facility level, hospitals and nursing homes must comply with CMS requirements to participate in the Medicare and Medicaid programs. Several recently issued federal reports have looked at the adequacy of health care facility disaster planning, as prompted by Hurricane Katrina.

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## The National Response Plan

In December 2004, DHS issued the NRP to consolidate existing federal government emergency response plans into a single coordinated plan, as mandated by the Homeland Security Act of 2002.<sup>12</sup> The NRP provides a framework for how the federal government is to assist states and localities in managing domestic incidents, including an “emergency”<sup>13</sup> or a “major

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<sup>12</sup>Pub. L. No. 107-296, § 502(6), 116 Stat. 2135, 2212-13 (to be codified at 6 U.S.C. § 312(6)). The NRP supersedes other federal emergency planning documents, including the Initial National Response Plan and the Federal Response Plan.

<sup>13</sup>An emergency is defined as any occasion or instance for which, in the determination of the President, federal assistance is needed to supplement state and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States. 42 U.S.C. § 5122(1) (2000).

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disaster”<sup>14</sup> declared by the President under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act).<sup>15</sup> On May 25, 2006, DHS revised the NRP to address certain weaknesses or ambiguities identified following Hurricane Katrina.<sup>16</sup>

The NRP includes a Catastrophic Incident Annex, which provides for an accelerated, proactive national response to catastrophic incidents—defined as any natural or manmade incident, including terrorism, resulting in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, national morale, and/or government functions.<sup>17</sup> By definition, a catastrophic incident almost immediately exceeds resources normally available to state, local, tribal, and private-sector authorities in the impacted area. A separate Catastrophic Incident Supplement, which was drafted but had not been approved at the time of Hurricane Katrina, provides additional detail on the roles and responsibilities of federal, state, and local responders during catastrophic incidents. However, as of June 2006, the supplement had not been finalized.

Among its many components, the NRP establishes 15 emergency support functions (ESF), which identify resources and define the missions and

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<sup>14</sup>Major disaster is defined as any natural catastrophe or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under the Stafford Act to supplement the efforts and available resources of states, local governments, and disaster relief organizations in alleviating damage, loss, hardship, or suffering. 42 U.S.C. § 5122(2) (2000).

<sup>15</sup>Pub. L. No. 93-288, 88 Stat. 143 (1974) (codified as amended at 42 U.S.C. §§ 5121-5206). The Stafford Act primarily establishes the programs and processes the federal government uses to provide emergency and major disaster assistance to states, local governments, tribal nations, individuals, and qualified private nonprofit organizations.

<sup>16</sup>The revised NRP makes clear that the Secretary of Homeland Security is responsible for declaring and managing incidents of national significance such as Hurricane Katrina. Incidents of lesser severity requiring federal involvement are also subject to the NRP, but implementation of the NRP is to be scaled and flexible depending on the nature of the event.

<sup>17</sup>The responsibility for determining whether an incident of national significance meets the NRP’s definition of a “catastrophic incident” rests with the Secretary of Homeland Security. The Secretary makes a “catastrophic incident” designation to activate the provisions of the annex. The Secretary declared Hurricane Katrina an incident of national significance on August 30, 2005, but never declared it a catastrophic incident. The revised NRP makes explicit that the Secretary could activate the annex to address events that are projected to mature to catastrophic proportions, such as strengthening hurricanes.

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responsibilities of various federal agencies in helping coordinate support during incidents of national significance. For each of the NRP's 15 ESFs, which include Transportation, Communications, Firefighting, and Public Health and Medical Services, the NRP designates a federal agency as the ESF coordinator responsible for pre-incident planning and coordination. It also designates one or more primary agencies to be responsible for operational priorities and activities, coordinating with other agencies and state partners, and planning for incident management. HHS, for example, is designated as the ESF coordinator and the primary agency for ESF #8—Public Health and Medical Services.

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## The National Disaster Medical System

NDMS, one of the programs included in ESF #8—Public Health and Medical Services—of the NRP, was formed in 1984 to care for massive numbers of casualties generated in a domestic disaster or an overseas conventional war. It is a nationwide medical response system to supplement state and local medical resources during disasters and emergencies and to provide back-up medical support to the military and VA health care systems during an overseas conventional conflict. DOD, HHS, DHS, and VA are federal partners in NDMS. These partners most recently signed a memorandum of agreement in October 2005 that describes the roles and responsibilities of each partner. DHS has the authority to activate NDMS in response to public health emergencies, which include, but are not limited to, presidentially declared emergencies or major disasters under the Stafford Act.

NDMS consists of three key functions:

- medical response, which includes medical equipment and supplies, patient triage, and other emergency health care services provided to disaster victims at a disaster site through NDMS medical response teams such as Disaster Medical Assistance Teams (DMAT);<sup>18</sup>
- patient evacuation, which includes communication and transportation to evacuate patients from a mobilization center near the disaster site, such as an airport, to reception facilities in other locations; and
- “definitive care,” which is additional medical care—beyond emergency care—that begins once disaster victims are placed into an NDMS inpatient

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<sup>18</sup>A Disaster Medical Assistance Team (DMAT) is a group of medical and support personnel designated to provide medical care during disasters. DMATs are designed to deploy to disaster sites with sufficient supplies and equipment, and their responsibilities may include triaging patients and preparing patients for evacuation.

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treatment facility (typically a nonfederal hospital that has signed an agreement with NDMS).

DHS has lead responsibility for the medical response function of NDMS. DOD takes the lead in coordinating patient evacuation for NDMS, in collaboration with DOT, the other NDMS federal partners, and commercial transportation companies. VA and DOD share lead responsibility for arranging definitive care, including tracking the availability of beds in hospitals that participate in NDMS.<sup>19</sup>

NDMS was used to supplement state and local patient evacuation efforts during Hurricane Katrina and Hurricane Rita, which struck the Gulf Coast several weeks after Hurricane Katrina. NDMS officials told us that Hurricane Katrina was the first time that the patient evacuation and definitive care components of NDMS were used for a large number of patients. In response to state requests for assistance, NDMS moved people from Louisiana after Hurricane Katrina and from Texas before Hurricane Rita. In total, about 2,900 people were transported to NDMS patient reception areas due to the two hurricanes.

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## Regulation of Hospitals and Nursing Homes

CMS establishes federal regulations that hospitals and nursing homes must meet to participate in the Medicare and Medicaid programs.<sup>20</sup> These regulations relate to many aspects of hospital or nursing home operations, such as health care services, dietetic services, and physical environment, including emergency management. Hospitals that are accredited by JCAHO or AOA are generally deemed to meet most of these Medicare and Medicaid requirements;<sup>21</sup> no organizations have similar deeming authority for nursing homes.<sup>22</sup> State agencies survey and certify nursing homes and nonaccredited hospitals to ensure that they follow CMS requirements. CMS provides guidance to state agencies in the CMS State Operations Manual, which includes interpretive guidelines and survey procedures for

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<sup>19</sup>Participating hospitals regularly report the number of beds that they have available for NDMS patients so that VA and DOD can quickly identify bed capacity when needed.

<sup>20</sup>42 C.F.R. pts. 482 (for hospitals) and 483 (for nursing homes) (2005).

<sup>21</sup>42 U.S.C. § 1395bb (2000).

<sup>22</sup>In 2004, JCAHO accredited approximately 4,666 hospitals, which represented about 95 percent of all U.S. hospital beds. AOA accredits 165 hospitals.

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state agencies to assess compliance with CMS regulations.<sup>23</sup> In addition to CMS requirements, JCAHO, AOA, and states can establish additional requirements for hospitals and nursing homes.

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## Federal Reports on Health Care Facility Evacuation Due to Hurricane Katrina

A number of federal reports address the issue of evacuation and health care facility disaster planning. These reports have in various ways called for improvements in coordination. The White House report on lessons learned from the federal response to Hurricane Katrina recommended that agencies coordinate together to plan, train, and conduct exercises to evacuate patients when state and local agencies are unable to do so in a timely or effective manner.<sup>24</sup> The House of Representatives Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina reported that medical care and evacuations suffered from a lack of advance preparations, inadequate communications, and difficulties in coordinating efforts.<sup>25</sup> The select committee's report and a DHS Office of Inspector General Performance Review of the Federal Emergency Management Agency (FEMA) both noted that search and rescue efforts during Hurricane Katrina were effective but could have benefited from improved coordination among federal agencies.<sup>26</sup> The Senate Committee on Homeland Security and Governmental Affairs reported that federal agencies involved in providing medical assistance did not have adequate resources or the right medical capabilities to fully meet the medical needs arising from Katrina, such as meeting the needs of large evacuee populations, and were forced to use improvised and unproven techniques to meet those needs.<sup>27</sup> Further, the committee reported that the federal government's medical response suffered from a lack of planning, coordination, and cooperation.

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<sup>23</sup>The CMS State Operations Manual includes interpretive guidelines and survey procedures for state agencies that assess compliance with CMS regulations.

<sup>24</sup>Assistant to the President for Homeland Security and Counterterrorism, *The Federal Response to Hurricane Katrina: Lessons Learned* (Feb. 23, 2006).

<sup>25</sup>U.S. House of Representatives, February 2006.

<sup>26</sup>Department of Homeland Security, Office of Inspector General, *A Performance Review of FEMA's Disaster Management Activities in Response to Hurricane Katrina*, OIG-06-32 (Washington, D.C.: Mar. 31, 2006).

<sup>27</sup>Committee on Homeland Security and Governmental Affairs, May 2006.

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## Facility Administrators Faced Several Challenges Related to Evacuation, Including Deciding Whether to Evacuate, Securing Transportation, and Maintaining Communication

Hospital and nursing home administrators faced several challenges related to evacuation during recent hurricanes, including deciding whether to evacuate or stay in their facilities and “shelter in place”, obtaining transportation necessary for evacuations, and maintaining communication outside of their facilities. Administrators said they generally prefer to shelter in place, and when doing so must have the resources needed to provide care during a hurricane, and maintain self-sufficiency immediately after a hurricane to continue to care for patients until help can arrive. When evacuations were needed, facility administrators said that they had problems with transportation. Facilities had contracts with transportation companies, but competition for the same pool of vehicles created supply shortages. In addition, communication was impaired by damage to local infrastructure as a result of the hurricanes. For example, a nursing home in Florida was unable to communicate with local emergency managers.

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## Facility Administrators Faced Challenges in Deciding Whether to Evacuate or Shelter in Place

Hospital and nursing home administrators told us that they faced challenges in deciding whether to evacuate, including ensuring that they had sufficient resources to provide care or other services during the disaster and then in its aftermath until assistance could arrive. Administrators told us that they evacuate only as a last resort and that facilities’ emergency plans are designed primarily to shelter in place. Some hospitals provided a safe haven for devastated communities after a hurricane. In addition, some hospitals saw a surge in the number of people seeking care as a result of injuries sustained during the hurricane. For example, clinicians at a 153-bed hospital in Mississippi treated approximately 500 patients per day in the days after Hurricane Katrina, a substantial increase from their normal workload of about 130 patients per day. This hospital’s administrators told us that they felt obligated to remain open to serve the community’s needs. In addition, facility administrators and county representatives that we interviewed agreed that sheltering in place is generally safer than evacuating vulnerable hospital patients and nursing home residents. Although state and local governments can issue mandatory evacuation orders for certain areas, health care facilities may be exempt from these orders, as they were in a Mississippi county for Hurricane Katrina. When preparing to shelter in place, hospital administrators told us that they discharge patients when possible and stop performing elective surgeries to reduce the number of patients in the hospital.

In anticipation of an inability to replenish resources during a hurricane, hospital and nursing home administrators take steps before hurricanes to ensure that the facilities have the resources needed to shelter in place and



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adequately care for patients and residents, including sufficient supplies, food, water, and power. For example, a nursing home administrator in Florida told us that the facility prepared for Hurricane Charley by obtaining 10 days of food and water for its 120 residents plus additional Meals, Ready-to-Eat<sup>28</sup> to feed 500 people for up to 4 days, including staff and their families. Administrators from a hospital told us that they call their vendors 72 hours before a hurricane to order bulk supplies of milk, bread, and paper goods. Administrators from a Mississippi hospital noted that they prepare for hurricanes by ensuring that the facility has 3-4 days of clean linens and 5-6 days of medical supplies. Administrators must also make sure they have sufficient backup electrical power because life support systems require electricity to operate. One hospital administrator acquired an additional generator to extend the hospital's capacity to supply backup power to 10 days. In addition, many of the administrators we interviewed noted that they maintain large fuel tanks to power the generators. For example, one hospital maintained a 20,000 gallon tank, which holds enough fuel to run the facility's generators for 1 week. Some administrators told us that they also had difficulty obtaining sufficient fuel after the hurricanes.

In addition to obtaining tangible supplies, administrators face the challenge of ensuring that facilities have the staff needed to provide adequate patient care during and after a hurricane. Hospital administrators noted the challenges involved with having sufficient numbers of clinical staff, such as doctors, available during hurricanes. Some facility administrators we interviewed identified "storm teams" of staff that were required to report to the facility before a hurricane and remain on site during the event. One hospital required the "storm team" to be prepared to stay at the facility for 3-4 days. Staff members were required to bring clothes, bedding, snacks, and other personal items. In some cases, facilities also allowed these staff members to bring their families and pets. One hospital administrator in Mississippi noted that the severity and destruction caused by Hurricane Katrina prevented the relief staff from taking over and the "storm team" remained at the facility for 14 days. Another hospital administrator in Florida noted that after Hurricane Charley, relief staff did not report for work.

Hospital and nursing home administrators we interviewed reported that their facilities needed to be self-sufficient for a period of time immediately

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<sup>28</sup>Meals, Ready-to-Eat are precooked meal kits developed for soldiers in combat conditions.

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after a hurricane because new supplies may not arrive for several days. For example, a representative of a Florida nursing home association said that facilities need at least 10 days of supplies to effectively shelter in place until help can arrive. The need to be self-sufficient is especially important when disasters affect entire communities and delay response efforts, as demonstrated during hurricanes Charley and Katrina. Facilities that were part of networks were able to call on their corporate offices or sister facilities outside of the affected area to replenish needed supplies after a hurricane. For example, one administrator said that the company that owns his hospital has a division that tracks each facility's preparedness resources, and the company's supply warehouse has "disaster packs" of necessary supplies ready to be deployed in case of emergency. Additionally, the company has large contracts in place so that it can quickly obtain resources like fuel, generators, and staff.

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### Facility Administrators Had Problems Related to Transportation for Patient Evacuations

Facility administrators noted that they were not always able to obtain appropriate vehicles to accommodate their facilities' patient needs. While some people can be moved using buses, some may require wheelchair-accessible vehicles, and others may need to be transported by ambulance. For example, one nursing home administrator noted that the facility contracted with a bus company, but stated that transportation remained a challenge because most of the facility's residents used electric wheelchairs and needed vehicles with power lifts, which were not available. In addition, facilities also needed trucks to move staff and supplies to care for the patients. For example, one Florida nursing home administrator noted that the facility had arrangements with a trucking company to load and transport patient medical records, medications, laundry supplies, food, and water. Another nursing home administrator in Mississippi said that he rented a truck to move mattresses and other supplies for his residents.

Having a contract with a transportation company or relying on the local government did not guarantee availability of transportation resources during a hurricane. Although facility administrators reported having contracts with transportation companies, competition for the same pool of vehicles created supply shortages. Hospital and nursing home administrators in several communities told us that their transportation companies also had contracts with other facilities in the community to provide services, a situation that may be sufficient for small evacuations but did not work when there were multiple facilities from the same area that needed to evacuate. In addition to contracting with multiple facilities, some companies' vehicles were unavailable due to advance notice

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requirements, and others may have had vehicles that were badly damaged by the hurricane. For example, one nursing home administrator said that the bus company his facility contracted with required 24-hours notice before a bus could be chartered, and that providing this notice was difficult in a disaster situation. Some facilities relied upon local government resources to provide assistance with evacuations, but when an entire community was severely affected, local ambulances were damaged or in short supply and therefore unavailable. For example, one Florida hospital administrator had arranged for transportation through the local emergency operations center (EOC), but the hurricane destroyed the EOC. In contrast, when local officials in Mississippi faced a shortage of ambulances immediately after Hurricane Katrina, they called upon a national ambulance company, with which they had a contract, to provide additional resources from Texas and Alabama. Officials noted that state resources were not available after the storm and contracting with an ambulance company with national resources was beneficial.

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### Facility Administrators Faced Communication Challenges Due to Damage to Local Infrastructure Caused by Hurricanes

Hurricanes Charley and Katrina caused significant damage to the infrastructure of the surrounding communities, and left some hospital and nursing home administrators unable to communicate outside of their facilities. Several administrators that we interviewed reported that land-based telephone lines were not functional and cellular telephone reception was sporadic. Some administrators reported that cell phones based in other areas were more reliable than local cell phones. Since the 2004 hurricane season, some facilities in Florida have purchased satellite phones. For example, one nursing home administrator who faced communications difficulties after Hurricane Charley has since purchased satellite phones. However, during Hurricane Katrina, some Mississippi hospital administrators told us that their satellite phones did not function. Because no single communications technology is universally reliable, some facility administrators told us that they plan to diversify their communication capabilities by utilizing multiple forms of communication.

Communication problems also affected county officials. Local EOC officials in both Mississippi and Florida reported being unable to communicate with state officials or local health care facilities. Because of communication problems at the local EOC, one nursing home administrator in Florida asked a staff member to drive to the EOC to communicate in person. In Mississippi, emergency managers relied on

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handheld radios and personal contact to communicate immediately after the hurricane. We have previously reported on communication difficulties during a public health emergency.<sup>29</sup>

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## NDMS Has Two Limitations That Constrain Its Assistance to State and Local Governments with Patient Evacuation and Which Are Not Addressed Elsewhere in the NRP

NDMS has two limitations in its design that constrain its assistance to state and local governments with patient evacuation. First, NDMS is not designed to move patients or residents out of hospitals or nursing homes to mobilization centers. Second, NDMS was not designed nor is it currently configured for people who do not need hospital care, including nursing home residents.

The first limitation of NDMS is that it is designed to move patients from a mobilization center, such as an airport, to other locations where they can receive necessary medical care, but it is not designed to move patients or residents out of hospitals or nursing homes to mobilization centers. NDMS officials told us that transportation from a health care facility to an NDMS mobilization center is the responsibility of local and state governments. Moreover, NDMS does not include helicopters, ambulances, or other short-distance vehicles necessary to move patients out of hospitals or nursing homes to mobilization centers. NDMS officials stated that NDMS transportation assets typically are large DOD airplanes designed to travel long distances, which can take approximately 24 hours or more to arrange. In addition, NDMS officials told us that to obtain ambulance or helicopter service, they would contract with private providers near a disaster site, which could lead to competition between the federal government and state and local authorities for the same pool of limited resources.<sup>30</sup>

Although NDMS evacuation efforts begin at mobilization centers, federal officials told us that no federal program is designed to move patients or residents out of hospitals or nursing homes to mobilization centers. NDMS and other documents that we reviewed also do not identify other federal programs that might assist in performing this function. We reviewed the NRP, the September 2005 draft Catastrophic Incident Supplement to the NRP, and NDMS documents. They do not indicate how the federal

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<sup>29</sup>See, for example, GAO, *Bioterrorism: Information Technology Strategy Could Strengthen Federal Agencies' Abilities to Respond to Public Health Emergencies*, [GAO-03-139](#) (Washington, D.C.: May 30, 2003).

<sup>30</sup>For example, a DOT official told us that the federal government and the state of Texas competed to obtain vehicles due to Hurricane Rita.

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government is to assist state and local authorities in moving hospital patients and nursing home residents from their facilities. In particular, the September 2005 draft Catastrophic Incident Supplement to the NRP, which is intended to be used with the Catastrophic Incident Annex when a catastrophic incident almost immediately overwhelms the capabilities of state and local governments, states that collecting and transporting patients from health care facilities to mobilization centers is the responsibility of state and local authorities. The draft supplement does not describe what, if any, role the federal government may play in coordinating with state and local authorities for this kind of transportation.

Despite this limitation of NDMS, some federal assistance was provided to move people out of health care facilities during Hurricane Katrina. Coast Guard officials told us that they evacuated about 9,400 people from hospitals and nursing homes as part of their search and rescue operations. NDMS officials reported that private, local, state, and federal resources transported hospital patients and nursing home residents to mobilization points, but there was a lack of coordination. For example, a report prepared by NDMS officials after Hurricane Katrina noted that, initially, transportation resources from the Coast Guard and DOD were not coordinated.<sup>31</sup>

The second limitation is that NDMS was not designed nor is it currently configured for people who do not need hospital care, including nursing home residents. As stated in the memorandum of agreement among the NDMS federal partners, the patient evacuation function of NDMS is intended to move patients so that they can receive medical care in NDMS hospitals—typically nonfederal hospitals that have agreements with NDMS. NDMS officials told us that they do not have agreements with nursing homes or other types of health care providers. However, because of the immediate demands posed by Hurricane Katrina, federal officials told us that NDMS had to move people who did not need hospital care, including nursing home residents and members of the general public who arrived at NDMS mobilization centers. NDMS flights evacuated people with various needs from mobilization centers to NDMS patient reception areas where officials assessed their health needs and arranged for them to

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<sup>31</sup>NDMS, *National Disaster Medical System (NDMS) After Action Review (AAR) Report on Patient Movement and Definitive Care Operations in Support of Hurricanes Katrina and Rita* (Jan. 12, 2006).

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receive additional medical care through the definitive care portion of NDMS. NDMS reception areas had to make special arrangements for people in need of nursing home care, because NDMS lacked preexisting agreements with nursing homes equipped to handle people with nonhospital health care needs.<sup>32</sup> In a report prepared by NDMS after the hurricane, federal officials noted that NDMS was not optimally prepared to manage the nursing home requirements of evacuees who did not require hospitalization.<sup>33</sup> The movement of nursing home residents during evacuations is not addressed elsewhere in the NRP.

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## Federal Requirements for Hospitals and Nursing Homes Include Provisions for Having Disaster Plans and Transferring Patients Out of Hospitals

At the federal level, CMS has requirements related to hospital and nursing home disaster and evacuation planning as a condition of participation in the Medicare and Medicaid programs. For hospitals, a CMS requirement states that the overall hospital environment must be maintained to assure the safety and well-being of patients.<sup>34</sup> According to CMS guidelines for interpreting this regulation, hospitals must develop and maintain comprehensive emergency plans, and when developing plans, should consider the transfer of patients to other health care settings or hospitals if necessary. For nursing homes, a CMS regulation states that facilities must have plans to meet all potential emergencies and disasters, although the interpretative guidelines do not specifically mention transfer of residents.<sup>35</sup> CMS officials told us that, based on experiences during Hurricane Katrina, they have established a work group within CMS to review hospital and nursing home requirements and other provider standards, policies, and guidance related to emergency preparedness, including issues related to evacuations. The officials told us that they expect the work group to make initial recommendations for improvement in 2006. (See app. II for CMS regulations and interpretive guidelines related to evacuation planning and emergency preparedness.)

In addition to CMS requirements, JCAHO, AOA, and states can establish additional emergency management requirements for health care facilities. For hospitals that it accredits, JCAHO requires that emergency plans include provisions for evacuating the entire building and transporting

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<sup>32</sup>For related information, see [GAO-06-443R](#).

<sup>33</sup>NDMS 2006.

<sup>34</sup>42 C.F.R. § 482.41(a) (2005).

<sup>35</sup>42 C.F.R. § 483.75(m) (2005).

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patients, supplies, staff, and equipment to alternate care sites if necessary.<sup>36</sup> AOA requires that emergency plans for hospitals that it accredits include provisions for transferring patients and supplies to other settings for health care if necessary. (See app. III for a list of JCAHO and AOA requirements related to evacuation planning and emergency preparedness.) States can also establish additional requirements for facility evacuation planning that relate to transportation. For example, Florida requires hospitals and nursing homes to have comprehensive emergency management plans that document transportation arrangements to be used to evacuate residents.<sup>37</sup> Mississippi requires nursing homes to maintain written transfer agreements with other facilities or alternative shelters in the event of a disaster.<sup>38</sup> The state also requires hospitals to have written disaster preparedness plans that include relocation arrangements, including transportation arrangements, in the event of an evacuation.<sup>39</sup>

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## Conclusions

Federal requirements for hospitals and nursing homes include provisions that the facilities plan for disasters and emergencies. However, when hurricanes Charley and Katrina hit the Gulf Coast area, they created significant challenges for health care facility administrators that faced evacuation, including deciding whether to evacuate, securing transportation, and maintaining communications outside of their facilities. In particular, securing transportation was challenging because when multiple health care facilities within a community decided to evacuate, they had difficulty obtaining the number and type of vehicles needed and competed with each other for a limited supply of vehicles.

A federal role related to evacuation is described in various documents, including the NDMS memorandum of agreement, the NRP, and its draft Catastrophic Incident Supplement. However, the challenges faced by hospitals and nursing homes during hurricanes Charley and Katrina also

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<sup>36</sup>However, JCAHO officials stated that, in a disaster that affects the entire community, the requirements would not prevent multiple facilities from competing for the same transportation resources or alternate care sites.

<sup>37</sup>Fla. Stat. § 395.1055(1)(c) (2005); Fla. Admin. Code Ann. r. 59A-4.126 (2005); and Emergency Mgmt. Planning Criteria for Nursing Home Facilities, ACHA 3110-6006, March 1994.

<sup>38</sup>12-000-045 Miss. Code R. § 405.1 (Weil 2006).

<sup>39</sup>12-000-040 Miss. Code R. § 1401.5 (Weil 2006).

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revealed two limitations in the federal government’s support to health care facilities that have to evacuate—the lack of assistance to states and localities to move people out of health care facilities to a mobilization point for federal transportation support and the lack of attention to nursing home residents needing evacuation. In terms of the first limitation, we found that the reliance in the NDMS design on local and state resources to move people directly out of facilities is inadequate when multiple facilities in the community have to evacuate simultaneously and compete for too few vehicles. In addition, DHS’s draft Catastrophic Incident Supplement to the NRP, which is intended to offer guidance for a situation in which state and local resources are overwhelmed, also would leave responsibility for moving people out of health care facilities on state and local authorities. It does not describe the role the federal government may play in coordinating with state and local authorities during hospital and nursing home evacuations. In terms of the second limitation, we noted that the evacuation of nursing home residents was not considered when NDMS was originally designed in 1984—nor is it currently addressed elsewhere in the NRP—but the experiences of these recent hurricanes also showed that the needs of this population when evacuations are required have been overlooked in the federal plans.

DHS is the lead agency responsible for issuance and maintenance of the NRP, development of the draft Catastrophic Incident Supplement, and activation of NDMS. Until it addresses these limitations—within NDMS, the NRP, or through other mechanisms—vulnerabilities in the evacuation of hospitals and nursing homes will continue, and the federal government’s response will not be as effective as possible.

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## Recommendations for Executive Action

To address limitations in how the federal government provides assistance with the evacuation of health care facilities, we recommend that the Secretary of Homeland Security take the following two actions:

- Clearly delineate how the federal government will assist state and local governments with the movement of patients and residents out of hospitals and nursing homes to a mobilization center where NDMS transportation begins.
- In consultation with the other NDMS federal partners—the Secretaries of Defense, Health and Human Services, and Veterans Affairs—clearly delineate how to address the needs of nursing home residents during evacuations, including the arrangements necessary to relocate these residents.



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## Agency Comments and Our Evaluation

We received written comments on a draft of this report from DHS, DOD, HHS, and VA.

DHS stated that it will take our recommendations under advisement as it reviews the National Response Plan. According to DHS, all of the NDMS federal partners are currently reviewing the NDMS memorandum of agreement with a view towards working with state and local partners to alter, delineate, and otherwise clarify roles and responsibilities as appropriate. DHS confirmed that the primary responsibility for evacuations remains with state and local governments and that the federal government becomes involved only when the capabilities of the state and local governments are overwhelmed. However, as stated in the draft report, neither NDMS documents, the NRP, nor the draft Catastrophic Incident Supplement to the NRP—to be used in cases when the capabilities of state and local governments are almost immediately overwhelmed—describe the federal role in coordinating with state and local authorities during hospital and nursing home evacuations. We also noted that reliance on state and local resources was inadequate when multiple facilities in a community had to evacuate simultaneously. DHS's written comments are reprinted in appendix IV.

DOD disagreed with our conclusions concerning NDMS's two limitations. First, DOD stated that our report implies that the provision of short-distance transportation is a federal responsibility, but DOD maintains that it is a state and local responsibility. However, during a catastrophic incident, the capabilities of state and local governments may almost immediately become overwhelmed. As we stated above in our response to DHS's comments, the federal role in these situations has not been described. Second, DOD stated that our conclusion regarding the needs of nursing home residents was technically correct, but that we failed to describe the successful evacuation of nursing home residents during Hurricane Rita. Our draft report did describe NDMS's evacuation of people, including nursing home residents and other people who did not need hospital care, during recent hurricanes due to the immediate demands posed by the storms. However, we also noted that the NDMS after-action report on hurricanes Katrina and Rita states that NDMS was not optimally prepared to manage the nursing home requirements of evacuees who did not require hospitalization. For this reason, we believe that explicit consideration of the needs of nursing home residents is warranted. DOD's written comments are reprinted in appendix V.

HHS concurred with our recommendations and made two general comments. First, HHS noted that we should address the role of DOT in the

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NRP to provide transportation support for domestic emergencies. Under ESF #8, DOT can assist with identifying and arranging for all types of transportation. However, as stated in the draft report, the NRP does not indicate how DOT or other federal agencies are to assist state and local authorities in moving hospital patients and nursing home residents from their facilities. Second, HHS commented that the report does not describe why NDMS was designed to focus on hospital evacuation, but HHS did not provide any additional information about NDMS's origins. Although the draft report included available information on the origins of NDMS, our assessment focused on the program's current status. HHS's written comments are reprinted in appendix VI.

VA agreed with our conclusions and recommendations and stated that it would continue to address issues raised in the draft report. VA's written comments are reprinted in appendix VII.

DHS and HHS also provided technical comments. In addition, DOT provided technical comments via email. We incorporated these comments where appropriate.

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We are sending copies of this report to the Secretaries of DOD, HHS, DHS, DOT, VA, and other interested parties. We will also make copies available to others on request. In addition, the report will be available at no charge on GAO's Web site at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-7101 or [bascettac@gao.gov](mailto:bascettac@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix VIII.



Cynthia A. Bascetta  
Director, Health Care

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*List of Committees*

The Honorable Charles E. Grassley  
Chairman  
The Honorable Max Baucus  
Ranking Minority Member  
Committee on Finance  
United States Senate

The Honorable Michael B. Enzi  
Chairman  
The Honorable Edward M. Kennedy  
Ranking Minority Member  
Committee on Health, Education,  
Labor, and Pensions  
United States Senate

The Honorable Susan M. Collins  
Chairman  
Committee on Homeland Security and  
Governmental Affairs  
United States Senate

The Honorable Daniel K. Akaka  
Ranking Minority Member  
Committee on Veterans' Affairs  
United States Senate

The Honorable Gordon H. Smith  
Chairman  
The Honorable Herb Kohl  
Ranking Minority Member  
Special Committee on Aging  
United States Senate

The Honorable Ike Skelton  
Ranking Minority Member  
Committee on Armed Services  
House of Representatives

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The Honorable Joe Barton  
Chairman  
The Honorable John D. Dingell  
Ranking Minority Member  
Committee on Energy and Commerce  
House of Representatives

The Honorable Tom Davis  
Chairman  
The Honorable Henry A. Waxman  
Ranking Minority Member  
Committee on Government Reform  
House of Representatives

The Honorable Bennie G. Thompson  
Ranking Minority Member  
Committee on Homeland Security  
House of Representatives

The Honorable Steve Buyer  
Chairman  
The Honorable Lane Evans  
Ranking Minority Member  
Committee on Veterans' Affairs  
House of Representatives

The Honorable William M. Thomas  
Chairman  
The Honorable Charles B. Rangel  
Ranking Minority Member  
Committee on Ways and Means  
House of Representatives

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# Appendix I: Scope and Methodology

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To examine the challenges hospital and nursing home administrators faced related to recent hurricanes, we conducted case studies in two states—Florida and Mississippi. We selected these states based on their experience with previous disasters. During 2004, the state of Florida was hit by four hurricanes—Charley, Frances, Ivan, and Jeanne. Hurricane Charley was the strongest of these four, and the strongest hurricane to hit the United States since Hurricane Andrew hit southern Florida in 1992.<sup>1</sup> In 2005, Mississippi received heavy storm damage from Hurricane Katrina caused by wind and an extremely high storm surge.

In Florida, to understand the role of the state and local governments in evacuating hospitals and nursing homes, we interviewed and obtained documents from state and county officials. At the state level, we interviewed officials from the Florida Department of Health’s Office of Emergency Operations. We reviewed the Florida Comprehensive Emergency Management Plan, as well as Florida’s after-action report for the 2004 Hurricane season. At the local level, we selected two counties affected by Hurricane Charley—Charlotte and Volusia counties. Charlotte County, the entry point for the hurricane, is located on the Gulf Coast of Florida. Volusia County, the exit point for the hurricane, is located on the Atlantic Coast of the state. Within each county, we interviewed emergency management officials and reviewed county emergency management plans.

To obtain information on the experiences of individual health care facilities in Florida, we identified hospitals and nursing homes within each of the selected counties, interviewed facility administrators, and reviewed documents. To select facilities, we asked emergency management officials in each county to provide contact information for hospitals and nursing homes that either evacuated or sheltered in place due to Hurricane Charley. In cases where the representatives identified by county officials were unavailable, we selected alternate health care facilities based on their proximity to the ocean. For each facility, we obtained and reviewed applicable emergency plans, hurricane plans, and/or evacuation plans. In total, we interviewed administrators from two hospitals and two nursing homes in Charlotte County and one hospital and two nursing homes in Volusia County. In addition to facility administrators, we interviewed officials from the Florida Hospital Association, the Florida Association of Homes for the Aging, and the Florida Health Care Association.

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<sup>1</sup>Hurricane Charley was a category 4 storm on the Saffir-Simpson hurricane rating scale. (Category 5 is the strongest possible category on the scale.)

In Mississippi, to understand the role of the state and local governments in evacuating hospitals and nursing homes, we interviewed and obtained documents from state and county officials. At the state level, we interviewed officials from the Mississippi Emergency Management Agency and Department of Health, and reviewed documents including the Mississippi Comprehensive Emergency Management Plan. At the local level, we selected the two coastal counties that were hit most directly by Hurricane Katrina—Hancock and Harrison counties. Hancock County, which includes the cities of Waveland and Bay St. Louis, was directly in the path of the storm and sustained extensive damage. Harrison County, which is adjacent to Hancock County and includes the cities of Gulfport and Biloxi, sustained extensive damage and has the area’s largest population. In each county, we interviewed emergency management officials. We also reviewed emergency management plans from Hancock and Harrison counties.

To obtain information on the experience of individual health care facilities in Mississippi, we identified hospitals, nursing homes, and assisted living facilities within each of the selected counties; interviewed facility administrators; and reviewed documents provided. To locate health care facilities, we relied on a list of hospitals, nursing homes, and assisted living facilities in Hancock and Harrison counties from a June 2005 Mississippi Department of Health report on hospitals<sup>2</sup> and a September 2005 Mississippi Department of Health report on institutions for the aged or infirm.<sup>3</sup> We also identified facilities in Harrison County that were operated by the Department of Veterans Affairs (VA). We excluded nursing homes with fewer than 20 licensed beds. From this list, we selected facilities based on ownership type, vulnerability and proximity to the ocean, and size. For each facility, we obtained and reviewed emergency plans, hurricane plans, and/or evacuation plans. In total, we interviewed officials from one hospital and one nursing home in Hancock County and four hospitals and two assisted living facilities in Harrison County. We also interviewed representatives from the Gulf States Association of Homes and Services for the Aging.

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<sup>2</sup>Mississippi Department of Health, Division of Health Facilities Licensure and Certification, *2004 Report on Hospitals* (Jackson, Miss.: June 2005).

<sup>3</sup>Mississippi Department of Health, Bureau of Health Facilities Licensure and Certification, *2004 Report on Institutions for the Aged or Infirmer* (Jackson, Miss.: September 2005).

To examine the extent to which limitations exist in the design of the National Disaster Medical System (NDMS) or other federal programs to assist state and local governments with patient evacuations, we reviewed federal documents such as the National Response Plan, including Emergency Support Function #8—Public Health and Medical Services—and the Catastrophic Incident Annex. We also obtained and reviewed a September 2005 draft of the Catastrophic Incident Supplement to the NRP. We interviewed emergency preparedness officials from the Department of Defense, the Department of Health and Human Services, the Department of Homeland Security, the Department of Transportation, and the VA. To obtain additional information on NDMS, we reviewed program documents, including the memorandum of agreement that governs NDMS and an after-action report on the use of NDMS due to Hurricane Katrina.

To examine the federal requirements for hospital and nursing home disaster and evacuation planning, we reviewed documents that identify the federal requirements and national standards related to emergency management, disaster preparedness, and patient evacuation. We reviewed documents provided by the Centers for Medicare & Medicaid Services (CMS) and by accrediting organizations that assess compliance with CMS requirements—the Joint Commission on Accreditation of Healthcare Organizations and the American Osteopathic Association. We also interviewed officials from these organizations concerning the requirements and enforcement mechanisms, as well as officials from the American Hospital Association, Federation of American Hospitals, and the American Health Care Association. In addition, we interviewed and obtained documents from the Florida Agency for Health Care Administration officials responsible for the licensing and certification of health care facilities as well as officials from the Mississippi Department of Health. We performed our work from October 2005 through July 2006 in accordance with generally accepted government auditing standards.

# Appendix II: CMS Regulations and Interpretive Guidelines Related to Hospital and Nursing Home Disaster and Evacuation

The Centers for Medicare & Medicaid Services (CMS) establishes federal regulations that hospitals and nursing homes must meet to participate in the Medicare and Medicaid programs. CMS's interpretive guidelines contain authoritative interpretations and clarifications of statutory and regulatory requirements and are to be used to make determinations about compliance with requirements. The tables below include regulations for hospitals and nursing homes that relate to disaster and evacuation planning. Table 1 includes CMS regulations and interpretive guidelines for hospitals.

**Table 1: CMS Regulation and Interpretive Guidelines for Hospitals**

Regulation <sup>a</sup>	Interpretive guidelines <sup>b</sup>
<p>42 C.F.R. § 482.41(a)</p> <p>Buildings</p> <p>The condition of the physical plant and the overall hospital environment must be developed and maintained in such a manner that the safety and well being of patients are assured.</p>	<p>The hospital must ensure that the condition of the physical plant and overall hospital environment is developed and maintained in a manner to ensure the safety and well being of patients. This includes ensuring that routine and preventive maintenance and testing activities are performed as necessary, in accordance with Federal and State laws, regulations, and guidelines and manufacturer's recommendations, by establishing maintenance schedules and conducting ongoing maintenance inspections to identify areas or equipment in need of repair. The routine and preventive maintenance and testing activities should be incorporated into the hospital's QAPI<sup>b</sup> plan.</p> <p>Assuring the safety and well being of patients would include developing and implementing appropriate emergency preparedness plans and capabilities. The hospital must develop and implement a comprehensive plan to ensure that the safety and well being of patients are assured during emergency situations. The hospital must coordinate with Federal, State, and local emergency preparedness and health authorities to identify likely risks for their area (e.g., natural disasters, bioterrorism threats, disruption of utilities such as water, sewer, electrical communications, fuel; nuclear accidents, industrial accidents, and other likely mass casualties, etc.) and to develop responses that will assure the safety and well being of patients. The following issues should be considered when developing the comprehensive emergency plan(s):</p> <ul style="list-style-type: none"> <li>• The differing needs of each location where the certified hospital operates;</li> <li>• The special needs of patient populations treated at the hospital (e.g., patients with psychiatric diagnosis, patients on special diets, newborns, etc.);</li> <li>• Security of patients and walk-in patients;</li> <li>• Security of supplies from misappropriation;</li> <li>• Pharmaceuticals, food, other supplies and equipment that may be needed during emergency/disaster situations;</li> <li>• Communication to external entities if telephones and computers are not operating or become overloaded (e.g., ham radio operators, community officials, other healthcare facilities if transfer of patients is necessary, etc.);</li> <li>• Communication among staff within the hospital itself;</li> <li>• Qualifications and training needed by personnel, including healthcare staff, security staff, and maintenance staff, to implement and carry out emergency procedures;</li> <li>• Identification, availability and notification of personnel that are needed to implement and carry out the hospital's emergency plans;</li> </ul>



**Appendix II: CMS Regulations and Interpretive Guidelines Related to Hospital and Nursing Home Disaster and Evacuation**

Regulation <sup>a</sup>	Interpretive guidelines <sup>b</sup>
	<ul style="list-style-type: none"> <li>• Identification of community resources, including lines of communication and names and contact information for community emergency preparedness coordinators and responders;</li> <li>• Provisions if gas, water, electricity supply is shut off to the community;</li> <li>• Transfer or discharge of patients to home, other healthcare settings, or other hospitals;</li> <li>• Transfer of patients with hospital equipment to another hospital or healthcare setting; and</li> <li>• Methods to evaluate repairs needed and to secure various likely materials and supplies to effectuate repairs.</li> </ul>

Source: CMS State Operations Manual.

<sup>a</sup>GAO analyzed regulations and interpretive guidelines for hospitals that specifically pertain to evacuation planning and emergency preparedness. For a full list of CMS regulations and interpretive guidelines for hospitals, see the CMS State Operations Manual, Appendix A – Survey Protocol, Regulations and Interpretive Guidelines for Hospitals.

<sup>b</sup>According to CMS, hospitals use a quality assessment performance improvement (QAPI) plan to systematically examine quality and implement specific improvement projects on an ongoing basis.

**Appendix II: CMS Regulations and Interpretive Guidelines Related to Hospital and Nursing Home Disaster and Evacuation**

Table 2 includes CMS regulations and interpretive guidelines for nursing homes. CMS surveyors conduct health care facility surveys to evaluate the manner and degree to which the providers satisfy various CMS requirements or standards. Long-term care facilities include nursing homes.

**Table 2: CMS Guidance to Surveyors for Long Term Care Facilities**

Regulation <sup>a</sup>	Interpretive guidelines <sup>b</sup>
<p>42 C.F.R. § 483.70 Physical Environment The facility must be designed, constructed, equipped, and maintained to protect the health and safety of residents, personnel and the public.</p>	
<p>42 C.F.R. § 483.75 Administration A facility must be administered in a manner that enables it to use its resources effectively and efficiently to attain or maintain the highest practicable physical, mental, and psychosocial well-being of each resident.</p>	
<p>42 C.F.R. § 483.75(m) Disaster and Emergency Preparedness 1. The facility must have detailed written plans and procedures to meet all potential emergencies and disasters, such as fire, severe weather, and missing residents. 2. The facility must train all employees in emergency procedures when they begin to work in the facility, periodically review the procedures with existing staff, and carry out unannounced staff drills using those procedures.</p>	<p>The facility should tailor its disaster plan to its geographic location and the types of residents it serves. “Periodic review” is a judgment made by the facility based on its unique circumstances[.] [C]hanges in physical plan or changes external to the facility can cause a review of the disaster review plan[.]  The purpose of a “staff drill” is to test the efficiency, knowledge, and response of institutional personnel in the event of an emergency. Unannounced staff drills are directed at the responsiveness of staff, and care should be taken not to disturb or excite residents.</p>

Source: CMS State Operations Manual.

<sup>a</sup>GAO analyzed regulations and interpretive guidelines for nursing homes that specifically pertain to evacuation planning and emergency preparedness. For a full list of CMS regulations and interpretive guidelines for nursing homes, see the CMS State Operations Manual, Appendix PP – Guidance to Surveyors for Long Term Care Facilities.

<sup>b</sup>Some regulations do not have interpretive guidelines.

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# Appendix III: JCAHO and AOA Requirements for Hospital Evacuation Planning and Emergency Preparedness

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Hospitals that are accredited by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) or the American Osteopathic Association (AOA) are generally deemed to be compliant with the Centers for Medicare & Medicaid Services requirements. The document and table below include JCAHO and AOA requirements for hospitals that relate to evacuation planning and emergency preparedness. The document includes JCAHO hospital requirements, and table 3 includes AOA hospital requirements.

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JOINT COMMISSION ON ACCREDITATION OF HEALTHCARE ORGANIZATIONS

2006 HOSPITAL ACCREDITATION STANDARDS FOR  
Emergency Management Planning  
Emergency Management Drills  
Infection Control  
Disaster Privileges

*(Please note that standards addressing emergency management drills and disaster privileges are undergoing additional research; revised standards for these areas are forthcoming)*

**Standard EC.4.10**

The hospital addresses emergency management.

**Rationale for EC.4.10**

An emergency<sup>1</sup> in the hospital or its community could suddenly and significantly affect the need for the hospital's services or its ability to provide those services. Therefore, a hospital needs to have an emergency management plan that comprehensively describes its approach to emergencies in the hospital or in its community.

**Elements of Performance for EC.4.10**

1. The hospital conducts a hazard vulnerability analysis<sup>2</sup> to identify potential emergencies that could affect the need for its services or its ability to provide those services.
2. The hospital establishes the following with the community:
  - Priorities among the potential emergencies identified in the hazard vulnerability analysis
  - The hospital's role in relation to a communitywide emergency management program
  - An "all-hazards" command structure within the hospital that links with the community's command structure
3. The hospital develops and maintains a written emergency management plan describing the process for disaster readiness and emergency management, and implements it when

<sup>1</sup>**Emergency** A natural or manmade event that significantly disrupts the environment of care (for example, damage to the hospital's building(s) and grounds due to severe winds, storms, or earthquakes) that significantly disrupts care, treatment and services (for example, loss of utilities such as power, water, or telephones due to floods, civil disturbances, accidents, or emergencies within the hospital or in its community); or that results in sudden, significantly changed, or increased demands for the hospital's services (for example, bioterrorist attack, building collapse, plane crash in the organization's community). Some emergencies are called "disasters" or "potential injury creating events" (PICES).

<sup>2</sup>**Hazard vulnerability analysis:** The identification of potential emergencies and the direct and indirect effects these emergencies may have on the hospital's operations and the demand for its services.

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appropriate.

4. At a minimum, an emergency management plan is developed with the involvement of the hospital's leaders including those of the medical staff .

5. The plan identifies specific procedures that describe mitigation,<sup>3</sup> preparedness,<sup>4</sup> response, and recovery strategies, actions, and responsibilities for each priority emergency.

6. The plan provides processes for initiating the response and recovery phases of the plan, including a description of how, when, and by whom the phases are to be activated.

7. The plan provides processes for notifying staff when emergency response measures are initiated.

8. The plan provides processes for notifying external authorities of emergencies, including possible community emergencies identified by the hospital (for example, evidence of a possible bioterrorist attack).

9. The plan provides processes for identifying and assigning staff to cover all essential staff functions under emergency conditions.

10. The plan provides processes for managing the following under emergency conditions:

- Activities related to care, treatment, and services (for example, scheduling, modifying, or discontinuing services; controlling information about patients; referrals; transporting patients)
- Staff support activities (for example, housing, transportation, incident stress debriefing)
- Staff family support activities
- Logistics relating to critical supplies (for example, pharmaceuticals, supplies, food, linen, water)
- Security (for example, access, crowd control, traffic control)
- Communication with the news media

11. Not applicable

12. The plan provides processes for evacuating the entire building (both horizontally and, when applicable, vertically) when the environment cannot support adequate care, treatment, and services.

13. The plan provides processes for establishing an alternate care site(s) that has the

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<sup>3</sup> **Mitigation activities** Those activities a hospital undertakes in attempting to lessen the severity and impact of a potential emergency.

<sup>4</sup> **Preparedness activities** Those activities a hospital undertakes to build capacity and identify resources that may be used if an emergency occurs.

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capabilities to meet the needs of patients when the environment cannot support adequate care, treatment, and services including processes for the following:

- Transporting patients, staff, and equipment to the alternative care site(s)
- Transferring to and from the alternative care site(s), the necessities of patients (for example, medications, medical records)
- Tracking of patients
- Interfacility communication between the hospital and the alternative care site(s)

14. The plan provides processes for identifying care providers and other personnel during emergencies.

15. The plan provides processes for cooperative planning with health care organizations that together provide services to a contiguous geographic area (for example, among organizations serving a town or borough) to facilitate the timely sharing of information about the following:

- Essential elements of their command structures and control centers for emergency response
- Names and roles of individuals in their command structures and command center telephone numbers
- Resources and assets that could potentially be shared in an emergency response
- Names of patients and deceased individuals brought to their organizations to facilitate identifying and locating victims of the emergency

16. Not applicable

17. Not applicable

18. The plan identifies backup internal and external communication systems in the event of failure during emergencies.

19. The plan identifies alternate roles and responsibilities of staff during emergencies, including to whom they report in the hospital's command structure and, when activated, in the community's command structure.

20. The plan identifies an alternative means of meeting essential building utility needs when the hospital is designated by its emergency management plan to provide continuous service during an emergency (for example, electricity, water, ventilation, fuel sources, medical gas/vacuum systems).

21. The plan identifies means for radioactive, biological, and chemical isolation and decontamination.

**Standard EC.4.20**

The hospital conducts drills regularly to test emergency management.

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**Elements of Performance for EC.4.20**

1. The hospital tests the response phase of its emergency management plan twice a year, either in response to an actual emergency or in planned drills.<sup>5</sup>

*Note: Staff in each freestanding building classified as a business occupancy (as defined by the LSC) that does not offer emergency services nor is community-designated as a disaster-receiving station need to participate in only one emergency management drill annually. Staff in areas of the building that the hospital occupies must participate in this drill.*

*Note: Tabletop exercises, though useful in planning or training, are **only** acceptable substitutes for communitywide practice drills.*

2. Drills are conducted at least four months apart and no more than eight months apart.

3. Hospitals that offer emergency services or are community-designated disaster receiving stations must conduct at least one drill a year that includes an influx of volunteers or simulated patients.

4. The hospital participates in at least one communitywide practice drill a year (where applicable) relevant to the priority emergencies identified in its hazard vulnerability analysis. The drill assesses the communication, coordination, and effectiveness of the hospital's and community's command structures.

*Note: "Communitywide" may range from a contiguous geographic area served by the same health care providers, to a large borough, town, city, or region.*

*Note: Tests of EPs 3 and 4 may be separate, simultaneous, or combined.*

5. Not applicable

6. All drills are critiqued to identify deficiencies and opportunities for improvement.

**Standard EC.7.20**

The hospital provides an emergency electrical power source.

**Rationale for EC.7.20**

The hospital properly installs an emergency power source that is adequately sized, designed, and fueled, as required by the LSC occupancy requirements and the services provided.

**Elements of Performance for EC.7.20**

1. The hospital provides a reliable emergency power system<sup>6</sup>, as required by the LSC occupancy requirements, that supplies electricity to the following areas when normal electricity is interrupted: Alarm systems

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<sup>5</sup> Drills that involve packages of information that simulate patients, their families, and the public are acceptable.

<sup>6</sup> **Reliable emergency power system** For guidance in establishing a reliable emergency power system (that is, an Essential Electrical Distribution System), see NFPA 99-2002 edition (chapters 13 and 14).

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2. The hospital provides a reliable emergency power system, as required by the *LSC* occupancy requirements, that supplies electricity to the following areas when normal electricity is interrupted: Exit route illumination
3. The hospital provides a reliable emergency power system, as required by the *LSC* occupancy requirements, that supplies electricity to the following areas when normal electricity is interrupted: Emergency communication systems
4. The hospital provides a reliable emergency power system, as required by the *LSC* occupancy requirements, that supplies electricity to the following areas when normal electricity is interrupted: Illumination of exit signs
5. The hospital provides a reliable emergency power system, as required by the services provided and patients served, that supplies electricity to the following areas when normal electricity is interrupted: Blood, bone, and tissue storage units
6. Not applicable
7. The hospital provides a reliable emergency power system, as required by the services provided and patients served, that supplies electricity to the following areas when normal electricity is interrupted: Emergency/urgent care areas
8. The hospital provides a reliable emergency power system, as required by the services provided and patients served, that supplies electricity to the following areas when normal electricity is interrupted: Elevators (at least one for nonambulatory patients)
9. The hospital provides a reliable emergency power system, as required by the services provided and patients served, that supplies electricity to the following areas when normal electricity is interrupted: Medical air compressors
10. The hospital provides a reliable emergency power system, as required by the services provided and patients served, that supplies electricity to the following areas when normal electricity is interrupted: Medical and surgical vacuum systems
11. The hospital provides a reliable emergency power system, as required by the services provided and patients served, that supplies electricity to the following areas when normal electricity is interrupted: Areas where electrically powered life-support equipment is used
12. Not applicable
13. Not applicable
14. The hospital provides a reliable emergency power system, as required by the services provided and patients served, that supplies electricity to the following areas when normal electricity is interrupted: Operating rooms



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15. The hospital provides a reliable emergency power system, as required by the services provided and patients served, that supplies electricity to the following areas when normal electricity is interrupted: Postoperative recovery rooms

16. The hospital provides a reliable emergency power system, as required by the services provided and patients served, that supplies electricity to the following areas when normal electricity is interrupted: Obstetrical delivery rooms

17. The hospital provides a reliable emergency power system, as required by the services provided and patients served, that supplies electricity to the following areas when normal electricity is interrupted: Newborn nurseries

**Standard EC.7.40**

The hospital maintains, tests, and inspects its emergency power systems.

**Rationale for EC.7.40**

**Note:** This standard does not require hospitals to have the types of emergency power systems discussed below. However, if a hospital has these types of systems, then the following maintenance, testing, and inspection requirements apply.

**Elements of Performance for EC.7.40**

1. The hospital tests each generator 12 times a year with testing intervals not less than 20 days and not more than 40 days apart. These tests shall be conducted for at least 30 continuous minutes under a dynamic load that is at least 30% of the nameplate rating of the generator.

*Note: Hospitals may choose to test to less than 30% of the emergency generator's nameplate. However, these hospitals shall (in addition to performing a test for 30 continuous minutes under operating temperature at the intervals described above) revise their existing documented management plan to conform to current NFPA 99 and NFPA 110 testing and maintenance activities. These activities shall include inspection procedures for assessing the prime movers' exhaust gas temperature against the minimum temperature recommended by the manufacturer.*

*If diesel-powered generators do not meet the minimum exhaust gas temperatures as determined during these tests, they shall be exercised for 30 continuous minutes at the intervals described above with available Emergency Power Supply Systems (EPSS) load, and exercised annually with supplemental loads of*

- 25% of name plate rating for 30 minutes, followed by
- 50% of name plate rating for 30 minutes, followed by
- 75% of name plate rating for 60 minutes for a total of two continuous hours.

2. The hospital tests all automatic transfer switches 12 times a year with testing intervals not less than 20 days and not more than 40 days apart.

3. The hospital tests all battery-powered lights required for egress. Testing includes (a) a functional test at 30-day intervals for a minimum of 30 seconds; and (b) an annual test for a duration of 1.5 hours.

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4. The hospital tests Stored Emergency Power Supply Systems (SEPSS) whose malfunction may severely jeopardize the occupants' life and safety.<sup>7</sup> Testing includes (a) a quarterly functional test for 5 minutes or as specified for its class,<sup>8</sup> whichever is less; and (b) an annual test at full load for 60% of the full duration of its class.

**Standard IM.2.30**

Continuity of information is maintained.

**Rationale for IM.2.30**

The purpose of the business continuity/disaster recovery plan is to identify the most critical information needs for patient care, treatment, and services and business processes, and the impact on the hospital if these information systems were severely interrupted. The plan identifies alternative means for processing data, providing for recovery of data, and returning to normal operations as soon as possible.

**Elements of Performance for IM.2.30**

1. The hospital has a business continuity/disaster recovery plan for its information systems.
2. For electronic systems, the business continuity/disaster recovery plan includes the following:
  - Plans for scheduled and unscheduled interruptions, which includes end-user training with the downtime procedures
  - Contingency plans for operational interruptions (hardware, software, or other systems failure)
  - Plans for minimal interruptions as a result of scheduled downtime
  - An emergency service plan
  - A back-up system (electronic or manual)
  - Data retrieval, including retrieval from storage and information presently in the operating system, retrieval of data in the event of system interruption, and back up of data
3. The plan is tested periodically as defined by the hospital (or in accordance with law or regulation) to ensure that the business interruption back-up techniques are effective.

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<sup>7</sup> **Stored Emergency Power Supply Systems (SEPSS)** Are intended to automatically supply illumination or power to critical areas and equipment essential for safety to human life. Included are systems that supply emergency power for such functions as illumination for safe exiting, ventilation where it is essential to maintain life, fire detection and alarm systems, public safety communications systems, and processes where the current interruption would produce serious life safety or health hazards to clients, the public, or staff. **Note:** *Other non-SEPSS battery back-up emergency power systems that an hospital has determined to be critical for operations during a power failure (for example, laboratory equipment, electronic medical records) should be properly tested and maintained in accordance with manufacturer's recommendations.*

<sup>8</sup> **Class** Defines the minimum time for which the SEPSS is designed to operate at its rated load without being recharged (for additional guidance, see NFPA 111 (1996 edition) *Standard on Stored Electrical Energy Emergency and Standby Power Systems*).

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4. The business continuity/disaster recovery plan is implemented when information systems are interrupted.

**Standard LD.3.15**

The leaders develop and implement plans to identify and mitigate impediments to efficient patient flow throughout the hospital.

**Rationale for LD.3.15**

Managing the flow of patients through the organization is essential to the prevention and mitigation of patient crowding, a problem that can lead to lapses in patient safety and quality of care. The Emergency Department is particularly vulnerable to experiencing negative effects of inefficiency in the management of this process. While Emergency Departments have little control over the volume and type of patient arrivals and most hospitals have lost the “surge capacity” that existed at one time to manage the elastic nature of emergency admissions, other opportunities for improvement do exist. Overcrowding has been shown to be primarily an organization-wide “system problem” and not just a problem for which a solution resides within the emergency department. Opportunities for improvement often exist outside the emergency department.

This standard emphasizes the role of assessment and planning for effective and efficient patient flow throughout the organization. To understand the system implications of the issues, leadership should identify all of the processes critical to patient flow through the hospital system from the time the patient arrives, through admitting, patient assessment and treatment, and discharge. Supporting processes such as diagnostic, communication, and patient transportation are included if identified by leadership as impacting patient flow. Relevant indicators are selected and data is collected and analyzed to enable monitoring and improvement of processes.

A key component of the standard addresses the needs of admitted patients who are in temporary bed locations awaiting an inpatient bed. Twelve key elements of care have been identified to ensure adequate and appropriate care for admitted patients in temporary locations. These elements have implications across the organization and should be considered when planning care and services for these patients. Additional standard chapters relevant to these key elements are shown in parenthesis.

- Life Safety Code issues (for example, patients in open areas) (EC)
- Patient privacy and confidentiality (RI)
- Cross training and coordination among programs and services to ensure adequate staffing, particularly nursing staff (HR)
- Designation of a physician to manage the care of the admitted patient in a temporary location, without compromising the quality of care given to other ED patients (HR)
- Proper technology and equipment to meet patient needs (PC, LD)
- Appropriately privileged practitioners to provide patient care beyond immediate emergency services (HR)

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- Access to other practitioners for consult and referral (for example, Intensivist) (PC)
- Assurance of appropriate communication between all health care providers (LD)
- Access to ancillary services (for example, pharmacy, lab, dietary) which permit the prompt disposition of patient care needs (LD)
- Patient access to medical assistance in an emergency, or for immediate care if needed (for example, call bell) (PC)
- A comprehensive written care plan carried out in a timely fashion, inclusive of intensive care issues (PC)
- Patient education on rights and access to services(PC)

Planning should also address the delivery of adequate care and services to those patients for whom no decision to admit has been made, but who are placed in overflow locations for observation or while awaiting completion of their evaluation.

Additionally, the standard calls for indicator results to be made available to those individuals who are accountable for processes that support patient flow. These results should be regularly reported to leadership to support their planning. The organization should improve inefficient or unsafe processes identified by leadership as essential in the efficient movement of patients through the organization. Criteria should be defined to guide decisions about ambulance diversion.

**Elements of Performance for LD.3.15**

1. Leaders assess patient flow issues within the hospital, the impact on patient safety, and plan to mitigate that impact.
2. Planning encompasses the delivery of appropriate and adequate care to admitted patients who must be held in temporary bed locations, for example, post anesthesia care unit and emergency department areas.
3. Leaders and medical staff share accountability to develop processes that support efficient patient flow.
4. Planning includes the delivery of adequate care, treatment, and services to non-admitted patients who are placed in overflow locations.
5. Specific indicators are used to measure components of the patient flow process and address the following:
  - Available supply of patient bed space
  - Efficiency of patient care, treatment, and service areas
  - Safety of patient care, treatment and service areas
  - Support service processes that impact patient flow
6. Indicator results are available to those individuals who are accountable for processes that support patient flow.

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7. Indicator results are reported to leadership on a regular basis to support planning.
8. The hospital improves inefficient or unsafe processes identified by leadership as essential to the efficient movement of patients through the organization.
9. Criteria are defined to guide decisions about initiating diversion.

**Standard IC.6.10**

As part of its emergency management activities, the hospital prepares to respond to an influx, or the risk of an influx, of infectious patients.

**Rationale for IC.6.10**

The health care hospital is an important resource for the continued functioning of a community. A hospital's ability to deliver care, treatment, or services is threatened when it is ill-prepared to respond to an epidemic or infections likely to require expanded or extended care capabilities over a prolonged period. Therefore, it is important for a hospital to plan how to prevent the introduction of the infection into the hospital, how to quickly recognize that existing patients have become infected, and/or how to contain the risk or spread of the infection.

This planned response may include a broad range of options including the temporary halting of services and/or admissions, delaying transfer or discharge, limiting visitors within a hospital, or fully activating the hospital's emergency management plan. The actual response depends upon issues such as the extent to which the community is affected by the epidemic or infection, the types of services the hospital offers, and the hospital's capabilities.

The concepts included in these standards are supported by standards found elsewhere in the manual including standard EC.4.10.

**Elements of Performance for IC.6.10**

1. The hospital determines its response to an influx or risk of an influx of infectious patients.
2. The hospital has a plan for managing an ongoing influx of potentially infectious patients over an extended period.
3. The hospital does the following:
  - Determines how it will keep abreast of current information about the emergence of epidemics or new infections which may result in the hospital activating its response
  - Determines how it will disseminate critical information to staff and other key practitioners
  - Identifies resources in the community (through local, state and/or federal public health systems) for obtaining additional information

Source: JCAHO 2006 Hospital Accreditation Standards for Emergency Management Planning, Emergency Management Drills, Infection Control, and Disaster Privileges © 2005 Used with permission.

Note: GAO obtained these standards from JCAHO in November 2005. According to JCAHO officials, parts of the standards have since been revised.

**Appendix III: JCAHO and AOA Requirements  
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**Table 3: 2005 AOA Accreditation Requirements for Hospitals**

Standard	Description
<p>11.02.02 <u>Building Safety</u>.</p> <p>The condition of the physical plant and the overall hospital environment must be developed and maintained in such a manner that the safety and well being of patients, visitors, and staff is assured.</p>	<p>The hospital must ensure that the condition of the physical plant and overall hospital environment is developed and maintained in a manner to ensure the safety and well being of patients. This includes ensuring that routine and preventive maintenance and testing activities are performed as necessary, in accordance with Federal and State laws, regulations, and guidelines and manufacturer’s recommendations, by establishing maintenance schedules and conducting ongoing maintenance inspections to identify areas or equipment in need of repair. The routine and preventive maintenance activities should be incorporated into the hospital’s QAPI<sup>a</sup> plan.</p> <p>The hospital must develop and implement a comprehensive plan to ensure that the safety and well being of patients are assured during emergency situations. The hospital must coordinate with Federal, State, and local emergency preparedness and health authorities to identify likely risks for their area (e.g., natural disaster, bioterrorism threats, disruption of utilities such as water, sewer, electrical communications, fuel; nuclear accidents, industrial accidents, and other likely mass casualties, etc.) and to develop appropriate responses that will assure that safety and well being of patients.</p> <p>The following issues should be considered when developing the comprehensive emergency plans:</p> <ul style="list-style-type: none"> <li>a. The differing needs of each location where the certified hospital operates</li> <li>b. The special needs of patient populations treated at the hospital (e.g., patients with psychiatric diagnosis)</li> <li>c. Security of patients and walk-in patients</li> <li>d. Security of supplies from misappropriation</li> <li>e. Pharmaceuticals, food, other supplies and equipment that may be needed during emergency/disaster situations</li> <li>f. Communication to external entities if telephones and computers are not operating emergency/disaster situations or become overloaded (e.g., ham radio operators, community officials, other healthcare facilities if transfer of patients is necessary, etc.)</li> <li>g. Communication among staff within the hospital itself</li> <li>h. Qualifications and training needed by personnel including healthcare staff, security staff, and maintenance staff, to implement and carry out emergency procedures</li> <li>i. Identification, availability and notification of personnel that are needed to implement and carry out the hospital's emergency plans</li> <li>j. Identification of community resources, including lines of communication and names and contact information for community emergency preparedness coordinators and responders</li> <li>k. Provisions if gas, water, electricity supply is shut off to the community</li> <li>l. Transfer or discharge of patients to home, other healthcare settings, or other hospitals</li> <li>m. Transfer of patients with hospital equipment to another hospital or healthcare setting; and</li> <li>n. Methods to evaluate repairs needed and to secure various likely materials and supplies to effectuate repairs</li> </ul>

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<b>Standard</b>	<b>Description</b>
<p>11.07.01 <u>Disaster Plans.</u> Written disaster plans are developed, maintained, and available to the staff for crisis preparation</p>	<p>All disaster plans written by a hospital should be reviewed and coordinated with local authorities so as to prevent confusion. Such authorities include, but are not limited to, civil authorities (such as fire department, police department, public health department or emergency medical service councils), and civil defense or military authorities. The hospital shall provide an education program for staff and physicians for emergency response preparedness. The hospital should also participate in community emergency preparedness plans.</p>
<p>11.07.02 <u>External Disaster Plan-Victim Triage.</u></p>	<p>The hospital's external disaster plan shall include the triaging of victims and includes at least:</p> <ul style="list-style-type: none"> <li>a. identification tags</li> <li>b. placement of patients</li> <li>c. notification of physicians; and</li> <li>d. preliminary diagnosis of patients</li> </ul> <p>The plan must address handling of communicable disease outbreaks and chemical exposure victims.</p>
<p>11.07.03 <u>Disaster Drills.</u></p>	<p>Disaster drills are to be performed at least semiannually one of which shall include the community.</p>
<p>11.08.03 <u>Maintenance Ensures Safety and Quality.</u> Facilities, supplies, and equipment shall be maintained to ensure an acceptable level of safety and quality.</p>	<p>Facilities must be maintained to ensure an acceptable level of safety and quality.</p> <p>Supplies must be maintained to ensure an acceptable level of safety and quality. This would include that supplies are stored in such a manner to ensure the safety of the stored supplies (protection against theft or damage, contamination, or deterioration), as well as, that the storage practices do not violate fire codes or otherwise endanger patients (storage of flammables, blocking passageways, storage of contaminated or dangerous materials, safe storage practices for poisons, etc.)</p> <p>Additionally, "supplies must be maintained to ensure an acceptable level of safety" would include that the hospital identifies the supplies it needs to meet its patients' needs for both day-to-day operations and those supplies that are likely to be needed in likely emergency situations such as mass casualty events resulting from natural disasters, mass trauma, disease outbreaks, etc.; and that the hospital makes adequate provisions to ensure the availability of those supplies when needed.</p> <p>Medical equipment and other equipment must be maintained in accordance with manufacturers recommendations, laws, and NFPA<sup>b</sup> 99 chapters as appropriate.</p> <p>Equipment includes both hospital equipment (e.g., elevators, generators, air handlers, medical gas systems, air compressors and vacuum systems, etc.) and medical equipment (e.g., biomedical equipment, radiological equipment, patient beds, stretchers, IV infusion equipment, ventilators, laboratory equipment, etc.).</p> <p>There must be a regular periodical maintenance and testing program for medical devices and equipment. A qualified individual such as a clinical or biomedical engineer, or other qualified maintenance person must monitor, test, calibrate and maintain the equipment periodically in accordance with the manufacturer's recommendations and federal and State laws and regulations. Equipment maintenance may be conducted using hospital staff, contracts, or through a combination of hospital staff and contracted services.</p>

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Standard	Description
	<p>“Equipment must be maintained to ensure an acceptable level of safety” would include that the hospital identifies the equipment it needs to meet its patients’ needs for both day-to-day operations and equipment that is likely to be needed in likely emergency/disaster situations such as mass casualty events resulting from natural disasters, mass trauma, disease outbreaks, internal disasters, etc.; and that the hospital makes adequate provisions to ensure the availability of that equipment when needed.</p>

Source: Accreditation Requirements for Healthcare Facilities © 2005, Healthcare Facilities Accreditation Program (HFAP) of the American Osteopathic Association. Used with permission.

<sup>a</sup>Quality assessment performance improvement.

<sup>b</sup>National Fire Protection Association.



# Appendix IV: Comments from the Department of Homeland Security

U.S. Department of Homeland Security  
Washington, DC 20528



**Homeland  
Security**

July 7, 2006

Ms. Cynthia A. Bascetta  
Director, Health Care  
U.S. Government Accountability Office  
441 G Street, NW  
Washington, DC 20548

Dear Ms. Bascetta:

RE: Draft Report GAO-06-826, Disaster Preparedness: Limitations in Federal Evacuation Assistance for Health Facilities Should be Addressed (GAO Job Code 290503)

The Department of Homeland Security appreciates the opportunity to review and comment on the draft report. The Government Accountability Office (GAO) recommends that the Secretary of Homeland Security (1) clearly delineate how the Federal government will assist state and local governments with the movement of patients and residents out of hospitals and nursing homes to a mobilization center where National Disaster Medical System (NDMS) transportation begins; and (2) in consultation with other NDMS Federal partners--the Secretaries of Defense, Health and Human Services, and Veterans Affairs--clearly delineate how to address the needs of nursing home residents during evacuations, including the arrangements necessary to relocate these residents.

We will take the recommendations under advisement as we review the National Response Plan. However, the primary responsibility for evacuations, including evacuations from hospitals and nursing homes, remains with state and local governments. The Federal government becomes involved only when the capabilities of the state and local governments are overwhelmed. Moreover, as GAO states, the National Disaster Medical System is limited in its design and operational capabilities with respect to evacuating patients from hospitals and nursing homes. These limitations are defined by a Memorandum of Agreement (MOA) among the NDMS Federal partners (National Disaster Medical System Federal Partners MOA, October 25, 2005).

Pursuant to Federal Emergency Management Agency after-action analyses of activities during Hurricane Katrina and the findings of this audit, all of the NDMS Federal partners are currently reviewing the MOA with a view towards working with our state and local partners to alter, delineate, and otherwise clarify roles and responsibilities as appropriate.

[www.dhs.gov](http://www.dhs.gov)

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**Appendix IV: Comments from the Department  
of Homeland Security**

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These efforts will create better understanding and communication of the roles defined in the MOA, and the appropriate separation of Federal versus state and local roles.

Sincerely,



Steven J. Pecinovsky  
Director  
Departmental GAO/OIG Liaison Office

MMcP

# Appendix V: Comments from the Department of Defense



HEALTH AFFAIRS

THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D. C. 20301-1200

Ms. Cynthia A. Bascetta  
Director, Health Care  
U.S. Government Accountability Office  
441 G. Street, N.W.  
Washington, DC 20548

JUL 6 2006

Dear Ms. Bascetta:

This is the Department of Defense (DoD) response to the Government Accountability Office (GAO) Draft Report entitled, "DISASTER PREPAREDNESS: Limitations in Federal Evacuation Assistance for Health Facilities Should Be Addressed," dated June 14, 2006, GAO Code 290503/GAO-06-826.

Thank you for the opportunity to review and comment on the draft report. I appreciate the collaborative, insightful, and thorough approach your team has taken with this important issue. A basic conclusion of your report is that the National Disaster Medical System (NDMS) has two limitations that "constrain" its assistance to state and local governments with patient evacuation. The first is that NDMS evacuation efforts begin at a mobilization center, such as an airport, and do not include short-distance transportation assets, such as ambulances or helicopters. The second limitation is that the NDMS was not designed, nor is it currently configured, to move nursing home residents.


We disagree with both of these conclusions. By describing NDMS as being "constrained" by these two limitations, you are essentially saying that the provision of such disaster response assets (short transportation) is a federal responsibility. It is not. You might better describe the limitations and/or deficiencies as those of state and local government. The federal government's role should not be to provide local ambulance service, or even local helicopter lift (a responsibility that could be ably filled by state national guard). Your second conclusion regarding the lack of configuration of NDMS to deal with nursing home patients, though technically correct, did not prove to be a problem in the case of Hurricane Rita, which you fail to describe. In that situation, over 3,000 chronically ill patients, many from nursing homes, were moved within 24 hours notice out of harm's way from Port Arthur, Texas to various locations in the region, entirely through the NDMS and the efforts of TRANSCOM. It was a spectacular success, and unfortunately you did not mention it.

We look forward to the final report and hope that it takes proper note of the respective roles and responsibilities that should be assumed by the federal government,

versus state and local governments, and even private institutions that have serious and chronically ill patients under their care.

My points-of-contact for additional information are Lieutenant Colonel William Joseph Kormos (functional) at (703) 614-4157 and Mr. Gunther Zimmerman (Audit Liaison) at (703) 681-3492, extension 4065.

Sincerely,

  
William Winkenwerder, Jr., MD

# Appendix VI: Comments from the Department of Health and Human Services



DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of Inspector General

Washington, D.C. 20201

JUL 12 2006

Ms. Cynthia A. Bascetta  
Director, Health Care  
U.S. Government Accountability Office  
Washington, DC 20548

Dear Ms. Bascetta:

The Department of Health and Human Services (HHS) appreciates the opportunity to review and comment on the U.S. Government Accountability Office's (GAO) draft report entitled, "DISASTER PREPAREDNESS: Limitations in Federal Evacuation Assistance for Health Facilities Should be Addressed" (GAO-06-826), before its publication.

The report focuses on the role of the National Disaster Medical System (NDMS) and the NDMS Federal partners. Given the focus of the report on Federal evacuation assistance, GAO should also address the role the Department of Transportation has in the National Response Plan to provide transportation support for domestic emergencies (e.g. contracting for ambulances).

This document says many times that NDMS *lacked or did not have* preexisting agreements with nursing homes, or that NDMS is *not designed* to move patients or residents out of their facilities but doesn't adequately describe why. It would help if the reader were given more information explaining the reasons that the system was designed to only focus on hospital evacuation.

The Department provided several technical comments directly to your staff.

These comments and the concurrence of the recommendation represent the tentative position of the Department and are subject to reevaluation when the final version of the report is received.

Sincerely,

A handwritten signature in cursive script that reads "Daniel R. Levinson".

Daniel R. Levinson  
Inspector General

Enclosure

The Office of Inspector General (OIG) is transmitting the Department's response to this draft report in our capacity as the Department's designated focal point and coordinator for U.S. Government Accountability Office reports. OIG has not conducted an independent assessment of these comments and therefore expresses no opinion on them.

# Appendix VII: Comments from the Department of Veterans Affairs



THE DEPUTY SECRETARY OF VETERANS AFFAIRS  
WASHINGTON  
July 5, 2006



*Commemorating 75 Years of Service*

Ms. Cynthia A. Bascetta  
Director  
Health Care Team  
U. S. Government Accountability Office  
441 G Street, NW  
Washington, DC 20548

Dear Ms. Bascetta:

The Department of Veterans Affairs (VA) has reviewed the Government Accountability Office's (GAO) draft report, ***DISASTER PREPAREDNESS: Limitations in Federal Evacuation Assistance for Health Facilities Should be Addressed*** (GAO-06-826) and agrees with your conclusions and recommendations. As a member of the National Disaster Medical System (NDMS), VA will continue to participate actively to address issues you have raised in your report, particularly regarding improved responsiveness to nursing home patients needing to be evacuated. VA will also continue to coordinate closely with other NDMS Federal partners to assure that identified limitations are addressed appropriately.

VA appreciates the opportunity to comment on your draft report.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Gordon H. Mansfield".

Gordon H. Mansfield

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# Appendix VIII: GAO Contact and Staff Acknowledgments

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## GAO Contact

Cynthia A. Bascetta at (202) 512-7101 or [bascettac@gao.gov](mailto:bascettac@gao.gov)

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## Acknowledgments

In addition to the contact named above, key contributors to this report were Linda T. Kohn, Assistant Director; La Sherri Bush; Krister Friday; Nkeruka Okonmah; and William Simerl.

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# Related GAO Products

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*Disaster Preparedness: Preliminary Observations on the Evacuation of Vulnerable Populations due to Hurricanes and Other Disasters.* [GAO-06-790T](#). Washington, D.C.: May 18, 2006.

*Hurricane Katrina: Status of the Health Care System in New Orleans and Difficult Decisions Related to Efforts to Rebuild It Approximately 6 Months After Hurricane Katrina.* [GAO-06-576R](#). Washington, D.C.: March 28, 2006.

*Hurricane Katrina: GAO's Preliminary Observations Regarding Preparedness, Response, and Recovery.* [GAO-06-442T](#). Washington, D.C.: March 8, 2006.

*Disaster Preparedness: Preliminary Observations on the Evacuation of Hospitals and Nursing Homes Due to Hurricanes.* [GAO-06-443R](#). Washington, D.C.: February 16, 2006.

*HHS Bioterrorism Preparedness Programs: States Reported Progress but Fell Short of Program Goals for 2002.* [GAO-04-360R](#). Washington, D.C.: February 10, 2004.

*Bioterrorism: Public Health Response to Anthrax Incidents of 2001.* [GAO-04-152](#). Washington, D.C.: October 15, 2003.

*Hospital Preparedness: Most Urban Hospitals Have Emergency Plans but Lack Certain Capacities for Bioterrorism Response.* [GAO-03-924](#). Washington, D.C.: August 6, 2003.

*Bioterrorism: Information Technology Strategy Could Strengthen Federal Agencies' Abilities to Respond to Public Health Emergencies.* [GAO-03-139](#). Washington, D.C.: May 30, 2003.

*Bioterrorism: Preparedness Varied across State and Local Jurisdictions.* [GAO-03-373](#). Washington, D.C.: April 7, 2003.



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## Public Affairs

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