

**Department of Health and Human Services**

**OFFICE OF  
INSPECTOR GENERAL**

**HOSPITAL EMERGENCY  
PREPAREDNESS AND RESPONSE  
DURING SUPERSTORM SANDY**



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# **EXECUTIVE SUMMARY: HOSPITAL EMERGENCY PREPAREDNESS AND RESPONSE DURING SUPERSTORM SANDY**

## **OEI-06-13-00260**

### **WHY WE DID THIS STUDY**

Federal regulations require that hospitals prepare for emergencies including natural disasters. The strength of Superstorm Sandy and the population density of the affected areas placed high demands on hospitals and related services. Prior studies by the Office of Inspector General found substantial challenges in health care facility emergency preparedness and response. In a 2006 study, we found that many nursing homes had insufficient emergency plans or did not follow their plans. In a 2012 followup study, we found that gaps continued to exist in nursing home emergency preparedness and response.

### **HOW WE DID THIS STUDY**

For this study, we surveyed 174 Medicare-certified hospitals located in declared disaster areas in Connecticut, New Jersey, and New York during Superstorm Sandy. We also conducted site visits to 10 purposively selected hospitals located in areas most affected by the storm. Additionally, we examined information from State survey agency and accreditation organization surveys of hospitals conducted prior to the storm and spoke to surveyors about their survey process related to emergency preparedness. We also interviewed State hospital associations and health care coalitions in the three States.

### **WHAT WE FOUND**

Most hospitals in declared disaster areas sheltered in place during Superstorm Sandy, and 7 percent evacuated. Eighty-nine percent of hospitals in these areas reported experiencing substantial challenges in responding to the storm. These challenges represented a range of interrelated problems from infrastructure breakdowns, such as electrical and communication failures, to community collaboration issues over resources, such as fuel, transportation, hospital beds, and public shelters. Hospitals reported that prior emergency planning was valuable during the storm and that they subsequently revised their plans as a result of lessons learned. Prior to the storm, most hospitals received emergency-related deficiency citations from hospital surveyors, some of which related to the challenges reported by hospitals during Superstorm Sandy.

### **WHAT WE RECOMMEND**

The experiences of hospitals during Superstorm Sandy and the deficiencies cited prior to the storm reveal gaps in emergency planning and execution that might be applicable to hospitals nationwide. Given that insufficient community-wide coordination among affected entities was a common thread through the challenges identified by hospital administrators, we recommend that the Office of the Assistant Secretary for Preparedness and Response (ASPR) continue to promote Federal, State, and community collaboration in major disasters. We also recommend that the Centers for Medicare & Medicaid Services (CMS) examine existing policies and provide guidance regarding flexibility for reimbursement under disaster conditions. ASPR and CMS concurred with the recommendations.

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## OBJECTIVES

1. To describe the disaster experiences of hospitals affected by Superstorm Sandy, including challenges to hospital operations and patient care.
2. To determine the extent to which State survey agencies and accreditation organizations cited hospitals with emergency-related deficiencies prior to Superstorm Sandy.

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## BACKGROUND

### **Superstorm Sandy**

Superstorm Sandy (hereinafter referred to as Sandy) made landfall in the northeastern United States on October 29, 2012, severely damaging coastal areas of Connecticut, New Jersey, and New York. Although Sandy had weakened from a hurricane by the time it reached the United States, the storm surge combined with high tides caused widespread flooding along the coastal areas. The storm claimed 72 lives and damage estimates totaled nearly \$50 billion.<sup>1</sup> In Connecticut, New Jersey, and New York, the Federal Government declared 40 counties as disaster areas.<sup>2</sup> Within these counties are 174 Medicare-certified, short-term acute care hospitals, which are the subject of this report.<sup>3</sup>

### **Federal Requirements for Hospital Emergency Preparedness**

*Medicare Conditions of Participation.* Medicare- and Medicaid-participating hospitals must adhere to 23 Medicare Conditions of Participation. The conditions are a set of minimum quality and safety standards, including requirements such as protecting patient rights and maintaining a physical environment that avoids transmission of infections and communicable diseases.<sup>4</sup> One of these conditions requires that hospitals develop and implement a comprehensive emergency plan and maintain a physical environment (e.g., emergency power and lighting in

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<sup>1</sup> National Hurricane Center, *Tropical Cyclone Report: Hurricane Sandy* (AL182012), February 12, 2013. Accessed at [http://www.nhc.noaa.gov/data/tcr/AL182012\\_Sandy.pdf](http://www.nhc.noaa.gov/data/tcr/AL182012_Sandy.pdf) on March 13, 2013. At least 147 direct deaths were recorded across the Atlantic basin because of Sandy; 72 of these fatalities occurred in the mid-Atlantic and northeastern United States.

<sup>2</sup> Federal Emergency Management Agency (FEMA), *FEMA-4085-DR, FEMA-4086-DR, and FEMA-4087-DR*. Accessed at <http://www.fema.gov> on March 4, 2013.

<sup>3</sup> Centers for Medicare & Medicaid Services (CMS) Certification and Survey Provider Enhanced Reports (CASPER).

<sup>4</sup> 42 CFR §§ 482.13 and 482.42.

operating, recovery, intensive care, and emergency rooms) that ensures the safety and well-being of patients during emergencies.<sup>5</sup>

Hospitals must also meet applicable provisions of the Life Safety Code, including creating a written plan for protecting and evacuating all patients and conducting fire drills held at unexpected times under varying conditions.<sup>6</sup> Other Life Safety Code requirements that hospitals must meet relate to the physical environment, such as ensuring that fire extinguishers are accessible, sprinkler systems are effective, passages are unobstructed, and exits are clearly marked.<sup>7</sup> Additionally, hospitals with emergency departments must have adequate medical and nursing staff qualified to meet the emergency needs of patients.<sup>8</sup>

On December 27, 2013, 14 months after Sandy made landfall, CMS issued a notice of proposed rulemaking to establish national emergency preparedness requirements for providers and suppliers participating in Medicare and Medicaid. One of the proposed Medicare Conditions of Participation is that hospitals have an emergency plan and preparedness program that involves risk assessments, policies and procedures based on those assessments, communication plans that coordinate with external entities, and emergency training activities.<sup>9</sup>

*Medicare Oversight of Hospital Emergency Preparedness.* CMS includes oversight of hospital emergency preparedness as part of its broader Medicare compliance surveys conducted by State survey agencies and CMS-approved accreditation organizations.<sup>10, 11</sup>

Although State survey agencies use similar survey instruments and methodology, each accreditation organization uses its own process.

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<sup>5</sup> 42 CFR § 482.41; CMS *State Operations Manual*, Appendix A - Survey Protocol, Regulations and Interpretive Guidelines for Hospitals.

<sup>6</sup> 42 CFR § 482.41(b) (i). The Life Safety Code is a source for strategies to protect people that is based on building construction, protection, and occupancy features that minimize the effects of fire and related hazards. Accessed at <http://www.nfpa.org> on March 14, 2013.

<sup>7</sup> 42 CFR § 482.41(b)(i) states that the facility must meet the applicable provisions of the 2000 edition of the Life Safety Code of the National Fire Protection Association (NFPA), which is incorporated in the regulation by reference. See NFPA 101 Life Safety Code, 2000 edition, §§ 7.1.10; 7.10.1.4; and 19.2-3, 6-7. Accessed at <http://www.nfpa.org> on March 14, 2013.

<sup>8</sup> 42 CFR § 482.55(b)(2).

<sup>9</sup> 78 Fed. Reg. 79082-79200 (Dec. 27, 2013).

<sup>10</sup> Social Security Act (SSA); § 1865(a)(1); 42 U.S.C. 1395bb.

<sup>11</sup> Four national accreditors review hospital compliance: The Joint Commission (TJC), the American Osteopathic Association (AOA), Det Norske Veritas Healthcare (DNVHC), and the Center for Improvement in Healthcare Quality (CIHQ). CMS, *CMS-Approved Accreditation Organizations*, 2013.

During an accreditation survey, surveyors verify hospital compliance with the Medicare Conditions of Participation and additional performance standards imposed by the accrediting organization.<sup>12</sup> If surveyors find that a hospital does not meet a particular condition, they can cite the hospital with one or more deficiencies to indicate noncompliance and require a corrective plan of action or follow up with an onsite visit to validate correction. To continue providing care to Medicare patients, hospitals must correct deficiencies within a given timeframe depending on the seriousness of the deficiency.

CMS provides guidance to surveyors in its *State Operations Manual*.<sup>13</sup> The manual includes specific guidance regarding developing and accessing emergency plans, including requirements to identify and ensure availability of supplies and equipment, verify sufficient medical and nursing staff, and confirm a clear chain of command during disasters.<sup>14</sup> Hospitals may also use the manual as guidance in developing emergency plans.

Other guidance that hospitals may use when developing or revising emergency plans includes a CMS emergency preparedness checklist for health care facilities. The checklist provides the same guidance for all health care facilities, including hospitals, for developing emergency plans; ensuring adequate supplies of food and water; identifying evacuation routes; transporting patients, critical supplies, and equipment; and collaborating with local emergency management agencies, suppliers, and providers.<sup>15</sup>

### **Federal Disaster Preparedness and Response Programs**

Two agencies within the Department of Health and Human Services (HHS) operate and fund disaster preparedness programs. Through the Hospital Preparedness Program, the Office of the Assistant Secretary for Preparedness and Response (ASPR) funds grants and cooperative agreements with States, territories, and eligible municipalities to enhance community, hospital, and health care system preparedness for public

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<sup>12</sup> For example, TJC considers approximately 1,800 performance standards, only half of which correspond to a Medicare Condition of Participation. Office of Inspector General (OIG) interview with TJC officials, November 15, 2013.

<sup>13</sup> CMS, *State Operations Manual*, Pub. 100-07.

<sup>14</sup> CMS, *State Operations Manual*, Appendix A—Survey Protocol, Regulations and Interpretive Guidelines for Hospitals, pp. 223, 226–228, and 360. Accessed at <http://www.cms.gov> on May 24, 2011.

<sup>15</sup> CMS, *Survey & Certification: Emergency Preparedness Checklist Recommended Tool for Effective Health Care Facility Planning*. Accessed at <http://www.cms.gov> on February 5, 2010.

health emergencies.<sup>16, 17</sup> Additionally, through the Public Health Emergency Preparedness Cooperative Agreements program, the Centers for Disease Control and Prevention (CDC) funds preparedness activities for State and local public health systems.<sup>18</sup>

In the event of a disaster or emergency, the Federal Government uses the National Response Framework to guide its actions to save lives, protect property and the environment, stabilize affected areas, and meet basic human needs.<sup>19</sup> Using this framework, when local jurisdictions or tribal governments have exhausted their resources in responding to a disaster or emergency, they may request assistance from the State. When a disaster or emergency is beyond the capabilities of the State, the Governor or tribal government may seek Federal assistance. Within this framework, HHS is responsible for planning and coordinating Emergency Support Function (ESF) #8 to address public health, medical, and human services needs during a public health or medical disaster or emergency, including patient evacuation and patient care.<sup>20</sup> The Secretary of HHS leads the ESF #8 response which, when activated, is coordinated by ASPR.<sup>21, 22</sup>

### **Office of Inspector General Reports**

Prior studies by OIG on health care facility emergency preparedness found substantial challenges in both planning and execution. In a 2006 report, we found that a sample of 20 nursing homes had emergency plans that often lacked information suggested by experts. During emergencies, nursing home administrators and staff sometimes did not follow their emergency plans and insufficient collaboration between State and local emergency entities and nursing homes impeded emergency preparedness

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<sup>16</sup> HHS, ASPR, “Hospital Preparedness Program Overview.” Accessed at <http://www.phe.gov> on March 26, 2013.

<sup>17</sup> In fiscal year 2014, ASPR’s Hospital Preparedness Program budget was reduced by \$103 million (33 percent of its overall budget). Given the funding reduction, ASPR anticipates that many awardees will absorb the reduction in awards by scaling back on emergency preparedness activities, including exercises and training. OIG conversation with ASPR, May 2, 2014.

<sup>18</sup> HHS, CDC, “Public Health Emergency Preparedness Cooperative Agreements.” Accessed at <http://www.cdc.gov> on March 26, 2013.

<sup>19</sup> Department of Homeland Security (DHS), *National Response Framework*, January 2008, p. 1, 12. Accessed at <http://www.fema.gov/pdf/emergency/nrf/nrf-core.pdf> on May 26, 2013. The second edition was published after Sandy in May 2013.

<sup>20</sup> DHS, *Emergency Support Function #8–Public Health and Medical Services Annex*, January 2008, p. 1-2. Accessed at <http://www.fema.gov/pdf/emergency/nrf/nrf-esf-08.pdf> on May 26, 2013. The ESF #8 Annex was revised in May 2013.

<sup>21</sup> Pandemic and All-Hazards Preparedness Act of 2006, P.L. No. 108-173 § 102.

<sup>22</sup> For more information on the National Response Framework and each Federal agency’s responsibilities during disasters, see [http://www.fema.gov/media-library-data/20130726-1914-25045-1246/final\\_national\\_response\\_framework\\_20130501.pdf](http://www.fema.gov/media-library-data/20130726-1914-25045-1246/final_national_response_framework_20130501.pdf).

and management.<sup>23</sup> Subsequent to the 2006 report, CMS developed the previously mentioned emergency preparedness checklist for health care facilities.<sup>24</sup>

In a 2012 followup report, OIG found that gaps continued to exist in health care facility emergency preparedness and response.<sup>25</sup>

Administrators from nursing homes reported challenges such as following emergency plans as written, logistical problems related to transportation and communication, and negative effects of evacuation on resident health. We recommended that CMS revise Federal regulations to include requirements for specific elements of emergency plans and training, update the *State Operations Manual* to provide detailed and clear guidance for surveyors assessing compliance with Federal standards, and promote use of the checklist. Additionally, in a 2012 memorandum report, OIG outlined guidance that CMS could consider when revising its emergency preparedness checklist for health care facilities.<sup>26, 27</sup>

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## METHODOLOGY

Report findings are based on multiple data collection activities and sources. We administered electronic questionnaires to the 174 Medicare-certified, short-term acute care hospitals located in the 40 counties declared as disaster areas in Connecticut, New Jersey, and New York (see Figure 1 for a map of the counties declared as disaster areas and Figure A-1 in Appendix A for a map of the hospitals located in the affected areas). We received survey responses from 172 of the 174 hospitals. We also conducted site visits to 10 purposively selected hospitals located in areas most affected by the storm.

Additionally, we examined surveys conducted by the State survey agencies and accreditation organizations of hospitals in the affected areas

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<sup>23</sup> HHS, OIG, *Nursing Home Emergency Preparedness and Response During Recent Hurricanes*, OEI-06-06-00020, August 2006.

<sup>24</sup> CMS, *Survey & Certification: Emergency Preparedness Checklist Recommended Tool for Effective Health Care Facility Planning*, September 2007. The checklist was revised in September 2009. Accessed at <http://www.cms.gov> on February 5, 2010.

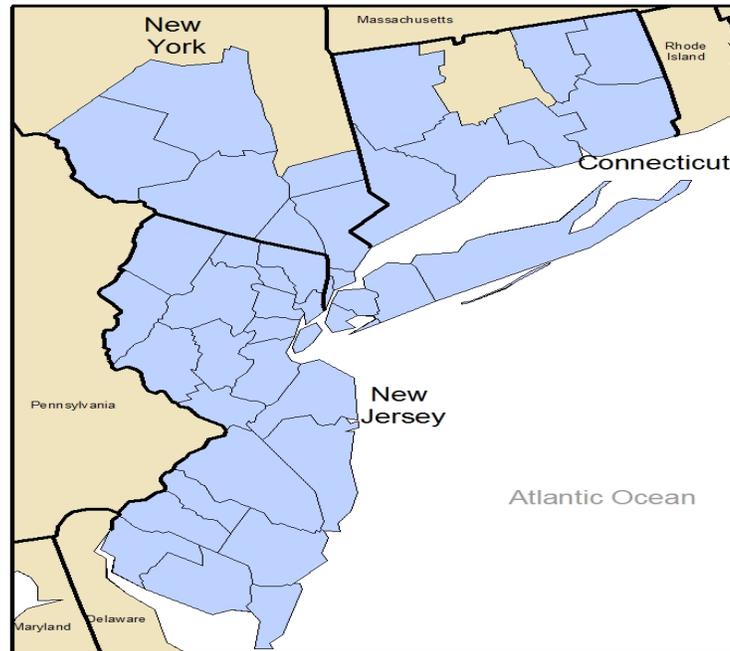
<sup>25</sup> HHS, OIG, *Gaps Continue To Exist in Nursing Home Emergency Preparedness and Response During Disasters: 2007-2010*, OEI-06-09-00270, April 2012.

<sup>26</sup> HHS, OIG, *Supplemental Information Regarding the Centers for Medicare & Medicaid Services' Emergency Preparedness Checklist for Health Care Facilities*, OEI-06-09-00271, April 2012.

<sup>27</sup> In December 2013, CMS revised the checklist according to the outlined guidance in the 2012 OIG memorandum report. CMS, *Survey & Certification: Emergency Preparedness Checklist Recommended Tool for Effective Health Care Facility Planning*. Accessed at <http://www.cms.gov> on March 26, 2014.

prior to the storm and spoke to the surveying entities about their survey processes related to emergency preparedness. We reviewed surveys for 171 of the 174 hospitals.<sup>28</sup> We also conducted telephone interviews with State hospital associations and health care coalitions in the three States.<sup>29</sup> (See Appendix A for a complete description of the methodology.)

**Figure 1: Map of Counties Declared as Disaster Areas as a Result of Sandy**



Source: FEMA, *FEMA-4085-DR*, *FEMA-4086-DR*, and *FEMA-4087-DR*. Accessed at <http://www.fema.gov> on March 4, 2013.

### Limitations

Sandy affected numerous States along the east coast. However, we selected only the 3 States that were most heavily affected by the storm and the 40 counties within those States that were declared as disaster areas. For this reason, experiences of these hospitals may not be reflective of experiences of hospitals in other States or counties. Also, we did not interview State or local emergency management entities to verify the

<sup>28</sup> We did not receive surveys for three hospitals because of unavailable data.

<sup>29</sup> A health care coalition is a group of health care organizations and public safety and public health partners that join forces for the common cause of making their communities safer, healthier, and more resilient before, during, and after disasters and other crises. National Healthcare Coalition Resource Center. Accessed at <http://healthcarecoalitions.org> on January 2, 2014.

information provided by hospitals related to their involvement during Sandy. Further, we requested from accreditation organizations and State survey agencies surveys of only the selected hospitals. Therefore, deficiency data are not projectable to other hospitals. Lastly, we did not directly link survey deficiency data to challenges reported by specific hospitals because hospitals responded to the questionnaire anonymously.

### **Standards**

This study was conducted in accordance with the *Quality Standards for Inspection and Evaluation* issued by the Council of the Inspectors General on Integrity and Efficiency.

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## FINDINGS

### **Most hospitals in declared disaster areas sheltered in place during Sandy, and 7 percent evacuated**

Sandy affected many aspects of hospital operations, and ultimately 93 percent of hospitals (160 of 172) sheltered in place, while 7 percent of hospitals (12 of 172) either evacuated (9) or partially evacuated (3). Despite the challenging circumstances, according to ASPR, hospitals did not experience any patient deaths as a result of the storm.

Several factors strongly influenced whether hospitals were able to shelter in place or forced to evacuate all or some of their patients. For example, location of the hospital near a flood zone, projections of poor weather, and concerns about the structural integrity of the hospital might influence a hospital to evacuate. Additionally, hospitals reported that prior experience with hurricanes, including Hurricane Irene a year prior, strongly influenced their disaster response.

#### ***Hospitals that sheltered in place served several functions during the storm, including receiving patients from other health care facilities and providing care to the public***

Of the hospitals that sheltered in place, 65 reported receiving patients from other hospitals. Receiving patients required hospitals to coordinate with outside entities, bolster supplies and staff, and reduce the number of existing patients prior to Sandy's landfall. These outside entities included local emergency management agencies, police departments, State health departments, and evacuating hospitals. To reduce their patient populations prior to the storm, many hospitals discharged patients identified as safe for discharge, canceled elective surgeries and procedures, and redistributed patients across multiple departments to enable a more evenly divided use of resources. Specifically, 117 hospitals that sheltered in place reported discharging patients whom hospital staff had identified as safe for discharge, on the basis of their conditions, and the availability of caregivers and a home or other destination located outside flood and evacuation zones. During hospital site visits, administrators described how hospitals also served as shelters for people in the community (with and without medical needs) given that the hospitals were often the only buildings nearby with electricity.

#### ***For hospitals that evacuated all or some of their patients, evacuations typically occurred in two challenging stages***

Prior to the storm, evacuating hospitals took actions similar to those of hospitals that sheltered in place and discharged as many patients as possible whom staff had identified as safe for discharge, canceled elective

surgeries and procedures, and closed their emergency departments.

Following that, with transportation assistance from local emergency management and State health departments, hospitals moved remaining patients to other hospitals. For three hospitals, evacuation was delayed and more complicated. These hospitals had initially intended to shelter in place, but later decided to evacuate. One of these hospitals began evacuating shortly before Sandy made landfall. Soon thereafter the hospital flooded. The other two hospitals evacuated the day after the storm made landfall, having lost electric and gas utilities and being surrounded by water.

Hospitals that partially evacuated faced the additional challenge of coordinating which patients to evacuate and which to shelter in place. These hospitals had initially decided to shelter all of their patients, but later decided to evacuate some to other hospitals. One hospital reported sheltering the most critically ill or fragile patients, while evacuating the less critical patients to other hospitals within its network. Staff consolidated the critical patients that remained to the safest floors and the hospital moved its command center nearby so that staff and patients were at one location. To ensure continuity of care for evacuated patients, the hospital sent nurses, nurse assistants, and leadership staff to the receiving hospitals and reported that doing so relieved some of the anxiety of evacuating for patients and their families.

### **Eighty-nine percent of hospitals reported experiencing critical challenges during Sandy, such as breakdowns in infrastructure and community collaboration**

Most hospitals (153 of 172) reported facing substantial challenges when responding to the storm, whether they evacuated or sheltered in place.<sup>30</sup> These challenges represented a range of interrelated problems from infrastructure breakdowns, such as electrical and communication failures, to community collaboration issues over resources, such as fuel, transportation, hospital beds, and public shelters. In reviewing the challenges reported by hospitals, we identified two broad problems: patient care and staffing. (See Appendix B for a table of challenges reported by hospitals.)

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<sup>30</sup> The remaining 11 percent of hospitals (19 of 172) reported that they did not experience substantial challenges during Sandy.

***Hospitals reported that infrastructure breakdowns, such as electrical failures, affected patient care during the storm***

Approximately half of hospitals in the declared disaster areas (83 of 172) reported challenges with their facility infrastructure when responding to Sandy. Of these hospitals, 18 reported flooding as a result of the storm (see Figure 2). The floods severely affected hospitals, whether a few inches of water penetrated facility entryways or several feet of water subsumed hospital corridors. In one hospital, only 1 inch of water entered the building but the effect was still significant in that the water compromised the backup generator, forcing the hospital to evacuate when it lost electrical power. Another hospital, along with its surrounding community, was inundated with several feet of water. This hospital eventually evacuated, as substantial flood water, rising out of the sewer, disabled its generators and water supply.

**Figure 2: Flooding in One Hospital During Sandy**



Photo courtesy of Paul Walker, Hoboken University Medical Center. Used with permission.

For 29 hospitals, structural damage caused by flood and wind was a significant challenge for hospital operations during the storm. Some hospitals continued to struggle with the physical damage caused by Sandy long after the storm as they recovered full operations. One hospital sustained damage so severe that most of its services (e.g., emergency, inpatient, and outpatient services) remained closed at the time of our evaluation, nearly a year after the storm.

***Widespread power outages forced hospitals to rely on backup generators and use alternative procedures when delivering care to patients.***

Of hospitals in declared disaster areas, 69 reported experiencing electrical utility outages, and for more than two-thirds of these hospitals (28 of 69), backup generators were not a reliable power source. One hospital described how within 30 minutes after a nearby river overflowed the banks, water had disabled all power and turned the hospital completely

dark. Although this hospital placed its backup generators on the 13<sup>th</sup> floor, away from potential flooding, the fuel pumps were located in the flooded basement. To keep the generators running, the hospital created a “bucket line” in which staff passed fuel up 13 flights of stairs until the hospital could evacuate hours later (see Figure 3). Although it never carried them out, this same hospital reported making decisions about which machine-dependent patients to keep on the limited number of emergency power outlets and which ones to take off life support machines in the event of power disruption.

**Figure 3: Fuel “Bucket Line” in One Hospital During Sandy**



Photo courtesy of NYC Health and Hospitals Corporation. Used with permission.

During hospital site visits, administrators reported that some staff struggled to use alternative procedures when delivering care to patients during the extended power outages. For example, administrators in one hospital described how staff were accustomed to relying on intravenous therapy (IV) pumps to deliver fluids to patients, but now had to count drips manually to ensure that the pumps delivered fluid at the proper rate. Administrators from another hospital indicated that new and inexperienced nurses had little knowledge of alternative procedures. This hospital held “crash courses” during the storm to teach staff alternative procedures, such as manually suctioning intubated patients.

*Power failures affected hospital access to patient medical records, crucial for providing appropriate patient care.* Seven hospitals reported problems with accessing medical records during the storm. In one of these hospitals, most medical records, computers, and hospital files were destroyed by flooding. Another hospital reported receiving patients from a nearby hospital without medical records because the records were electronic and inaccessible without power. The only information that the evacuating hospital could provide were oral histories by caregivers evacuating with their patients. Administrators from another hospital that also received patients without medical records reported that in some cases, the medical records arrived several days after the patients. One hospital that also received evacuating patients without medical records, or with the wrong records, attributed problems to miscommunication between the evacuating hospital and EMS (emergency medical services) who were responsible for transferring the patients.

***Hospitals reported challenges related to communication failures during the storm***

About one-third of hospitals in the declared disaster areas (59 of 172) reported that communication was a challenge during the storm, including contacting staff, officials, and other hospitals. Sandy compromised cell phone towers, flooded telephone switching stations, and damaged telephone utility poles (see Box 1 for a description of one hospital's communication challenges during the storm). Several hospitals reported that they subsequently developed multiple communication channels, such as using multiple cell phone providers, using satellite telephones, and installing a cell phone tower in the hospital that will be powered by a generator.

**Box 1: One Hospital's Communication Challenges During Sandy**

As Sandy made landfall, administrators described how losing both landline and cell phone service became a major challenge to hospital operations during the storm. "You assume the back-up will work, but when the back-up does not work what do you do?"

Throughout the storm, the hospital had no contact with outside entities. Although the only hospital in the community, neither city nor county emergency managers provided the hospital with updates during or immediately after the storm. Several years prior to Sandy, a Medical Command Center was established by the State to provide hospitals with information about resources during a disaster. However, this Medical Command Center became inoperable during Sandy because it did not have a backup system in place when power outages and communication failures struck the area.

Administrators also reported that using two-way radios (walkie-talkies) for communicating within the hospital was difficult because they did not have enough devices. Therefore, hospital staff found themselves running up and down the hospital floors delivering messages and receiving updates.

Source: Summary of communication challenges reported to OIG by the hospital administrators.

Hospitals struggled to communicate with other hospitals and external entities. Forty-seven hospitals reported challenges in communicating with other hospitals and external entities, such as local emergency management agencies, State and local health departments, and utility companies. Administrators from one hospital that received patients reported struggling to coordinate the transfer of patients with the evacuating hospital because of nonfunctioning communication systems. Another hospital reported that it learned after the storm that other hospitals wanted to help, but were unable to contact the hospital to offer assistance.

***Hospitals also reported challenges with community collaboration over shared resources, such as fuel, transportation, hospital beds, and public shelters***

Of hospitals in declared disaster areas, 47 reported experiencing collaboration challenges with other hospitals and community entities when responding to Sandy. Many of these challenges were interrelated and included problems with distributing and sharing fuel, transportation, hospital beds, and space in public shelters, all of which affected the capability of hospitals to care for patients.

Hospitals struggled to secure sufficient fuel supply, which affected all aspects of hospital operations, including staff availability. For 29 hospitals, fuel shortage was a challenge that substantially affected patient care. Fuel needs included running backup generators, operating ambulances, ensuring delivery of supplies, and securing sufficient staffing levels. Although gasoline was often available, gas stations did not have backup generators to pump the gasoline when the main power went out. Administrators from one hospital reported that there was no community collaboration regarding fuel. Further, another hospital described how the hospital ran on backup generators for a week, in constant fear of running out of fuel, and was the last hospital in its State to get power back after the storm.

For one hospital, fuel availability was the most significant factor to affect the sufficiency of staffing during the storm. In this case and others, much-needed hospital staff were unable to get to work because of fuel shortages. One-third of hospitals in declared disaster areas (57 of 172) reported staffing challenges, including shortages of clinical and nonclinical staff. According to hospitals, the State and local authorities eventually arranged for doctors and nurses to receive priority in obtaining gasoline from the limited number of gas stations still functioning. However, one hospital expressed that the arrangement to provide gasoline to essential staff should have come earlier. Another hospital suggested that the prioritization of gasoline should have included more staff than just doctors and nurses,

given that many hospital staff, such as pharmacy staff, environmental services staff, and senior leadership, are essential to hospital operations.

*Public transit system and road closures affected hospital staffing.*

Fifteen hospitals reported transportation challenges as a result of Sandy. Road closures and inoperable public transit systems, in addition to fuel shortages, made it difficult for staff to get to work. One hospital described how doctors tried to get to the hospital, but city and law enforcement staff turned them away because of road closures. Administrators expressed the desire for hospital staff to be considered by community officials as emergency workers, such as first responders, allowing them privileged access to hospitals in affected areas.

*Hospitals encountered insufficient patient transportation.* One hospital that partially evacuated stated that a full evacuation would have been impossible because it did not have enough ambulances. In this case, each patient took approximately 3 hours to transfer to the receiving facility (see Figure 4 for a photo of an ambulance convoy during Sandy). Another hospital reported that limitations in moving patients across State lines caused ambulances to travel greater distances under storm conditions. For example, evacuating hospitals reported that they could transfer Medicaid patients across State lines only if the receiving hospital had assurance of reimbursement for those patients. Without such limitations, the hospital could have transferred patients more quickly to nearby hospitals in its neighboring State, rather than tying up ambulances for 4-5 hours for each patient that instead had to be transported to hospitals at greater distances within the State.

**Figure 4: Photo of an Ambulance Convoy During Sandy**



Photo courtesy of U.S. Air Force, Airman 1<sup>st</sup> Class, Matthew R. Throneberry. Used with permission.

Differences in policies regarding evacuation procedures and patient care affected collaboration between hospitals and EMS. For five hospitals, collaboration with EMS was a challenge during the storm. One hospital described the logistics of evacuating patients as a “nightmare” in that EMS staff took control of the evacuation without input from the hospital. For example, the hospital wanted to transport ventilator patients individually in ambulances, but the EMS provider placed them in ambulance buses with several other patients. Additionally, EMS chose to put ventilator patients and other more acute patients in the back of the bus instead of the front, which meant that critical patients had to spend more time on the bus than the noncritical patients who were loaded last and unloaded first. One hospital explained this collaboration challenge as a difference in philosophy about transfers: the hospital treated the transfer as a planned evacuation in which they use normal ambulance procedures, while EMS considered it an emergency evacuation in which they try to get everyone out as quickly as possible.

Hospitals reported challenges with securing sufficient patient beds, particularly specialty beds. As Sandy swept across several States, hospitals began to compete for patient beds. Eighteen hospitals reported experiencing challenges with patient bed shortages during the storm. One hospital described how specialty beds (e.g., intensive care) were particularly in demand. Another hospital reported extreme difficulty finding beds appropriate for ventilator dependent patients and psychiatric patients. Compounding this problem were differences in bed type definitions across facilities. For example, a hospital may state that it has an intensive care unit (ICU) bed available, but because definitions of ICU beds vary, the hospital may not be able to care for every type of ICU patient (e.g., neurosurgery patients). Additionally, members of a health care coalition expressed concern about the lack of a bed-tracking mechanism that accounted for the type of bed needed. They reported that this caused an uneven distribution of patients across hospitals during the storm. For example, one hospital responded to every bed request because it was unaware of availability in other hospitals. Some hospitals attributed these challenges to unorganized or nonfunctioning ESF #8 coordination. According to these hospitals, the lack of a common operating system limited the communication between State and city government entities and consequently affected hospitals’ ability to effectively communicate their needs and availability during the storm.

Hospitals faced a patient surge from other health care providers, not only other hospitals but also from clinics and physician offices. For 74 hospitals in declared disaster areas, effectively handling patient surge was a substantial challenge (see Box 2 for a description of one hospital’s

experience with patient surge during Sandy). To make room for new patients during the storm, most hospitals (126) reported discharging patients whom staff had identified as safe for discharge. However, for 30 hospitals, discharging substantial numbers of patients was not feasible. One of these hospitals described how the surrounding area was flooded or was without power, including many patients' homes. The hospital reported that its patient numbers during Sandy were nearly 50 percent higher than normal, which required the hospital to open a closed unit. Another hospital reported that transportation problems inhibited discharging patients who were well enough to go home and had waiting caregivers and safe destinations.

**Box 2: One Hospital's Patient Surge Experience During Sandy**

Administrators at one hospital that sheltered in place reported that when nearby hospitals evacuated, not only did the hospital receive many of their patients but also their hospital became the only facility in the area capable of caring for trauma patients and non-urgent-care medical needs. During the patient surge, which lasted 4 months, the hospital received over 600 patients from other hospitals.

To accommodate the patient surge, the hospital added beds in the emergency department, turned private patient rooms into semi-private rooms, converted the lobby into an inpatient care facility and nursing areas into patient rooms, and set up tents outside the facility to treat patients. Despite these efforts, administrators described how the hospital struggled with not having sufficient patient beds and being over the Medicare-allowed patient capacity in the emergency department throughout the storm.

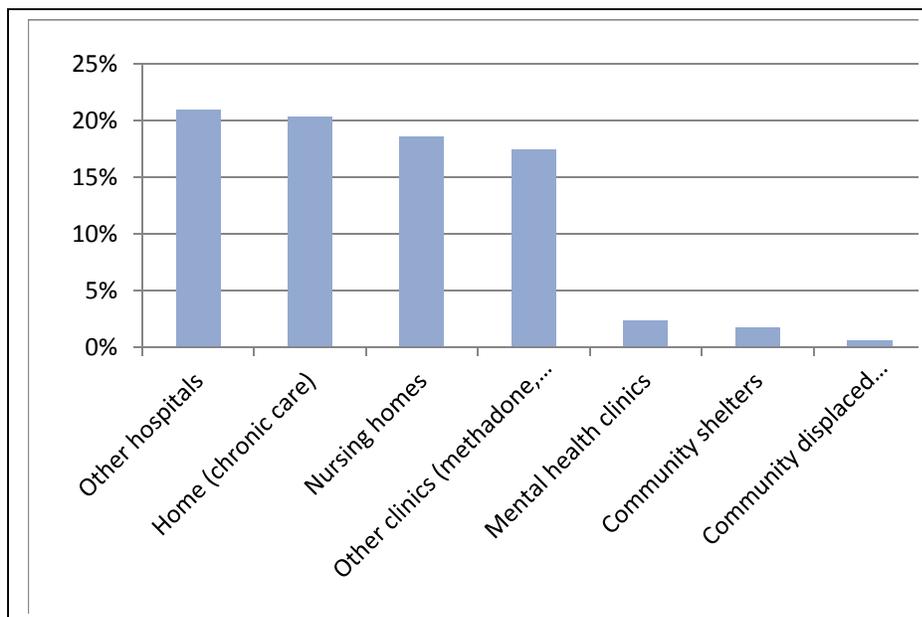
The hospital also struggled to accommodate the unexpectedly large number of staff and staff families who needed room and board after losing their homes and vehicles or who were unable to leave and return to work because of fuel shortages, road closures, and public transit system shutdowns. The hospital partnered with a nearby hotel to house some of its staff, while other staff slept on cots provided by the city.

Source: Summary of patient surge description reported to OIG by the hospital administrators.

Hospitals also reported a surge of patients from other health care providers during and in the aftermath of the storm because many community-based providers closed their facilities (see Figure 5). In some cases, staff at health care clinics, such as dialysis centers, instructed patients to go to hospital emergency rooms. In other cases, community members with chronic diseases, such as diabetes and hypertension, sought care because they ran out of medicine during the storm because of closures of pharmacies and doctor's offices. For one hospital, the closure of nearby methadone clinics and mental health clinics caused patients with drug abuse problems and mental illness to seek treatment at the hospital. According to this hospital, it treated three times the normal number of methadone patients during the storm. Administrators also expressed concern about security, reporting that local police were unavailable to offer assistance. During interviews, a State hospital association official reported that the closure of mental health clinics prevented patients from getting counseling, support, and medications during the storm, which has

resulted in an increase of psychiatric patients in hospitals since the storm.

**Figure 5: Hospitals With Patient Surge Challenges, by Surge Source, N=172**



Note: Some hospitals reported experiencing challenges with more than one patient surge source.  
Source: OIG analysis of 172 hospital questionnaire responses, 2013.

*Hospitals also functioned as community shelters, sometimes expending hospital resources for those without medical need.* When asked in the questionnaires what the communities could have done differently in responding to Sandy, 50 hospitals responded that their communities should have provided more shelters (medical and nonmedical) to the public. According to hospital administrators in one area, the county opened several public shelters but did not publicize them to the community.

As a result of the limited number of medical shelters, 35 hospitals reported challenges with treating a surge of homebound community members. One of these hospitals described oxygen-dependent community members arriving at the emergency room immediately after Sandy made landfall because they needed electrical outlets for their oxygen tanks. The hospital reported this surge as its most difficult problem during the storm because these individuals did not qualify for hospital admission on the basis of medical necessity, but consumed much of the hospital's resources in power and staffing. For 18 hospitals, unbillable patient care was a challenge that hampered their recovery from the storm.

In some communities, hospitals also became a "neighborhood sanctuary" for community members who needed shelter but not medical care. One

hospital reported monitoring its electrical outlets to make sure that people did not use unnecessary power while the hospital was running on backup generators. Another hospital described the costly challenge of feeding the community and giving away large quantities of supplies during and in the immediate aftermath of the storm, purchased at full retail prices rather than wholesale prices, at the same time it was losing revenue on canceled elective surgeries and outpatient services.

### **Hospitals reported that prior emergency planning was valuable during the storm and that they subsequently revised their plans as a result of lessons learned**

All 172 hospitals reported participating in at least 1 community-wide emergency preparedness activity, such as a simulated disaster exercise or an actual response to an emergency, in the year prior to Sandy. Hospitals reported that a diverse group of participants from the hospital were involved in these activities, including nursing, security, and emergency departments. Some hospitals credited the success of their responses to Sandy to participation in these emergency preparedness activities. One administrator expressed how the hospital had drilled on a variety of emergency scenarios prior to Sandy, but Sandy was a storm of such magnitude that it constituted all the scenarios “happening at once.” Although, a causal link could not be made between the challenges experienced by hospitals during Sandy and their emergency planning prior to the storm, most of the hospitals (16 of 19) that reported not experiencing any substantial challenges attributed their lack of problems to successful emergency planning.

Regarding support received in the year prior to Sandy, 143 hospitals reported receiving support through ASPR’s Hospital Preparedness Program and 52 hospitals received support through CDC’s Public Health Emergency Preparedness Cooperative Agreements Program. Most of this support was in the form of supplies and equipment (e.g., stretchers, cots, and cell phones). Support also came in the form of funding for disaster training and drills, such as sponsoring regional exercises, and disaster planning guidance. One hospital administrator noted that the availability of ASPR’s Hospital Preparedness Program funds provided incentives for the hospital to invest in emergency preparedness and build relationships with other facilities.

***Hospitals reported that emergency plans were useful during the storm, but they identified opportunities for improvement***

All but 1 of the 172 hospitals reported that their written emergency plans were useful during Sandy. Most hospitals (117 of 172) attributed this to the plans' being current and accessible to staff, and staff were generally trained on the plans. Hospitals also cited useful factors, such as plans that specifically addressed hurricanes or were designed for all hazards. The single hospital reporting that its plan was not useful noted that it restructured the plan and enhanced its exercises as a result of Sandy.

In total, 139 hospitals reported making changes to their plans following Sandy. Examples of changes included planning for emergencies of longer duration and more clearly defining staff roles during the emergency. In discussing their hospital response to Sandy, administrators at several hospitals reported they found, during the storm, that key staff roles were unassigned. These administrators identified a need for additional training of staff in leadership roles and for frontline staff to be well-versed in the hospital emergency plan. Another hospital developed a pre-storm checklist for each department, including administration, clinical laboratory, and facilities. The checklist breaks down tasks according to projected time of storm impact and includes verifying available equipment, notifying staff and local authorities, and ensuring adequate supplies (such as food, linens, and flashlights).

***Prior to the storm, most hospitals received emergency-related deficiency citations from hospital surveyors***

During the most recent survey conducted prior to Sandy, surveyors cited 157 of 171 hospitals in declared disaster areas for deficiencies related to emergency preparedness and response. These deficiencies made up one-fourth of all deficiencies cited during the surveys (775 of 3,063 deficiency citations). While some of these deficiencies related to the challenges experienced by hospitals during the storm, other deficiencies did not relate but could affect hospitals' ability to respond to a major disaster. Taken as a whole, the deficiency citations appear to demonstrate that surveyors review hospital operations relevant to emergency preparedness.

***Hospitals received deficiency citations related to many of the issues administrators identified as challenges during Sandy***

Deficiencies that related to emergency preparedness and response reflected a broad range of issues; 60 hospitals had deficiencies related to challenges identified by hospitals during Sandy.

Utility systems found deficient, such as routine testing of generators.

Surveyors cited 47 hospitals for emergency deficiencies that related to their utility systems, a prominent challenge reported by hospitals during Sandy. Many of these deficiencies involved infrequent testing or incorrect testing of the hospital backup generator. Other deficiencies related to infrequent testing or lack of emergency lighting systems. As noted earlier, 69 hospitals reported challenges with their electrical utilities that either required use of emergency power or placed them at risk of requiring its use.

Emergency planning found deficient, such as conducting adequate emergency drills. Surveyors cited 23 hospitals for deficiencies related to emergency planning and drills. Several hospitals were cited for not specifying in their bylaws which staff were responsible for granting physician privileges during disasters or not requiring valid identification for volunteer practitioners. Surveyors also cited hospitals with deficiencies for failing to follow required procedures in conducting emergency drills. Some of these deficiency citations were directly related to preparation for major disasters, such as Sandy. For example, one hospital with emergency drill deficiency citations did not include a simulation of patient surge, which corresponds to the second most-reported challenge among hospitals during Sandy. Another hospital received deficiency citations on the survey prior to Sandy for not establishing a sustainability plan when the hospital cannot be supported by the local community, such as instances when vendors are unable to provide the hospital with necessary supplies and equipment.

***Hospitals also received deficiencies for other emergency-related issues, such as fire safety and obstruction***

Surveyors cited 156 hospitals for deficiencies that were not identified as challenges during Sandy but covered other issues related to emergency preparedness and response. These deficiencies largely concerned fire safety, obstruction, and signage, which could affect the ability of hospitals to evacuate or receive patients during a major disaster. Issues such as improper hospital signage could have serious implications during disasters, including impeding evacuation and hampering navigation for visiting staff who are evacuating to receiving hospitals and are not familiar with the surroundings.

Fire safety deficiencies mostly addressed equipment problems. Surveyors cited 144 hospitals for deficiencies that concerned fire safety. A major portion of the Medicare Condition of Participation pertaining to physical environment assesses hospital compliance with fire safety requirements. Numerous hospitals received deficiency citations related to fire safety

equipment (e.g., rooms not equipped with smoke detectors, inaccessible fire extinguishers, and obstructed sprinkler heads). Other examples of deficiencies that could result in problems in a fire included nonlatching smoke barrier doors and fire resistant walls not properly sealed with fire-resistant material.

*Obstruction of hospital exits cited as deficiencies.* Surveyors cited 82 hospitals for deficiencies related to obstructions to exits or exit routes. For example, surveyors found medical equipment and furniture that blocked corridors that would be used to exit the building. Surveyors also cited hospitals for exit doors that either failed to open or were locked and required a code or badge to open.

*Misleading or missing hospital signage cited as deficiencies.* Surveyors cited 50 hospitals for deficiencies related to insufficiencies with hospital signage. For example, numerous hospitals were cited for not posting “No Exit” signs on passages that could be mistaken for exits. One hospital was cited for posting an “Exit” sign directing people into a hazardous storage area and another for posting an “Exit” sign directing people out onto the roof. Surveyors also cited hospitals for not posting “Exit” signs on actual exit routes. Additionally, surveyors cited hospitals for not having signs identifying the story of each stairwell landing.

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## CONCLUSION AND RECOMMENDATIONS

The strength of Sandy and widespread flooding along the coastal areas placed high demands on affected hospitals and related services. While facing challenges created by the storm, hospital operations were highly vulnerable to breakdowns. These challenges, along with emergency-related survey deficiencies, revealed gaps in planning and execution that might be applicable to hospitals nationwide. Improvements are needed in hospital planning and infrastructure, community-wide collaboration, and access to resources. These improvements will require targeted adjustments in Federal coordination and oversight.

Therefore, we recommend the following:

### **ASPR should continue to promote Federal, State, and community collaboration in major disasters**

ASPR has a role in ensuring that hospitals practice effective emergency management through the Hospital Preparedness Program, but insufficient community-wide coordination among affected entities was a common thread through the challenges identified by hospital administrators. ASPR should encourage awardees of the Hospital Preparedness Program to prioritize exercises for communities and health care coalitions that include hospitals, long-term care facilities, EMS, emergency management, public health, and other essential partners. Exercises should address patient and medical surge and failures of key resources (e.g., power, emergency generator, and primary and secondary communication devices). ASPR should also provide guidance to communities and health care coalitions to strengthen information sharing and enhance interoperable communication capabilities. The guidance should emphasize the importance of conducting exercises and establishing plans that address centralizing coordination of evacuations, tracking patients and beds (e.g., identifying specialty beds), setting up medical and nonmedical shelters, identifying community members with special needs (e.g., oxygen-dependent individuals), and coordinating requests for assistance (e.g., fuel, staff transportation).

### **CMS should examine existing policies and provide guidance regarding flexibility for reimbursement under disaster conditions**

During large-scale disasters, such as Sandy, access to medical needs shelters may be insufficient to meet the ongoing medical care of some Medicare and Medicaid beneficiaries. CMS should examine the existing medical necessity criteria for Medicare and Medicaid reimbursement during disasters, to allow hospitals greater flexibility to provide medical

care to individuals who under normal circumstances do not meet the criteria for hospital admission (e.g., oxygen-dependent individuals). CMS should also provide guidance to hospitals regarding Medicare and Medicaid reimbursement when receiving patients from other States, to improve the coordination of patient evacuations. Because of confusion over reimbursement for care of Medicaid patients transported across State lines, at least one hospital instead had to transfer patients greater distances to different hospitals within the State.

Additionally, CMS should develop guidance to hospitals to ensure that they can meet patient surge from evacuating hospitals and surrounding communities. For example, guidance could include drills and exercises focusing on short-term and long-term patient surge, planning for additional supplies and equipment, and accessibility to vendors and resources during disasters. Further, CMS should include additional guidance on the Medicare Conditions of Participation focused on sufficiency and training of medical staff, to prepare them for maintaining patient care during extended periods of poor conditions, including loss of power, technology, and equipment.

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## AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

We received comments on the draft report from ASPR and CMS.

ASPR concurred with our recommendation to continue promoting Federal, State, and community collaboration in preparing for, responding to, and recovering from disasters. ASPR stated that it will continue to provide technical assistance to support the growth of health care coalitions to enhance community resilience. ASPR stated that through the health care coalitions and the Hospital Preparedness Program, it will address the challenges identified in this report. Further, ASPR outlined several initiatives that are underway that will support collaboration among Federal, State, and community entities, including a technical assistance center where stakeholders can share best practices and lessons learned and tools for assessing communities' and hospitals' capabilities in responding to medical surge and rapid influx of patients during a disaster.

CMS concurred with our recommendation to examine existing policies and provide guidance regarding flexibility for reimbursement under disaster conditions. CMS described several existing statutory and regulatory provisions that authorize the Secretary to waive or modify program rules in an emergency and during an emergency period. However, CMS stated that at this time, Medicare has no statutory authority that would afford hospitals flexibility to bill for medical care to patients who would not normally meet the criteria for hospital services. In response to our recommendation about providing guidance, CMS referenced the proposed rule that would establish national emergency preparedness requirements for providers and suppliers participating in Medicare and Medicaid.<sup>31</sup> CMS also stated that once the proposed rule is finalized, it will issue revised interpretive guidance to health care providers and suppliers that will explain in detail the new requirements and address issues identified in this report.

For the full text of ASPR's and CMS's comments, see Appendix C.

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<sup>31</sup> 78 Fed. Reg. 79082-79200 (Dec. 27, 2013).

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## APPENDIX A

### METHODOLOGY

This study describes disaster experiences of Medicare-certified, short-term acute care hospitals located in the 40 counties in Connecticut, New Jersey, and New York that received disaster declarations as a result of Sandy. This study also examines emergency-related deficiencies cited to these hospitals by State survey agencies and accreditation organizations prior to the storm.

#### Data Collection

##### Hospital Questionnaires

We administered electronic questionnaires to 174 hospitals located in the federally declared disaster areas (see Figure A-1 for a map of the hospitals located in the affected areas).<sup>32</sup> The hospital officials responded between July – October 2013. Questions focused on:

- hospital disaster responses, that is, whether they evacuated, partially evacuated, or sheltered in place during the storm;<sup>33</sup>
- decisions hospitals made regarding evacuating, sheltering in place, or receiving evacuated patients;
- factors that impeded or enhanced their ability to execute evacuation plans;
- problems, if any, related to the health and safety of patients during the storm;
- assistance, if any, provided to hospitals by State survey agencies and accreditation organizations to ensure hospital compliance during and after the storm;
- coordination with State and local emergency management agencies during the storm; and
- participation in ASPR's Hospital Preparedness Program and CDC's Public Health Emergency Preparedness Cooperative Agreements program.

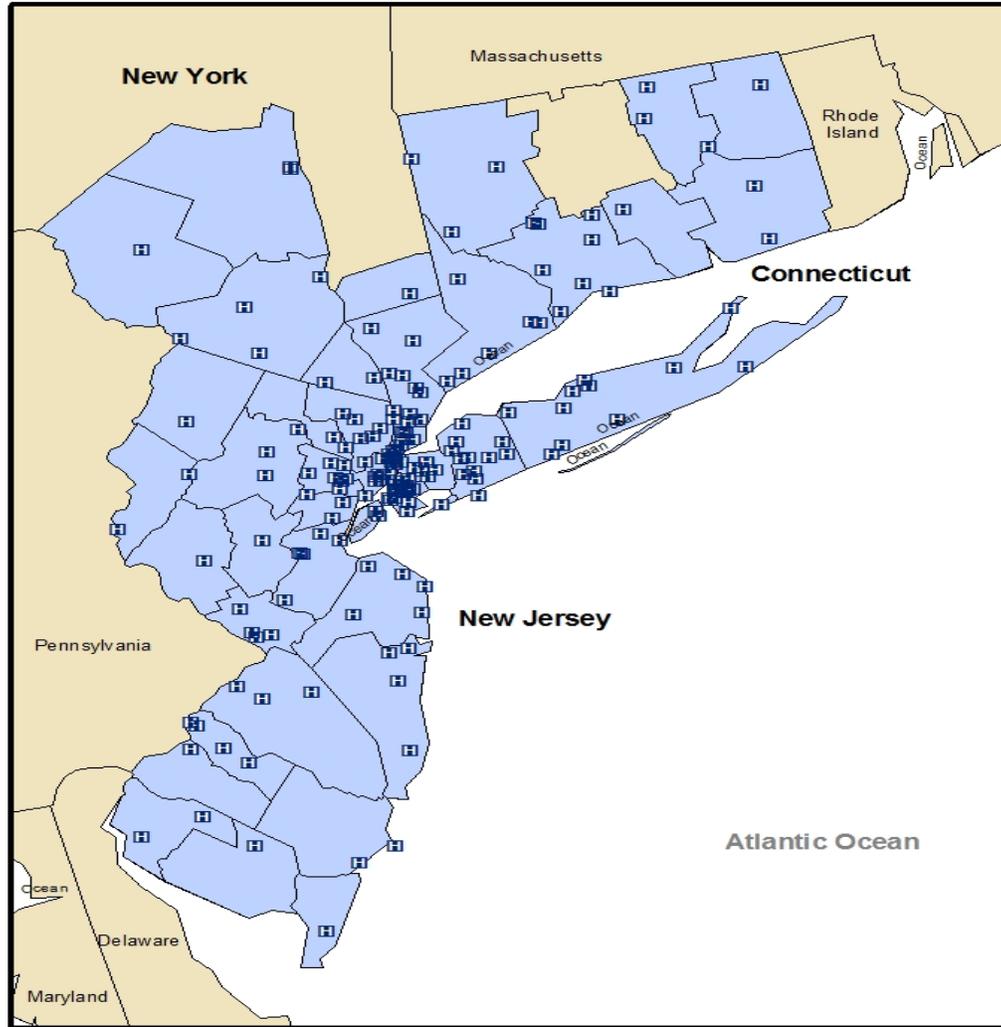
We received questionnaire responses from 172 of the 174 hospitals.

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<sup>32</sup> We identified hospitals located in declared disaster areas using CMS data from Medicare Hospital Compare and CASPER.

<sup>33</sup> For the purposes of this evaluation, we defined hospitals as sheltering in place if they did not evacuate or partially evacuate.

**Figure A-1: Map of Hospitals Located in Federally Declared Disaster Areas in Connecticut, New Jersey, and New York as a Result of Sandy**



Source: OIG analysis of CMS data from Medicare Hospital Compare and CASPER, 2013; and FEMA, FEMA-4085-DR, FEMA-4086-DR, and FEMA-4087-DR. Accessed at <http://www.fema.gov> on March 4, 2013.

## **Interviews**

*Hospital Site Visits and Interviews.* To learn about the experiences of hospitals located in areas most affected by the storm, we conducted site visits during August 2013 to a small, purposive subset of 10 hospitals, and

interviewed hospital administrators and staff.<sup>34</sup> Interview questions focused on emergency preparedness; decisions to evacuate, shelter in place, or receive evacuated patients; experiences during and after the disaster; and adherence to emergency plans. We also asked about lessons learned from the disaster experience and asked whether hospitals had made changes to their emergency plans and training as a result.

*State Survey Agencies and Accreditation Organizations.* To gain insight about State-level collaboration, assistance, and regulations related to hospital emergency preparedness and response, we conducted telephone interviews with State survey agencies in Connecticut, New Jersey, and New York, as well as the three accreditation organizations that had surveyed hospitals in the affected areas, TJC, AOA, and DNVHC.<sup>35</sup> We asked about the processes surveying entities used to ensure that hospitals comply with Federal regulations regarding emergency preparedness and training, as well as any assistance provided to hospitals prior to, during, and after the storm. We also asked about lessons learned from the disaster experience and asked whether State survey agencies and accreditation organizations had made changes to their policies and procedures for hospitals as a result.

*State Hospital Associations.* We also conducted telephone interviews with State hospital associations in Connecticut, New Jersey, and New York to gain insight about State-level collaboration, assistance, and regulations related to hospital emergency preparedness and response. Interview questions focused on requirements, support and assistance, and communication and collaboration with hospitals for emergency preparedness planning prior to the disaster. We also asked about lessons learned and asked whether State hospital associations had made changes to their plans for hospitals as a result.

*State Health Care Coalitions.* To gain insight about the role and collaboration of health care coalitions regarding emergency preparedness and response, we conducted telephone interviews with State health care coalitions in Connecticut, New Jersey, and New York. We asked about assistance provided prior to, during, and after the disaster. We also asked about lessons learned from the disaster experience and asked whether

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<sup>34</sup> We purposively selected hospitals that evacuated, partially evacuated, sheltered in place, and/or received patients from other hospitals and were located in areas most affected by Sandy.

<sup>35</sup> The Center for Improvement in Healthcare Quality was approved by CMS as a national accrediting organization on July 26, 2013, after our study period. 78 Fed. Reg. 45231, Federal Register, Vol. 74, Issue 144 (July 26, 2013).

health care coalitions had made changes to their guidance provided to hospitals as a result. Additionally, we asked about participation in ASPR's Hospital Preparedness Program.

### **Document Reviews**

*Hospital After-Action Reports.* For each of the 10 hospitals that we visited, we requested and received Sandy-specific after-action reports. These reports typically describe a hospital's actions taken before, during and after an event such as Sandy; evaluation of the hospital's actions; and any changes that the hospital will make to plans, policies, procedures, staff training, and physical environment to improve and enhance the hospital's response to a future event.

*Accreditation Organizations Documents.* For each accreditation organization with which we conducted an interview, we also requested and received copies of documents detailing processes used to evaluate hospital emergency preparedness and training, such as survey protocols and guidelines.

*Hospital Surveys.* For each of the 174 hospitals, we requested the most recent full standard survey conducted prior to the storm.<sup>36</sup> Full standard surveys included surveyor notes, which provided specific details about each deficiency citation. We received full surveys for 171 hospitals from TJC, AOA, DNVHC, and the Connecticut State survey agency.<sup>37</sup>

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<sup>36</sup> We did not include complaint surveys in our analysis. Complaint surveys focus on the specific regulatory requirements related to the complaint. During a complaint survey, if surveyors identify significant problems, the surveyors can expand the survey to review the hospital's compliance with other Medicare Conditions of Participation. CMS, *State Operations Manual*, ch. 5, §§ 5050 and 5200.1.

<sup>37</sup> The accreditation organizations surveyed 170 of the 171 hospitals in declared disaster areas. TJC surveyed 163 hospitals, DNVHC surveyed 5 hospitals, and AOA surveyed 2 hospitals. The Connecticut State survey agency surveyed the remaining hospital. We did not receive surveys for three hospitals because of unavailable data.

## **Data Analysis**

### **Qualitative analysis**

To examine challenges experienced by hospitals during Sandy, we qualitatively analyzed hospital questionnaire responses and transcripts from interviews with hospital staff, State survey agencies, accreditation organizations, State hospital associations, and State health care coalitions. In analyzing the interview data, we developed themes and selected examples for illustration.

### **Quantitative analysis**

We also analyzed hospital questionnaire responses and hospital deficiency data quantitatively. Whenever possible, we quantified data from site visit interviews and hospital after-action reports. To determine the prominence of emergency-related issues among hospital deficiencies, we reviewed full standard surveys and identified deficiencies related to emergency preparedness. To make these determinations, we reviewed surveyors' written narratives of the circumstances leading to the deficiencies and their categorization of each deficiency to determine what the nature of the deficiency was and whether the problem identified by surveyors appeared relevant to emergency preparedness.

## APPENDIX B

**Table B-1: Challenges Reported by Hospitals**

Challenge	Hospitals (n=153)
<b>Hospital infrastructure</b>	<b>83</b>
Electrical utilities	69
Backup generator	35
Structural damage	29
Flooding	18
Water utilities	7
Gas utilities	3
Building security	3
Steam	2
<b>Patient surge</b>	<b>74</b>
Patient surge from other hospitals	36
Patient surge from home care (chronic care)	35
Patient surge from nursing homes	32
Patient surge from clinics, such as dialysis and methadone clinics	30
Patient surge from mental health clinics	4
Patient surge from shelters	3
Surge of nonmedical displaced persons	1
<b>Communication</b>	<b>59</b>
Communication with staff who were off work	25
Communication with local authorities responsible for emergency management	23
Communication with utility companies	22
Communication within the hospital	20
Communication with other hospitals	18
Communication with State and local health departments	13
Communication lost	5
<b>Staffing</b>	<b>57</b>
Nurse shortage	43
Physician shortage	13
Maintenance staff shortage	9
Dietary staff shortage	9
Security staff shortage	7
Problems managing volunteers and staff from other hospitals	4
Long work hours	2
Lab staff shortage	1
Documentation staff shortage	1
Support services	1
Housing arrangements for staff	1

Note: Some hospitals reported experiencing more than one challenge.  
The table represents only those hospitals that reported one or more challenges.

Continued on next page.

**Table B-1: Challenges Reported by Hospitals  
(Continued)**

Challenge	Hospitals (n=153)
<b>Recovery</b>	<b>50</b>
Financial loss	44
Physical damage to hospital	26
Unbillable patient care	18
Decreased census after the storm	15
Increased staff mental and physical health issues (including stress and PTSD)	15
Damage to medical equipment	9
Loss of medical equipment	8
Damage to computer and other health information systems	7
Decreased staff productivity	7
Problems with returning to the facility after the storm	6
Personal impact on staff	5
Shift of patient diagnostic mix	4
Increased rates of sick leave	3
Increased staff turnover rates after the storm	1
Increased census	1
<b>Supplies</b>	<b>47</b>
Fuel	29
Pharmaceutical supplies	10
Food and water	9
Linen	6
Medical equipment (including furniture)	5
<b>Collaboration</b>	<b>47</b>
Collaboration with local authorities responsible for emergency management	27
Collaboration with State authorities responsible for emergency management	22
Collaboration with utility companies	11
Collaboration with other hospitals	9
Collaboration with State and local emergency response entities (EMS)	5
Collaboration with Federal authorities responsible for emergency management	3
<b>Patient care</b>	<b>42</b>
Patient discharge	30
Patient transfer	18
Shortage of patient beds	18
Shortage of psychiatric beds	3
Shortage of pediatric patient beds	1
Tracking evacuated patients	1
Informing families/guardians of evacuated patients' location	1
Delayed lab results	1
<b>Transportation</b>	<b>15</b>

Note: Some hospitals reported experiencing more than one challenge.  
The table represents only those hospitals that reported one or more critical challenges.

Continued on next page.

**Table B-1: Challenges Reported by Hospitals  
(Continued)**

Challenge	Hospitals (n=153)
<b>Documentation</b>	<b>13</b>
Access to patient medical records	7
Incompatibility of medical record system with other systems	3
Credentialing and privileging of medical staff	2
Less efficient downtime process	1
<b>Medicare Conditions of Participation (CoP)</b>	<b>5</b>
CoPs related to patient care	3
CoPs related to the hospital physical plant	2
CoPs related to communication	1
CoPs related to patient care	1

Note: Some hospitals reported experiencing more than one challenge. The table represents only those hospitals that reported one or more critical challenges.

Source: OIG analysis of 172 hospital questionnaire responses, 2013.

## APENDIX C

### Agency Comments: ASPR



DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of the Secretary

Assistant Secretary for  
Preparedness & Response  
Washington, D.C. 20201

TO: Daniel R. Levinson  
Inspector General  
Department of Health and Human Services

FROM: Nicole Lurie, MD, MSPH  
Assistant Secretary for Preparedness and Response

SUBJECT: Office of Inspector General's Draft Report: *Hospital Emergency Preparedness and Response During Superstorm Sandy*, OEI-06-13-00260

The Office of the Assistant Secretary for Preparedness and Response (ASPR) appreciates the opportunity to review and comment on the Office of Inspector General's (OIG) draft report: *Hospital Emergency Preparedness and Response During Superstorm Sandy* (OEI-06-13-00260). Thank you for your review of this important issue.

ASPR concurs with the OIG recommendation that ASPR should continue to promote federal, state, and community collaboration in preparing for, responding to, and recovering from major disasters. In recognition of the importance of this type of whole-of-community collaboration, ASPR recently shifted the focus of the Hospital Preparedness Program (HPP) from individual hospital preparedness to comprehensive health care system preparedness. Through the creation of healthcare coalitions, HPP is ensuring that hospitals can plan, train, and exercise the critical healthcare preparedness capabilities that we know are key to efficient and effective responses. In addition, HPP supports analysis of lessons learned from events like Superstorm Sandy, which allow hospitals and communities to implement action plans to improve future responses.

Participation in HPP-supported emergency preparedness activities improved the hospitals' ability to respond to Superstorm Sandy and communities will utilize the lessons learned from Sandy to inform future responses. However, it is important to note that, as a result of a \$103 million reduction to HPP's budget in Fiscal Year (FY) 2014, many awardees will be scaling back many of the preparedness activities identified as valuable to managing the response to Superstorm Sandy. For example, some awardees are discontinuing contracts that enhance information sharing during emergencies, such as electronic bed tracking, patient tracking systems, volunteer management and credentialing systems, electronic dashboards with common operating pictures, and Hospital Incident Command Systems. Other awardees are reducing the number and complexity of exercises and reducing or eliminating training courses. Further, some awardees are eliminating warehouses and supply caches (e.g. ventilators, nerve agent antidotes, antibiotics, and other pharmaceuticals) and/or mobile medical assets that were purchased with HPP funding, which will likely result in larger requests for assistance to the federal government.

Despite these challenges, ASPR will continue to provide technical assistance to support awardees and enable the growth of the healthcare coalitions, which include hospitals, emergency management, public health, emergency medical services (EMS) and other transportation partners

## ASPR (continued)

OEI-06-13-00260

Page 2

to address the challenges reported by hospitals. Approximately 15,000 healthcare facilities and other partners participate in coalitions today, and HPP is targeting 50,000 members for coalitions in the next few years, contingent on funding, to support and enhance community resilience. Plans and exercises advanced by HPP-funded state preparedness programs and their healthcare coalitions will address, to the extent possible, many of the concerns identified in this report, while considering state and sub-state regional risks/hazards and vulnerabilities and the strength of collaboration with other preparedness and response disciplines.

ASPR appreciates OIG's emphasis on the importance of exercises as part of your recommendation. HPP supports a number of activities related to exercises, and awardees are required to report on Healthcare Coalition Developmental Assessment factors, which assess the inclusion of community partners and participation in exercises.<sup>1</sup> Appendix seven in the FY 2014 HPP Continuation Guidance (available at <http://www.grants.gov/view-opportunity.html?oppId=252658>) clarifies what HPP-funded exercises should look like, how plans should be submitted, and the capabilities to be tested. In addition, one of the four benchmarks subject to withholding requires that awardees develop and submit, in accordance with Budget Period Three guidance requirements, exercise plans that must include a proposed exercise schedule and a discussion of the plans for healthcare organization exercise development, conduct, evaluation, and improvement planning. Exercise plans must demonstrate participation by healthcare coalitions and their participating hospitals to include the participating organizations and anticipated capabilities to be tested. HPP Field Project Officers in all ten regions provide expertise, consultation, and oversight to support the awardees' implementation of grant requirements.

In addition to the funding and guidance administered by HPP, ASPR is engaged in a number of activities to support collaboration among federal, state, and community partners. ASPR is creating a technical assistance center to help states, healthcare coalitions, and communities prepare for, respond to, and recover from disasters and terrorist events and develop a coordinated infrastructure for public health and medical care service needs consistent with evolving healthcare and preparedness systems and requirements. More than ever, there is a need for the dissemination of lessons learned from emergencies and incidents—which are unfolding frequently while new knowledge is being developed—to assist state and local healthcare systems to be better capable of bearing increasing responsibility. ASPR wants to learn from and serve as a catalyst for identifying, sharing, and promoting best practices that are being accomplished by its partners and stakeholders, in both the private and public domains. Based on current schedules, ASPR anticipates technical assistance center completion by September 30, 2015.

During FY 2014-2015 ASPR is also developing a suite of medical surge exercise and pre- and post-disaster capability assessment tools for healthcare facilities, coalitions and public health response entities to efficiently evaluate, plan, develop, allocate, and utilize health and medical disaster resources. Building on prior pilot successes, ASPR, in partnership with CMS, will expand the At-Risk Resiliency Pilot into a national initiative and capability in FY 2015. The capability will enable public health authorities that meet specific criteria to request a minimum necessary dataset of certain limited Medicare Fee-For-Service data (e.g. electricity-dependent devices and healthcare services) for prior approved emergency planning and outreach response

<sup>1</sup> See Hospital Preparedness Program (HPP) Measure Manual: Implementation Guidance for the HPP Program Measures, available at <http://www.phe.gov/Preparedness/planning/evaluation/Documents/hpp-bp2-measuresguide-2013.pdf>.

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public health activities. The initiative will also in FY 2015 launch anonymous data and mapping tools that can inform and assist public health, emergency management, healthcare coalitions, and other community partners with emergency planning and exercises. The project will enable emergency management, public health, and medical care providers to identify critical infrastructure, planning, exercising, and allocation of key resources capabilities required for medical surge.

During FY 2014, ASPR also sponsored the development of a *Hospital Surge Stress Test Tool* that hospitals can use to test and evaluate their ability absorb a sudden influx of patients that would exceed their normal patient surge capacity. The purpose of the tool is to mimic the effect that a mass casualty event has on a hospital's emergency department and inpatient wards and the ability absorb and move patients during the first 90 to 120 minutes of an event. Because mass casualty events exceed 90 minutes, hospitals have and will be forced to address increased demand for bed space through various tactics such as cancellation of elective surgeries and rapid release of lower acuity patients. ASPR is currently developing a new stand-alone Healthcare Coalition Module that, when used in concert with the *Hospital Surge Stress Test Tool* fully engages and enables healthcare coalition (HCC) members (e.g., hospitals, long-term care, dialysis centers, community health centers, public health, emergency medical services, emergency management, or other formal/informal regional coordinating entities) to participate in an exercise, and all follow-up evaluation and measurement activities. The goal is to develop a stand-alone *HCC Surge Stress Test Tool* or module (e.g. HCC Module) that will allow hospitals and HPP-funded coalitions to test and evaluate their ability to respond to a large and sustained mass casualty event. The *HCC Stress Test Tool* must be able to test the HCCs' ability to:

- activate and communicate among its members based on established protocols and doctrine;
- implement components described in the HPP *Healthcare Preparedness Capabilities, National Guidance for Healthcare System Preparedness*; and
- assess the HCCs ability to execute all three pillars of Immediate Bed Availability (IBA), including (1) situational awareness, (2) onboarding of patients and (3) offloading of patients.

Thank you again for carrying out this study. The findings of this OIG study highlight the urgency and essential nature of ASPR's efforts to promote federal, state and community collaboration so that hospitals and healthcare communities are truly prepared, and field tested, to respond effectively to disasters. This study provides a snapshot of lessons learned from hospitals' response to Sandy that will be a valuable addition to the knowledge base. We appreciate the opportunity to review your report and respond to your recommendation. Please direct any questions to Marion Aldrich by telephone at 202.205.6053, or by e-mail at [Marion.Aldrich@hhs.gov](mailto:Marion.Aldrich@hhs.gov).

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Nicole Lurie, MD, MSPH  
Assistant Secretary for Preparedness and Response

## Agency Comments: CMS



DEPARTMENT OF HEALTH & HUMAN SERVICES

Centers for Medicare & Medicaid Services

*Administrator*  
Washington, DC 20201

**DATE:** JUL 17 2014

**TO:** Daniel R. Levinson  
Inspector General

**FROM:** Marilyn Tavenner /S/  
Administrator

**SUBJECT:** Office of Inspector General (OIG) Draft Report: Hospital Emergency Preparedness and Response During Superstorm Sandy (OEI-06-13-00260)

Thank you for the opportunity to review and comment on the above-subject OIG draft. The objective of this study was to describe the disaster experiences of hospitals affected by Superstorm Sandy, including challenges to hospital operations and patient care, and to determine the extent to which state survey agencies and accreditation organizations cited hospitals with emergency preparedness-related deficiencies prior to Superstorm Sandy.

The OIG recommendation and the Centers for Medicare & Medicaid Services' (CMS) response are discussed below.

### OIG Recommendation

The OIG recommends that CMS should examine existing policies and provide guidance regarding flexibility for reimbursement under disaster conditions.

### CMS Response

The CMS concurs with the recommendation. CMS appreciates OIG's interest in seeing Medicare and Medicaid afford hospitals some flexibility in disaster situations in meeting medical necessity requirements in order to bill for medical care furnished to patients who would not normally meet the criteria for hospital services. However, with regard to payment for services provided to Medicare beneficiaries, at this time, Medicare has no statutory authority to make the requested exceptions. In fact, very few program rules can be waived or modified under current law, even in a disaster or emergency. Section 1135 of the Social Security Act (the Act) authorizes the Secretary of the Department of Health and Human Services to waive, or in some cases, modify certain requirements that relate to the Medicare, Medicaid, and Children's Health Insurance Programs. The requirements that the Secretary may waive or modify, in an emergency area and during an emergency period, are, in summary, as follows:

1. Provider requirements:
  - a. Conditions of participation or other certification requirements for an individual healthcare provider or types of providers and certain suppliers;

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- b. Program participation and similar requirements for an individual health care provider or types of providers and certain suppliers; and
  - c. Pre-approval requirements.
2. Requirements that physicians and other health professionals be licensed in the state in which they provide services, if they provide equivalent services in another state and are not affirmatively excluded from practice in that state, or in any state where a part of the state is included in the emergency area.
3. Actions under the Emergency Medical Treatment and Labor Act rules (per section 1867 of the Act) regarding:
  - a. The transfer of an individual who has not been stabilized (if the transfer arises is necessitated by the circumstances of the declared emergency); and
  - b. The direction or relocation of an individual to receive medical screening at an alternative location in accordance with an appropriate (and applicable) state preparedness plan.
4. Sanctions for violations of physician self-referral prohibition rules (under section 1877 of the Act).
5. Deadlines and timetables for performance of required activities (may be modified but not waived).
6. Limitations on payments for health care items and services provided to Medicare Advantage enrollees by non-network providers.
7. Sanctions and penalties for noncompliance with certain patient privacy provisions of the Health Insurance Portability and Accountability Act of 1996.

In addition to these section 1135-based waivers or modifications, in situations where the use of section 1135 authority is appropriate, CMS may consider exercising authority under section 1812(f) to waive the 3-day prior hospital stay requirement for coverage of a stay in a skilled nursing facility.

Medicare regulations at 42 CFR 431.52 articulate responsibilities and flexibilities in making payments to providers across state lines. In times of emergency, CMS would encourage states to work with each other and with CMS to ensure reimbursement for services needed on a time-sensitive basis, regardless of the location of service delivery. States are then allowed to submit claims and be reimbursed for such services provided in hospitals in evacuation situations provided they meet the acceptable parameters for hospital payments.

We recently issued an update on February 28, 2014 regarding information that we believe will be helpful to all types of health care facilities in preparing for emergencies (S&C: 14-12-ALL, <http://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/Survey-and-Cert-Letter-14-12.pdf>). Given

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the limited requirements for emergency preparedness under the current Conditions of Participation or Conditions for Coverage for the various types of providers and suppliers, the measures we suggest in this guidance are largely optional. Once the proposed rule *Medicare and Medicaid Programs; Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers* that was published in the Federal Register on December 27, 2013 (<http://www.gpo.gov/fdsys/pkg/FR-2013-12-27/pdf/2013-30724.pdf>) is finalized, we will issue revised interpretive guidance for each affected provider/supplier type, in order to explain in detail the new requirements facilities would have to meet. At that time we would have an opportunity to address more fully the types of topics OIG has highlighted.

We appreciate the efforts that went into this report and look forward to working with OIG on future issues.

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## ACKNOWLEDGMENTS

This report was prepared under the direction of Kevin K. Golladay, Regional Inspector General for Evaluation and Inspections in the Dallas regional office; Ruth Ann Dorrill, Deputy Regional Inspector General; and Blaine Collins, Deputy Regional Inspector General.

Petra Nealy served as the primary team leader for this study. Other Office of Evaluation and Inspections staff from the Dallas regional office who conducted the study include team leaders Deborah Cosimo and Lyndsay Patty and lead analyst Jennifer Hagen. Additional Dallas regional office staff who contributed to the study include Ben Gaddis, Malinda Hicks, and Jeremy Moore. Central office staff who provided support include Clarence Arnold and Meghan Kearns.

# Office of Inspector General

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