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Hospitals Reported Improved Preparedness for Emerging Infectious Diseases After the Ebola Outbreak

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Hospitals Reported Improved Preparedness for Emerging Infectious Diseases After the Ebola Outbreak

What **OIG** Found

Most hospitals in the United States were not prepared for the outbreak of Ebola virus disease (Ebola) in 2014, with 71 percent of hospital administrators reporting that their facilities were unprepared to receive Ebola patients.

By 2017, administrators from only 14 percent of hospitals reported their facilities were still unprepared for emerging infectious disease (EID) threats such as Ebola. Hospital actions to improve preparedness included updating emergency plans, training staff to care for patients with EIDs, purchasing additional supplies, and conducting EID-focused drills. Hospitals also used a wide range of resources provided by the Department of Health and Human Services (HHS).

Although most hospital administrators believe that their hospitals are ready to respond to a future EID threat, they cited challenges to maintaining that preparedness, given competing priorities for hospital resources and staff time. Administrators also cited the need to focus efforts on more common hazards, such as natural disasters, and cited difficulty in using government guidance to prepare for EIDs. We also found that administrators from one-third of hospitals did not know their hospital's role in a tiered hospital framework designed by the Centers for Disease Control and Prevention (CDC) to guide hospitals in receiving and treating cases of Ebola.

What **OIG** Recommended and How the Agencies Responded

A future EID threat could require substantial management and resources by hospitals, other health care providers, and government at all levels, including HHS. To improve hospital preparedness and HHS assistance and oversight, we recommend that the Office of the Assistant Secretary for Preparedness and Response (ASPR), CDC, and the Centers for Medicare & Medicaid Services (CMS) continue to support hospital preparedness for potential EIDs by coordinating guidance and providing practical advice for all hospitals. We also recommend that CDC clarify and promote the details and ongoing status of its tiered framework for hospitals, so that hospitals are clear regarding their responsibilities during an EID outbreak. Further, we recommend that CMS add EIDs to the definition of "all hazards" in the State Operations Manual to promote inclusion of EIDs in hospital emergency planning. ASPR, CDC, and CMS concurred with our recommendations.

Full report can be found at oig.hhs.gov/oei/reports/oei-06-15-00230.asp.

Key Takeaway

Most U.S. hospitals reported that they were not prepared for the 2014 Ebola outbreak, but have since taken action to improve preparedness for emerging infectious diseases. Hospitals reported improved preparedness by 2017, although hospital administrators expressed concerns about sustaining preparedness over time.

Why **OIG** Did This Review

HHS is the lead Federal agency responsible for medical support and coordination during public health emergencies. In 2014, the domestic outbreak of Ebola tested U.S. hospitals' ability to respond to a serious infectious disease. Very few hospitals received suspected or diagnosed cases of Ebola, but the disease's presence caused hospitals to assess and improve their preparedness for Ebola and other EIDs. HHS agencies took action to respond to the outbreak, including providing guidance to hospitals and revising requirements for hospital emergency preparedness. This study seeks to assess those efforts by describing the reflections of hospital administrators regarding the outbreak and the actions that hospitals have taken to improve readiness since 2014. This study builds on **OIG's** body of work in emergency preparedness, which includes a prior study of hospital responses to a natural disaster.

How **OIG** Did This Review

We administered an online survey to a national sample of hospitals in early 2017. We selected a stratified sample of 410 hospitals that participate in Medicare and that have emergency departments. We received responses from 368 of the 410 hospitals (a 90-percent response rate) and projected those findings nationally. The survey included questions about hospital administrators' perceptions of preparedness in 2014 and 2017; actions taken to prepare; and challenges to sustaining preparedness for potential future EIDs. We analyzed some responses by whether hospitals served as Special Pathogen Centers, as designated by ASPR, and/or as Critical Access Hospitals, as designated by CMS.

TABLE OF CONTENTS

BACKGROUND	1
Methodology	7
Prior OIG Work	7
<hr/>	
FINDINGS	
Most hospitals reported they were not prepared for Ebola in 2014, but reported improved readiness for EIDs in the years since	9
Hospitals took action to improve readiness after the 2014 Ebola outbreak, and also reported challenges to preparedness	11
Hospitals expressed concerns about sustaining EID preparedness, given competing priorities and confusion in following guidance	16
<hr/>	
CONCLUSION AND RECOMMENDATIONS	
ASPR, CDC, and CMS should continue to help hospitals sustain preparedness for EIDs, by coordinating guidance and providing practical advice for all hospitals	21
CDC should clarify and promote the details and ongoing status of its tiered framework to ensure that hospitals are aware of their responsibilities in the event of a future EID	21
CMS should add EIDs to the definition of “all hazards” in the State Operations Manual to promote inclusion of EIDs in hospital emergency planning	22
<hr/>	
AGENCY COMMENTS AND OIG RESPONSE	23
<hr/>	
APPENDIXES	
A. Study Statistics	24
B. HHS Agency Resources	27
C. Agency Comments	29
<hr/>	
ACKNOWLEDGMENTS	34
<hr/>	
ENDNOTES	35

BACKGROUND

Objective

To describe the perceptions of hospital administrators regarding hospital preparedness to respond to emerging infectious diseases and actions taken to improve readiness for such diseases following the 2014 outbreak of Ebola in the United States.

Ebola Virus Disease

In 2014–16, thousands of people worldwide were infected with Ebola, a deadly emerging infectious disease (EID) that requires extensive patient care. This outbreak was the largest to date and was concentrated in a small number of West African nations. It resulted in 28,616 suspected and confirmed cases, with 11,310 deaths.¹ See Exhibit 1 for an abbreviated definition of Ebola from the Centers for Disease Control and Prevention (CDC).

Exhibit 1: Ebola Virus Disease

Ebola (\ ē- 'bō-lə) – is a viral hemorrhagic fever that infects people and nonhuman primates. The presence of Ebola causes excessive vomiting, diarrhea, and rash; damages the liver and kidneys; and can cause internal and external bleeding. Death is often the result of low blood pressure from fluid loss.

Sources: CDC, *Ebola (Ebola Virus Disease): Transmission and Signs and Symptoms*, 2016.

Ebola was first identified in 1976 in what was then Zaire and is now the Democratic Republic of the Congo (also known as Congo-Kinshasa).² Ebola spreads through direct contact with bodily fluids—particularly blood—of a person who is sick or has died from the disease. Ebola can also spread indirectly by contact with previously contaminated surfaces or objects.³ Ebola poses a high risk to health care workers, who must use personal protective equipment, including masks, gloves, goggles, and gowns, to avoid infection. There is currently no antiviral drug licensed to treat Ebola, but supportive and symptom-specific interventions can improve chances of survival.⁴ Presence of the virus results in a high mortality rate, with approximately half of those infected succumbing to the disease.

In August 2014, the World Health Organization (WHO) declared Ebola a public health emergency of international concern.⁵ Ebola was confirmed in the United States on September 30, 2014.⁶ From September through November 2014, several U.S. hospitals treated 11 patients diagnosed with

Ebola, including two nurses who were exposed to the disease while treating a patient in a Dallas, Texas hospital. One of the U.S. patients died from the disease; the others survived. No new cases of Ebola have been diagnosed in the United States since that time, although a small number of cases have emerged internationally since the outbreak ended in 2016.⁷ The largest since 2014 was an outbreak in the Democratic Republic of the Congo (Congo-Kinshasa) in May 2018, which spread to an urban area and included 58 cases and 27 deaths.⁸

Definition and Instances of EIDs

CDC defines an EID as a contagion or condition for which “incidence in humans has increased in the past 2 decades or threatens to increase in the near future.”⁹ In 2016, CDC tracked 37 pathogens in more than 130 countries.¹⁰ Although EIDs are more common elsewhere, the United States has experienced small numbers of cases of EIDs. In the last 15 years, the United States has had cases of Middle East Respiratory Syndrome (MERS), Severe Acute Respiratory Syndrome (SARS), and pandemic (widespread) influenza. See Exhibit 2 for examples and descriptions of recent EIDs worldwide since 2003.

Public health officials caution that future EID threats are difficult to anticipate, given the complexity of identifying such diseases and predicting their spread.¹¹ With this being the case, the United Nations’ World Health Organization (WHO) called in February 2018 for nations to accelerate research and development for eight EIDs, including what it labeled “Disease X”—any pathogen currently unknown that could cause human disease with the potential for widespread impact.¹² In April 2018, the Gates Foundation announced additional funding toward development of a universal influenza vaccine, citing research indicating a “significant probability of a large and lethal, modern-day pandemic occurring in our lifetimes.”¹³

Exhibit 2: Examples and descriptions of EIDs worldwide since 2003.

Emerging Infectious Disease	Year(s) of Outbreak	Impact
H7N9 Pandemic Influenza (“bird flu”)	2013	1,589 cases and 616 deaths in China
Middle East Respiratory Syndrome (MERS)	2012	2,143 cases in 27 countries, and 750 deaths
H1N1 (2009) Pandemic Influenza (“swine flu”)	2009	More than 284,000 deaths worldwide
H5N1 Pandemic Influenza (“bird flu”)	2003–2016	850 cases and 449 deaths worldwide
Severe Acute Respiratory Syndrome (SARS)	2003	8,096 cases and 774 deaths worldwide

Sources: Kaiser Family Foundation, “The U.S. Government and Global Health Security,” 2016; World Health Organization, “Middle East respiratory syndrome coronavirus (MERS-CoV),” 2018.

Role of HHS in EID Preparation and Response

EIDs not only threaten public health, but also stress the surrounding health care infrastructure, including hospitals. Receiving EID cases requires hospitals to learn about the disease pathology and recommended protocols, and may require substantial staff training, additional equipment, and supplies. EIDs also require hospitals to collaborate with other providers and government entities, and to maintain government and clinical standards for treating patients with unusual diagnoses.¹⁴ For example, a hospital that receives an EID case may divert other patients to nearby hospitals to focus resources on the EID patient and to reduce the risk of contagion.

The Department of Health and Human Services (HHS) is the lead Federal department responsible for providing medical support and coordination during public health emergencies, such as disease outbreaks.¹⁵ HHS provides guidance to health care providers and communities regarding medical preparedness and response capabilities for EIDs. Three HHS agencies share most of the responsibility for these efforts: the Office of the Assistant Secretary for Preparedness and Response (ASPR), CDC, and the Centers for Medicare & Medicaid Services (CMS).

Office of the Assistant Secretary for Preparedness and Response

ASPR coordinates HHS's response to public health emergencies with other Federal agencies, such as the Federal Emergency Management Agency (FEMA).¹⁶ ASPR also coordinates and oversees Healthcare Coalitions, which are groups of health care providers and public health entities that work together to prepare for, respond to, and recover from emergencies.¹⁷ ASPR created the Technical Resources, Assistance Center, and Information Exchange (TRACIE) to provide information and technical assistance to Healthcare Coalitions, health care providers, and others during public health emergencies.¹⁸ Since 2010, ASPR has managed the Hospital Preparedness Program, which provides grants to States and localities to distribute to hospitals and Healthcare Coalitions for improved preparedness.¹⁹ Guidance for this program states that hospitals and other health care facilities should conduct hazard vulnerability assessments to determine and prioritize the hazards that pose the greatest risk to their respective facilities.²⁰

In 2014, in response to the Ebola outbreak, Congress appropriated supplemental Hospital Preparedness Program funding, to be allocated by ASPR for 5 years.²¹ ASPR awarded the additional allocations for the program in May and June of 2015, so the funding will expire in May and June of 2020.²² The President's Budget for fiscal year includes \$227 million for the Hospital Preparedness Program. ASPR has stated that it is distributing this \$227 million to locations with the greatest need for preparedness.²³

Centers for Disease Control and Prevention

CDC monitors and responds to public health emergencies such as EIDs, conducts research, and provides guidance to health care providers, government entities, and the public.²⁴ CDC also maintains the Strategic National Stockpile, which supplements State and local stocks of vaccines, medicines, and supplies for emergencies.²⁵ CDC provides funding to public health departments for emergency preparedness through the Public Health Emergency Preparedness cooperative agreements.²⁶ In response to the Ebola outbreak in 2014, CDC provided additional Public Health Emergency Preparedness funding to States and localities;²⁷ stockpiled protective equipment for health care workers;²⁸ and revised its infection control guidance for health care providers, communities, and other public entities.²⁹

Also in 2014, CDC worked with States to establish a framework for hospitals to share responsibilities in receiving and treating cases of Ebola.³⁰ The hospital framework placed facilities in three tiers of responsibility, depending on their capability to receive patients, their geographic location, and other factors:

- **Tier 1:** “Ebola Treatment Centers” were expected to receive and diagnose patients with suspected disease, and to provide care for diagnosed patients.³¹
- **Tier 2:** “Ebola Assessment Hospitals” were expected to receive, diagnose, and provide care for patients with suspected disease, and to transfer diagnosed patients to a treatment center.
- **Tier 3:** “Frontline Healthcare Facilities” were expected to receive and provide care for patients with suspected disease and to transfer suspected patients to the nearest Tier 1 or 2 hospital.

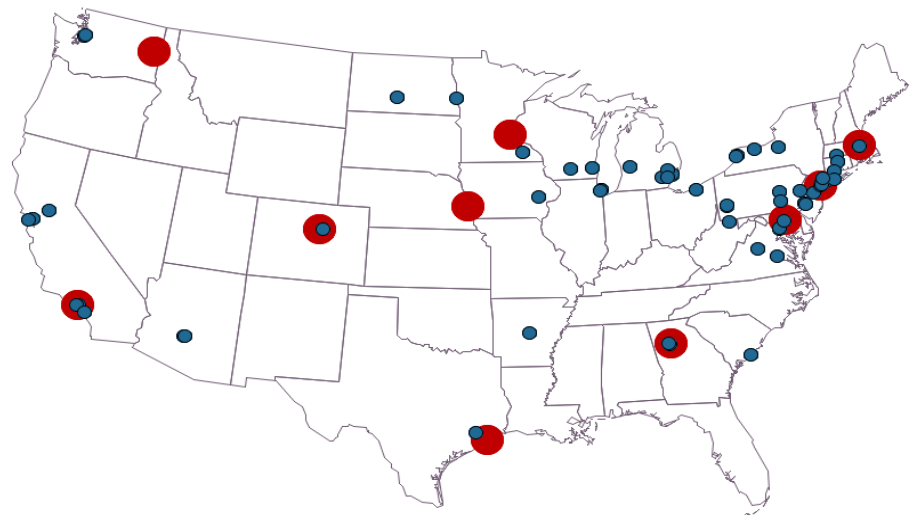
Beginning in 2014, CDC released lists of the hospitals designated as being in the first tier, i.e., Ebola Treatment Centers.³² CDC has not made public the lists of hospitals in the second and third tiers, citing security concerns with identifying hospitals that may not be as equipped to receive patients with EIDs.

CDC created the tiered structure specifically to prepare for additional cases of Ebola. However, CDC has not specified that the framework applies more broadly to other EIDs, and it has not updated the hospital framework since 2015. In guidance documents that CDC released in 2016, it indicated that it anticipates using the tiered framework approach in the event of any future EID threats.³³ CDC guidance also emphasized the importance of all U.S. health care facilities’ “preparing to identify, isolate, and evaluate” potentially infected patients with any EID, and stated that it plans to re-engage the hospital framework if faced with another outbreak.³⁴

In 2015, ASPR built on CDC’s tiered system by designating 9 of the 64 Ebola Treatment Centers—specifically, those with the greatest capacity and most critical locations—as Ebola and Other Special Pathogen Centers (hereafter referred to as Special Pathogen Centers).³⁵ ASPR defines “special pathogens” as highly infectious agents that produce severe disease in humans.³⁶ In 2017, ASPR elevated an additional Ebola Treatment Center to the status of Special Pathogen Center, leaving 63 hospitals as Ebola Treatment Centers.³⁷

ASPR guidance states that these Special Pathogen Centers are to maintain capability to accept patients with suspected or diagnosed illness (Ebola or other special pathogen) within 8 hours of notification and to conduct quarterly exercises to prepare for an EID outbreak.³⁸ The Special Pathogen Centers receive annual assessments from the National Ebola Training and Education Center, which is a collaborative effort involving ASPR, CDC, and several academic institutions. The center was created to provide technical assistance and training to health care providers regarding Ebola and other EIDs.^{39, 40} See Exhibit 3 for a map of the Special Pathogen Centers and Ebola Treatment Centers.

Exhibit 3: Special Pathogen Centers and Ebola Treatment Centers are located across the country.



Special Pathogen Centers

Ebola Treatment Centers

Source: OIG analysis of HHS documentation, 2017.

Centers for Medicare & Medicaid Services

CMS oversees hospitals participating in Medicare and Medicaid by requiring Conditions of Participation (Medicare CoPs), a set of minimum health and safety standards enforced by State Agencies (SAs) and accrediting organizations (AOs).^{41, 42} CMS's State Operations Manual provides guidance to SAs and AOs regarding how they should assess hospitals on the Medicare CoPs.⁴³

The Medicare CoPs require hospitals to have policies and procedures to prepare for potential emergencies, and to also operate programs to prevent, control, and investigate infectious and communicable diseases.⁴⁴ In November 2016, CMS issued a new CoP for emergency preparedness. State surveyors and accrediting organizations began assessing the CoP requirements in November 2017.⁴⁵ The new CoP provides greater specificity regarding actions that hospitals must take toward emergency preparation; however, it does not specify preparation for EIDs or any other specific type of disaster or emergency.

The CoP requires that hospitals maintain compliance with all requirements regarding four core elements of emergency preparedness: (1) annually updating emergency plans using an "all hazards" approach that encompasses a range of potential emergencies (although not specifically EIDs);⁴⁶ (2) developing and maintaining a communication plan for interacting with other entities involved in disaster response; (3) developing and maintaining policies and procedures that include both the emergency plan and the communication plan; and (4) developing and maintaining an emergency training program, testing the plan annually, and making revisions based on the results of exercises, which could include both "tabletop" exercises and full-scale drills (see Exhibit 4).⁴⁷

Exhibit 4: Tabletop Exercises and Full-Scale Drills

- **Tabletop Exercise:** A meeting of hospital officials and staff to review and discuss roles and responsibilities in emergency situations. Tabletop exercises are usually structured like a board game with an imagined scenario. They can identify gaps in planning documents and communication.
- **Full-Scale Drill:** An active test using a simulation (e.g., an EID outbreak) to evaluate coordination among entities while monitoring adherence to accreditation standards, capabilities, procedures, and functions. Full-scale drills require extensive resources and often include multiple entities.

Source: Agency for Healthcare Research and Quality, *Hospital Preparedness Exercises Pocket Guide*. 2010.

Prior OIG Work

OIG previously conducted two studies related to hospital preparedness for emergencies, including EIDs. In both cases, OIG recommended that ASPR improve planning for emergencies and collaboration during emergencies. In 2009, OIG found that State and local communities varied in the level to which they were prepared for a medical surge during an influenza pandemic, and that hospital administrators anticipated problems with obtaining equipment through normal channels during a pandemic. Administrators also questioned whether vendors would be able to honor their contracts with an influx of competing orders to fill.⁴⁸

In 2014, an OIG study of hospital responses to a hurricane-caliber storm in densely populated areas (i.e., Superstorm Sandy) found that most hospitals, prior to the storm, received citations from AOs for emergency-related deficiencies such as lack of supplies, and that administrators reported difficulty in prioritizing emergency preparedness and maintaining staff and supplies when an emergency was widespread. OIG recommended that ASPR continue to promote collaboration in major disasters, and that it encourage Hospital Preparedness Program awardees to participate in tabletop exercises or full-scale drills that include their broader communities and other health care providers.⁴⁹ ASPR concurred and reported that it had recently shifted the focus of the Hospital Preparedness Program from the preparedness of individual hospitals to the preparedness of comprehensive health care systems.

Methodology

To examine hospital experiences in preparing for Ebola and other EIDs, we surveyed a sample of Medicare-certified hospitals. We selected a stratified simple random sample of 410 of the 4,489 hospitals with emergency departments that participated in the Medicare program in 2016. The two strata included (1) all 10 Special Pathogen Centers, and (2) all other hospitals with an emergency department.

Data Collection and Analysis

We submitted an online survey to hospital administrators from sampled hospitals in December 2016 and accepted responses through April 2017. The survey included both closed- and open-ended questions, and pertained to hospital administrators' perceptions of preparedness for possible Ebola cases in 2014 and to their current preparedness, efforts to prepare, and challenges in achieving and sustaining preparedness.⁵⁰ For non-open-ended survey questions, we provide the projected responses in the report. For open-ended survey questions, we provide selected responses in the report to serve as illustrations.

We also interviewed 40 hospital administrators from the responding hospitals (11 percent) to gain additional information, including 2 of the 10 Special Pathogen Centers. We purposely selected these 40 administrators as our analysis progressed, either because their responses

were unclear or because they cited examples that we wanted to understand in more detail.

We contacted nonrespondents up to four times through email and telephone. We received responses from 368 of the 410 hospitals in the sample, a 90-percent overall response rate. See Exhibit 5 for sample and response statistics. Our projected findings represent approximately 4,019 of the 4,489 hospitals in our sampling frame.

Exhibit 5: Sampling Frame, Sample Size, and Response Rate by Strata

Stratum	Sampling Frame	Sample Size	Number of Respondents	Response Rate
1 – Special Pathogen Centers	10	10	10	100%
2 – All Other Hospitals	4,479	400	358	90%
Total	4,489	410	368	90%

Source: OIG analysis of data from OIG survey on hospital preparedness, 2018.

See Appendix A for point estimates and 95-percent confidence intervals for statistics in our report.

Limitation

We did not independently verify hospital responses related to their preparedness efforts or perceptions of their preparedness.

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.

FINDINGS

Most hospitals reported they were not prepared for Ebola in 2014, but reported improved readiness for EIDs in the years since

Very few U.S. hospitals received patients with suspected or diagnosed Ebola in 2014, but the domestic presence of the disease caused hospitals nationwide to assess and improve their preparedness.

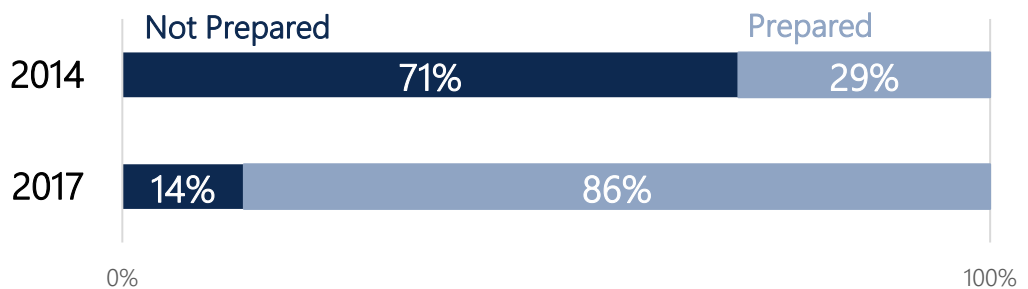
Administrators from 71 percent of hospitals reported that their facilities were not prepared to receive Ebola cases in 2014

Administrators from the remaining 29 percent of hospitals reported that they were prepared to receive such cases in 2014 (see Exhibit 6).

In assessing their preparedness, administrators considered a number of factors regarding their capacity to diagnose and treat patients:

- the adequacy of their staffing in both numbers and expertise;
- access to supplies, equipment, and vendor services; and
- facility characteristics that would allow patient isolation and transport.

Exhibit 6: Hospitals reported an increase in preparedness for receiving cases of EIDs from 2014 to 2017 (n=368).



Source: OIG analysis of data from OIG survey on hospital preparedness, 2018.

Among the 10 hospitals later designated as Special Pathogen Centers, 4 hospitals reported that they were not prepared for Ebola cases in 2014.

Administrators reported improved preparedness in the years since the Ebola cases, with only 14 percent of hospitals reporting they are not prepared for a future EID threat

Administrators from most hospitals (86 percent) reported that by 2017, they were prepared to receive cases of a serious EID such as Ebola. As one would expect, all 10 of the Special Pathogen Centers reported they were prepared in 2017. Although multiple factors may have contributed to an enhanced perception of preparedness, OIG found that many hospitals noted an increase in overall EID awareness. For example, many hospital

administrators cited group discussions regarding EID preparedness and the creation of Ebola-specific plans following the 2014 Ebola outbreak.

Adding explanations to their surveys, many administrators also noted that, although their hospitals would be prepared in the event of an outbreak, receiving such cases would strain their resources. One administrator reported that EID preparedness had improved following the Ebola cases, but the hospital was unsure about the effect of an actual EID patient since it lacked firsthand experience. Hospital administrators in areas affected by other types of emergencies—such as Gulf States, which often encounter hurricanes—often noted that these experiences helped to improve overall preparedness.

Critical access hospitals reported a lower rate of preparedness than all other hospitals in both 2014 and 2017

Critical access hospitals (CAHs) are acute-care hospitals that provide services for populations with few medical service providers, such as in rural areas.⁵¹ Medicare reimburses CAHs using a different system than it does acute-care hospitals,⁵² and requires a different set of Medicare CoPs for CAHs than for acute-care hospitals. For example, CAHs are not required to have a physician onsite at all times.^{53, 54} To be designated as a CAH by CMS, hospitals must have no more than 25 beds, be located certain distances from other hospitals, and furnish 24-hour emergency care.⁵⁵ The CAHs in our sample were more likely to be located in rural areas (81 percent, compared to 23 percent for all other hospitals).⁵⁶ CAHs were also less likely to report ownership by a health care system that might provide support in improving preparedness; 39 percent reported such membership, compared to 80 percent of all other hospitals.

Administrators from CAHs were more likely than administrators from all other hospitals to report that their hospitals were unprepared, both during and after the Ebola outbreak. Eighty-six percent of hospital administrators from CAHs reported their hospitals were unprepared for Ebola in 2014, compared to 65 percent of all other hospitals. (The rate for all hospitals combined was 71 percent.) Twenty-three percent of hospital administrators from CAHs reported they were still unprepared by 2017, compared to 10 percent of all other hospitals. (The rate for all hospitals combined was 14 percent.)⁵⁷

Hospitals took action to improve readiness after the 2014 Ebola outbreak, and also reported challenges to preparedness

All hospital administrators reported taking action to improve their preparation for EID threats after the 2014 Ebola outbreak

Administrators reported that the 2014 Ebola outbreak served as an alert for them to improve their capability to respond to EIDs. In the weeks following the U.S. Ebola cases, hospitals nationwide took the following actions: seeking guidance from government sources such as CDC; increasing staff training and exercises; and acquiring additional equipment and supplies (see Exhibit 7). Responses indicated that these efforts were first focused on Ebola, then continued after the Ebola threat was considered past and included preparation for a broader range of potential future EIDs.

Exhibit 7: All hospitals took action to improve preparedness for EID threats following the 2014 Ebola outbreak (n=368).

Description of Action	Percentage of Hospitals
Sought guidance from CDC	100%
Conducted additional staff training	94%
Purchased additional equipment and supplies	92%
Sought guidance from CMS and related oversight entities	92%
Conducted full-scale drills or tabletop exercises with staff	87%
Revised infectious disease and emergency plans	84%
Used ASPR resources, such as TRACIE technical assistance	84%
Participated in ASPR-funded Healthcare Coalitions	78%
Enhanced collaboration with local government entities	75%
Reviewed agreements with supply and service contractors	73%
Engaged hospital board or system management	70%
Created an EID rapid response clinical team	49%

Source: OIG analysis of data from OIG survey of hospital preparedness, 2018.

All hospital administrators reported seeking guidance from HHS to prepare for the possibility of receiving Ebola cases in 2014–15

Hospital administrators reported using many guidance materials from HHS agencies. All hospitals sought guidance from CDC about how to respond to potential cases of Ebola. Most hospitals (92 percent) also sought guidance from CMS and related oversight entities, such as State survey agencies and accreditation organizations. Eighty-four percent of hospitals also used ASPR resources such as TRACIE technical assistance, and 78 percent of all hospitals participated in ASPR-funded Healthcare Coalitions.

Administrators from 94 percent of hospitals reported conducting additional staff training in preparation for receiving EID cases

Administrators from nearly all hospitals (94 percent) reported that they conducted staff training in emergency procedures and clinical procedures to

handle patients with suspected or diagnosed EIDs. Half of hospitals (49 percent) focused their training on forming “rapid response teams” to be deployed as needed. These teams included selected clinicians and staff members across disciplines, such as emergency management, infection control, nurse leadership, and laboratory operations.

“Ebola hijacked us. It took over our lives well into 2015 before we were able to get back to a normal workload.” – Hospital administrator

A number of administrators noted the value of providing training across the hospital, including to both clinical and nonclinical hospital staff (e.g., physicians, administrators, frontline reception staff, and environmental service workers). One hospital administrator stated that having departments train together created more open communication, which served to better identify and address the needs of each department. Training existing staff was much more common than hiring new staff in anticipation of an Ebola case. While 5 of the 10 Special Pathogen Centers reported that they hired additional staff, only 1 of the remaining 358 hospitals hired additional staff in response to the 2014 Ebola outbreak.

However, some administrators reported difficulty in obtaining full participation from clinicians and staff at all levels and disciplines. They cited a variety of reasons for these individuals’ reluctance to participate, such as not perceiving it as being within their job descriptions or having too many other responsibilities. Other administrators reported that a small contingency of staff were reluctant to train for possible EIDs out of fear of disease transmission. Administrators also noted difficulty in some cases gaining involvement from their respective facilities’ Boards of Directors, who had not previously been involved in emergency planning and response. For 70 percent of hospitals, administrators reported they actively reached out to their respective hospital Boards of Directors following the 2014 Ebola cases to encourage more Board involvement in emergency preparation.

In their survey responses, administrators included explanations about how training is not the same thing as experience, and that staff would likely have little or no experience with actual EID cases until an emergency occurred. One administrator further noted that even if the hospital conducted an EID-related exercise every year, recently hired staff would not have the opportunity to train on EID-specific procedures, such as the use of protective gear. An administrator at a hospital designated as a Special Pathogen Center reported that EID training is particularly costly, and that frequent turnover of frontline caregivers—the staff most critical to receiving patients—increases those costs.

Some hospital administrators reported that the staff most needed in handling complex EID cases were already among the most in-demand across the hospital. Using these staff for extended periods to manage an EID case could affect critical hospital operations, such as emergency departments and intensive care units. However, keeping staff in their regular core functions limits the pool of candidates to treat EID cases.

“There is not enough exposure to EID incidents to make staff feel comfortable with their response and training for the situation.” – Hospital administrator

One administrator described this by saying that the staff handling emergency preparedness were “wearing many hats” and that if the hospital were faced with an EID outbreak, it would be nearly impossible for these staff to complete all of the procedures as planned. For example, in this case, the same person is in charge of quality improvement, emergency preparedness, infection control, risk management, maintenance, and employee health. Another administrator from a small, rural CAH also noted that in the event of a mass outbreak, staff’s own families would likely be affected, further limiting staff availability to report to work.

Administrators from 92 percent of hospitals reported purchasing additional resources, such as equipment and supplies, and also reported difficulty in acquiring these resources

Common types of purchased supplies included additional clinical equipment that hospitals planned to dedicate exclusively to EID patients; protective equipment; and medical waste equipment. In 2014–15, many hospitals (73 percent) encountered difficulty in acquiring these supplies, as a result both of manufacturer shortages of high-demand supplies and the limited number of providers of relevant services, such as medical-waste disposal vendors that were certified to provide services for hazardous waste.

Some administrators reported that because hospitals had been unsure what might be needed, they had stockpiled equipment to ensure sufficient supply. However, a few administrators referenced past “lessons learned” that had made them cautious of overbuying, such as one hospital that had stockpiled respirators during the 2009 H1N1 flu pandemic, only to have to discard them later because they expired before they could be used. Others were unable to acquire additional supplies as quickly as they had hoped, which could have posed a problem had the Ebola outbreak spread more broadly. Among the supplies that were unavailable were elongated face shields that fully cover mouth, nose and eyes to prevent contamination while treating patients. To mitigate the acquisition difficulties, some

hospitals shared supplies within their networks or with neighboring facilities. One hospital improvised by purchasing hoods and coveralls from a local paint supply store as an interim measure while supplies were on order.

Administrators also reported challenges in contracting with vendors that were capable of handling both transportation and disposal of Ebola hazardous waste. These tasks require that vendors hold specific certifications and meet Federal and State guidelines. Administrators found that vendors in their communities with the proper credentials and capability often contracted with more hospitals than they could actually service if multiple hospitals were to require services at the same time. After learning of this problem during the Ebola outbreak, 73 percent of hospitals reviewed their contracts with supply and service vendors. Some changed their contracts because these reviews identified gaps; for example, locating additional vendors and including provisions in the contracts to account for the possibilities of sharing services.

“We are prepared and have our processes in place, but if we were really hit with the large-scale influx of an EID, we would be in a world of hurt.”

– Hospital administrator

Administrators from 87 percent of hospitals reported their facilities conducted drills or exercises that included an EID-related scenario. Most administrators (70 percent of all hospitals) reported that their hospitals conducted full-scale drills—more labor-intensive and cost-intensive than tabletop exercises. Several explained that they were strong proponents of this practice because full-scale drills were more insightful than tabletop exercises in identifying gaps in preparedness, particularly gaps related to facility infrastructure and patient care handoffs. The administrators explained that these activities gave staff a much better understanding of their roles and coordination points, and also revealed gaps that might emerge in the event of an EID-related emergency. As one administrator put it: “[D]rills and exercises allow us to see our strengths and opportunities for learning.” Administrators from hospitals that performed tabletop exercises (79 percent of all hospitals) also touted the merits of this approach. One benefit cited for tabletop exercises was that hospitals could plan and conduct them more easily. For example, one administrator reported that the hospital was able to conduct tabletop exercises for all EIDs that are “of concern,” because the time investment for such exercises is relatively small.

Many hospitals chose to train staff using both of these methods. Administrators from 63 percent of hospitals, including all 10 Special

Pathogen Centers, reported conducting both full-scale drills and tabletop exercises to prepare for possible EIDs. Administrators from 17 percent of hospitals reported that their facilities conducted only tabletop exercises. Some of these hospitals explained they planned to conduct drills or exercises using an EID scenario, but had not yet done so at the time of our survey.

Of the hospitals that reported conducting full-scale, EID-related drills after the Ebola outbreak (52 percent), over half (52 percent) used Ebola as the drill scenario; the remaining half used a variety of other EIDs, including pandemic influenza. From the administrators' descriptions, many of these exercises focused largely on other types of emergencies and included a component specific to EIDs. For example, one hospital drilled for a flood emergency and designed its exercise to include a patient with a suspected EID, so as to test the hospital's ability to handle both scenarios.

Administrators from 84 percent of hospitals reported they revised their emergency plans to improve EID preparedness

Much of the improvement in emergency plans appeared to focus on building in redundancies for needed staffing and supplies. For example, hospitals sometimes used their plans to map out which staff they would need during each particular kind of emergency and where they would turn for supplemental staffing (e.g., another hospital within their network).

Although the Medicare CoP for emergency planning calls for hospitals to adopt an "all hazards" approach in developing emergency plans, CMS does not call for specific provisions to address EIDs. From their responses to open-ended survey questions, hospitals appeared to include EIDs within their interpretations of "all hazards." A number of administrators noted that the wide range of possible hazards made it nearly impossible to plan for all potential crises, making information-sharing and communication among stakeholders critical. Nearly all administrators (99 percent) noted that it was most important for their emergency plans to include contacts for government, community, and other entities involved in emergency preparedness. One administrator referred to this as part of a broader initiative for the hospital to have overall "situational awareness" about its role in the community in the context of other key community entities.

Administrators from 52 percent of hospitals reported that they would have difficulty updating their emergency plans annually, an action newly required by CMS. Examples from administrators included not having enough staff time to complete the updates. Some administrators also noted difficulty in integrating procedures specific to EIDs—such as infection control—into emergency plans. One administrator wrote: "[W]hen an infectious disease becomes the 'disaster,' most of the emergency preparedness coordinators are well outside their comfort zone."

Administrators who reported their facilities were still unprepared for an EID in 2017 reported having taken fewer actions and having experienced more challenges

Hospital administrators who reported that their facilities were still unprepared for an EID in 2017 (14 percent) responded significantly differently to some survey questions than did administrators who reported their hospitals were prepared for another EID. For example, the first group of administrators were less likely to report that they had taken key actions, such as conducting drills and exercises (68 percent among unprepared hospitals, vs. 89 percent among prepared hospitals).⁵⁸ Although all of the unprepared hospitals sought guidance from HHS, they were less likely to seek guidance across multiple agencies. Whereas 82 percent of prepared hospitals sought guidance from ASPR, CDC, and CMS, the rate for unprepared hospitals was 65 percent.⁵⁹ Moreover, unprepared hospitals were more likely to report that they faced challenges in preparing for EIDs, such as maintaining adequate equipment and supplies, including vendor services (90 percent compared to 70 percent).⁶⁰

Hospitals expressed concerns about sustaining EID preparedness, given competing priorities and confusion in following guidance

Despite reporting greater preparedness, administrators expressed concerns about sustaining preparedness for EIDs

Administrators reported that preparedness for a particular threat often tapers after the immediate crisis is over, in light of the many obligations that hospitals fulfill. One administrator stated that after each crisis, “the collaborative network of emergency preparedness across all the relevant partners could wither and fade away before the next threat arrives.” Others noted that the Ebola outbreak did not serve as a true test, given the small number of hospitals that were ultimately affected.

Administrators most commonly cited staffing as a challenge to sustaining preparedness (see Exhibit 8). Specifically, administrators expressed concerns about preparedness activities taking too much time away from the many routine duties that staff perform (90 percent) and about maintaining staff expertise and competency to treat EID patients (87 percent).

Exhibit 8: Challenges reported by hospitals to sustaining preparedness for EIDs (n=368).

Challenge	Percentage of Hospitals
Staff time taken away from other duties	90%
Sustaining staff competency to treat EID patients	87%
Competing priorities for funding and other resources	82%
Difficulty scheduling time to conduct EID-based drills and exercises	81%
Maintaining adequate equipment and supplies, including vendor services	73%
Difficulty following government guidance, either conflicting or impractical	72%

Source: OIG analysis of data from OIG survey of hospital preparedness, 2018.

Administrators from 95 percent of hospitals reported that competing priorities reduced focus on EIDs

Nearly all hospital administrators (95 percent) reported that their facilities had too many other obligations to afford substantial time on EID preparedness in the absence of a current threat. Administrators noted that a focus on any particular threat inherently took time away from other efforts, and that hospitals had to prioritize problems as they emerged. For example, some hospitals reported that over the previous year their emergency preparation focus had been on preparing for the possibility of an active shooter. Others spoke of the opportunity cost of devoting resources to preparing for future EID threats. Said one: “Preparing for Ebola took countless hours from many departments and one could argue detracted from normal infection prevention and control tactics to prevent hospital-acquired infections.”

The financial cost of preparedness can also divert needed resources from other important hospital efforts. Administrators noted that many of the specialized protective items, such as air-purifying respirators, were not only costly but also expired after a given date, meaning that regulations require hospitals to discard them. These administrators expressed concern that having to purchase or replace gear in a developing EID emergency would be a significant financial cost. Another hospital official commented on the difficulty of “budgeting funds for the ‘what ifs’ when there is only so much money available and there are other priorities you know will happen.”

“We deal with whatever is the ‘hot topic’ of the day, and nothing can stay on the top of the list ongoing.” – Hospital administrator

Administrators from 79 percent of hospitals reported that they believed other types of emergencies were more likely than EID threats, further shifting focus from EID preparedness

The emergencies most often mentioned by administrators as likely to affect their hospital and community were widespread natural disasters—such as hurricanes, fires, and floods—and active shooters. Natural disasters such as hurricanes require hospitals to coordinate with local government and other providers, while other emergencies like in-facility fires could affect only the hospital’s surrounding area or facility. Hospitals assessed their vulnerability to hazards using various risk assessment methods that considered factors such as geographic location, size, facility type, and patient population to determine the events most likely to occur. For example, some hospitals are located in communities with international airports, increasing the risk of outbreaks of EIDs from other parts of the world.

Hospital administrators reported some difficulty using government guidance in preparing for Ebola, including guidance from HHS

All hospitals (100 percent) sought guidance from CDC to prepare for the possibility of receiving Ebola cases in 2014–2015, but most administrators—72 percent—reported they had some difficulty in interpreting and following this guidance during the Ebola outbreak. This appeared to be the result of two factors: administrators from 64 percent of hospitals reported confusion over conflicting guidance from HHS agencies and other entities, such as State governments; and administrators from 50 percent of hospitals reported that guidance was sometimes not practical or easily employable at the hospital level. For example, one hospital said that guidance seemed targeted towards larger organizations and was not scalable for smaller community hospitals that do not have staff dedicated for emergency preparedness. Another hospital felt that the initial Ebola guidance from CDC was “too generic” to be readily implemented unless the staff already had expertise.

Further, some hospital administrators complained that guidance from CDC and others changed through the course of the Ebola outbreak, but others said the changes were appropriate in response to a growing body of knowledge about the disease’s transmission and care. As one administrator explained, “It would help stress levels if everyone accepted that a novel pathogen involves an iterative process to determine the best strategies for managing the threat. Ongoing modifications to CDC recommendations should not be perceived as lack of expertise, but should be expected.”

“Ongoing modifications to CDC recommendations should not be perceived as lack of expertise, but should be expected.” – Hospital administrator

In some cases, providers and suppliers adapted their products to incorporate new information. For example, one administrator said that manufacturers of protective gear changed their product after the Ebola outbreak: “When we first got the guidance, you could only use a hazmat suit, but the gowns on the market today meet the requirements.” On this point, administrators often noted that hospitals must consider a number of scenarios in preparing for future EID threats because different diseases require different treatment and prevention. For example, Ebola presented an extreme situation in terms of difficulty in treatment and severity of illness, requiring complex and urgent patient care, strict isolation, and extreme protective measures to prevent contagion. In contrast, pandemic influenza may result in a large influx of patients and a surge in demand for inpatient services. As noted throughout the hospital survey responses, hospitals

gained insight about preparing for other hazards when they prepared for Ebola, but remain concerned about core preparedness issues such as staffing and supplies.

In survey responses, hospital administrators provided input to HHS agencies regarding how the agencies could best support hospitals in preparing for EIDs and addressing concerns. Summarized broadly, administrators called for improved communication between HHS and hospitals, and also with other stakeholders (see Exhibit 9).

Exhibit 9: Selected Feedback to HHS from Hospital Administrators

- *"Simplify the message so that guidance is easier for hospitals without expertise to follow."*
- *"Coordinate so that hospitals hear a unified voice for guidance and requirements."*
- *"Maintain the tiered structure. It reassures smaller hospitals that we will be covered."*
- *"Listen to our experiences with drills and real emergencies. It plays out differently in real life."*
- *"Recognize that hospitals have competing priorities to meet the broader CoPs and serve patients."*

Source: OIG analysis of data from OIG survey on hospital preparedness, 2018.

About one-third of hospitals reported not knowing their role in the CDC tiered hospital framework for Ebola response, which may affect the framework's usefulness for future EID threats

As a key indicator of the confusion that hospital administrators reported in using HHS guidance, some hospitals did not know their designation in CDC's tiered framework. All of the Special Pathogen Centers and Ebola Treatment Centers (Tier 1) reported they were aware of their responsibility, but 36 percent of all other hospitals (assessment hospitals and front-line hospitals) were not aware of their designations. This was despite administrators from all hospitals reporting that they communicated with CDC or accessed information on CDC's website, and that CDC and ASPR promoted the tiered concept following the Ebola outbreak and for some time after.

Many of these hospitals also appeared unaware of the designations of nearby hospitals and the division of responsibilities between hospitals in the event of an outbreak, which could adversely affect their response upon receiving an EID case. This was attributed in part to changing guidelines and requirements for the hospital tier designations in 2014–15 and also to the framework's not being actively used in the absence of an EID.

Some hospital administrators reported decreasing their efforts to improve their own preparedness for Ebola when they learned about the specific roles of the Special Pathogen Centers and the other treatment centers, particularly if such a facility was located nearby. Despite their decreased efforts, hospitals appeared to plan for at least patient screening and triaging before transferring suspected or diagnosed cases, and administrators mentioned adding screening questions to electronic health records systems to embed the practices for future EID threats.

CONCLUSION AND RECOMMENDATIONS

The 2014 Ebola outbreak focused attention nationwide on the potential impact of EIDs on U.S. public health and hospital infrastructure. Although the occurrence of a disease as severe as Ebola was an unusual one, a number of other EIDs have previously entered the United States and future outbreaks are possible. Hospitals provide critical services in these instances, and must be prepared for EIDs without impairing their routine work. Many hospital administrators reported their facilities were not prepared to receive Ebola cases in 2014, but improved preparedness for Ebola and other potential EIDs in the years since. Administrators also reported challenges to prioritizing the planning and training needed to prepare for EIDs, given the competing demands for staff time and other resources, as well as some difficulty using government guidance.

A future EID threat could require substantial management and resources by hospitals, other health care providers, and government at all levels, with key involvement from ASPR, CDC, and CMS. To improve hospital preparedness, HHS assistance to hospitals, and oversight of emergency preparedness requirements, we recommend the following:

ASPR, CDC, and CMS should continue to help hospitals sustain preparedness for EIDs, by coordinating guidance and providing practical advice for all hospitals

To counter confusion about conflicting guidance and waning focus on EID preparedness, HHS agencies should continue to collaborate internally and externally with hospitals and other stakeholders, such as States and accrediting organizations. ASPR, CDC, and CMS could coordinate efforts for three tasks: updating EID preparedness guidance to ensure that it is clear and concise; developing strategies for updating information about current EID threats; and providing practical advice that hospitals can more easily employ given competing priorities. The agencies should also be aware that some hospitals continue to report a lack of preparedness, and the agencies should take steps to ensure that all hospitals receive preparedness guidance appropriate to their respective roles. For example, CAHs reported lower rates of preparedness than other hospitals in 2017. This coordination effort could include guidance related to CAH-specific challenges, such as acquiring equipment, staffing, and expertise in rural settings.

CDC should clarify and promote the details and ongoing status of its tiered framework to ensure that hospitals are aware of their responsibilities in the event of a future EID

The tiered framework could be critical in guiding hospitals in the event of a future EID, but CDC has not updated the framework since 2015. To support hospital preparedness, CDC should ensure that it clarifies likely hospital roles and provides guidance about how it might adapt the framework in the future,

such as the expectations for hospitals in each category, strategies for communicating among tiers, and CDC resources available to assist in the implementation of the tiered approach.

CMS should add EIDs to the definition of “all hazards” in the State Operations Manual to promote inclusion of EIDs in hospital emergency planning

The Medicare CoP for emergency preparedness outlines actions hospitals must take to prepare for emergencies, including a provision that hospitals annually update emergency plans using an “all hazards” approach that encompasses a range of potential emergencies. However, the provision does not specify that the potential emergencies could include EIDs.

Given hospital administrators reported concern about sustaining EID preparedness and about updating plans annually, CMS should revise the State Operations Manual to specify that EIDs are included in the CMS definition of “all hazards.” CMS should also consider providing further guidance to hospitals about incorporating EID preparedness into “all hazards” planning, and to surveyors and accrediting organizations for assessing hospital preparedness for EIDs. For example, CMS could provide guidance to hospitals about incorporating specific EIDs into full-scale drills, tabletop exercises, and other staff training efforts, and CMS could educate surveyors in assessing the use of such actions in preparing for EIDs.

AGENCY COMMENTS AND OIG RESPONSE

ASPR, CDC, and CMS concurred with our recommendations. All three agencies responded that they would continue working together to help hospitals sustain preparedness for EIDs, including coordinating guidance and providing hospitals with practical advice.

In response to our recommendation that CDC clarify and promote the details and ongoing status of the tiered hospital framework that it developed during the Ebola outbreak, CDC responded that it would work with health care facilities and systems; State, local, tribal, and territorial health departments; professional organizations; other Federal agencies; and relevant partners to provide clarity and guidance to support and improve hospital preparedness. We would appreciate if in its final management decision, CDC could specifically address the status of the tiered framework.

In response to our recommendation that CMS add EIDs to the definition of “all hazards” in the SOM, CMS responded that it would revise the SOM to specifically include EIDs.

OIG appreciates the agencies’ concurrence and actions to further support hospital preparedness for potential future EIDs. Given the concerns of hospital administrators regarding sustaining EID preparedness, we reiterate the importance of close coordination within HHS; providing clear, practical advice to hospitals; and ensuring that hospitals are aware of their responsibilities in the event of a future outbreak and that hospitals include EIDs in their emergency planning efforts.

For the full text of the comments from ASPR, CDC, and CMS, see Appendix C.

APPENDIX A: Study Statistics

Exhibit A-1 contains point estimates and 95-percent confidence intervals for statistics provided in the report. All statistics are derived from the OIG survey on hospital preparedness, completed by 368 hospitals (10 Special Pathogen Centers and 358 other hospitals) from December 2016 through April 2017.

Exhibit A-1: Sample Sizes, Point Estimates, and Confidence Intervals

Estimate Description	Sample Size	Point Estimate	95-Percent Confidence Interval
Hospitals' reported preparedness to handle patients with suspected or actual Ebola in 2014			
Prepared	368	29.1%	24.8%–33.8%
Among critical access hospitals	104	14.4%	9.0%–22.2%
Among all other hospitals	264	35.1%	29.7%–40.9%
Not prepared	368	70.9%	66.2%–75.2%
Among critical access hospitals	104	85.6%	77.8%–91.0%
Among all other hospitals	264	64.9%	59.1%–70.3%
Hospitals' reported preparedness to handle patients with suspected or actual EIDs in 2017			
Prepared	368	86.3%	82.6%–89.4%
Among critical access hospitals	104	76.9%	68.2%–83.8%
Among all other hospitals	264	90.2%	86.1%–93.2%
Not prepared	368	13.7%	10.6%–17.4%
Among critical access hospitals	104	23.1%	16.2%–31.8%
Among all other hospitals	264	9.8%	6.8%–13.9%
Hospitals' actions taken to prepare for Ebola or other EID threats			
Sought guidance from CDC	368	100%	99.0%–100%
Sought guidance from CMS and related oversight entities	368	91.9%	88.8%–94.3%
Used ASPR resources	368	84.4%	80.4%–87.7%
Participated in ASPR-funded Healthcare Coalitions	368	78.3%	73.9%–82.1%
Conducted additional staff training	368	94.1%	91.3%–96.1%
Purchased additional equipment and supplies	368	92.4%	89.4%–94.7%

Estimate Description	Sample Size	Point Estimate	95-Percent Confidence Interval
Hospitals' actions taken to prepare for Ebola or other EID threats (continued)			
Conducted full-scale drills or tabletop exercises with staff	368	86.9%	83.2%–89.9%
Conducted full-scale drills since the Ebola outbreak	368	52.1%	47.1%–57.0%
Used Ebola as drill scenario	196	51.8%	44.9%–58.6%
Conducted tabletop exercises	368	79.4%	75.1%–83.1%
Conducted full-scale drills	368	70.2%	65.4%–74.5%
Conducted both tabletop exercises and full-scale drills	368	62.7%	57.7%–67.3%
Revised infectious disease and emergency plans	368	84.3%	80.4%–87.6%
Enhanced collaboration with local government entities	368	74.9%	70.3%–79.0%
Reviewed agreements with supply and service contractors	368	73.4%	68.9%–77.6%
Engaged hospital board or health care system management	368	69.6%	64.8%–74.0%
Created an EID rapid response clinical team	368	49.2%	44.3%–54.2%
Challenges that hampered hospitals' ability to prepare for suspected or actual EIDs			
Staff time taken away from other duties	368	89.6%	86.2%–92.3%
Sustaining staff competency to treat EID patients	368	87.4%	83.7%–90.4%
Competing priorities for funding and other resources	368	82.1%	78.0%–85.6%
Difficulty scheduling time to conduct EID-based drills and exercises	368	80.7%	76.4%–84.3%
Maintaining adequate equipment and supplies, including vendor services	368	73.1%	68.5%–77.3%
Among hospitals that were prepared for EID in 2017	319	70.4%	65.4%–75.1%
Among hospitals that were not prepared for EID in 2017	49	89.8%	78.3%–95.5%
Difficulty following government guidance, either conflicting or impractical	368	71.8%	67.1%–76.1%
Conflicting guidance from government authorities	368	63.9%	59.0%–68.6%
Impractical guidance from government authorities	368	49.8%	44.8%–54.7%
Difficulty implementing the new CMS emergency preparedness regulations	368	52.4%	47.5%–57.4%

Estimate Description	Sample Size	Point Estimate	95-Percent Confidence Interval
Estimates among hospitals that reported they were prepared for a possible EID in 2017			
Sought guidance from ASPR, CDC, and CMS	319	82.3%	77.8%–86.0%
Maintained adequate equipment and supplies, including vendor services	319	70.4%	65.4%–75.1%
Estimates among hospitals that were not prepared for EIDs in 2017			
Conducted tabletop exercises or full-scale drills with staff	49	69.4%	55.8%–80.3%
Sought guidance from ASPR, CDC, and CMS	49	65.3%	51.6%–76.8%
Maintaining adequate equipment and supplies, including vendor services	49	89.8%	78.3%–95.5%
Other Estimates			
Conducted full-scale drills and/or tabletop exercises and were prepared for Ebola or other EIDs in 2017	321	89.1%	85.3%–92.0%
Did not conduct full-scale drills or tabletop exercises and were prepared for Ebola or other EIDs in 2017	47	68.1%	54.2%–79.4%
Establishing collaborative relationships with local emergency preparedness management, public health department, and emergency medical transportation	368	99.2%	97.5%–99.7%
Competing priorities reduces focus on EIDs	368	95.0%	92.3%–96.7%
Hospitals believed other types of emergencies were more likely than future EID threats	368	79.1%	74.8%–82.9%
Hospitals reported being a member of a health care system	368	68.2%	63.4%–72.7%
Among critical access hospitals	104	39.4%	30.8%–48.7%
Among all other hospitals	264	80.0%	74.8%–84.3%
Hospitals that were in rural locations	368	39.7%	35.2%–44.3%
Among critical access hospitals	104	80.8%	72.4%–87.0%
Among all other hospitals	264	22.8%	18.2%–28.1%
Assessment hospitals or front-line hospitals that did not know their designation	354	36.4%	31.8%–41.4%

Source: OIG analysis of data from OIG survey of hospital preparedness, 2018.

APPENDIX B: HHS Agency Resources

Exhibit B-1 provides the HHS resources most commonly reported as being used by hospitals in preparing for EIDs, listed by HHS agency.

Exhibit B-1: Hospital use of HHS resources in preparing for or responding to EIDs

Resources from CDC

Guidelines for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings

- Infection control recommendations for all types of health care providers

Ebola Virus Disease: Hospitals website

- Guidance for providers when caring for a patient with suspected or confirmed Ebola

Health Advisory Network (HAN)

- Notification network for government and providers about urgent public health incidents

Hospital Pandemic Influenza Planning Checklist

- Tool for developing or evaluating emergency and treatment plans for pandemic influenza

Resources from ASPR

ASPR-funded Healthcare Coalitions

- Organizations of health care providers and public entities focused on emergencies

Hospital Surge Evaluation Tool

- Tool used to identify gaps in hospital preparedness to respond to mass casualty events

Technical Resources, Assistance Center, and Information Exchange (TRACIE)

- Technical assistance and information exchange among ASPR, providers, and communities

Resources from CMS

Emergency Preparedness Checklist: Recommended Tool for Health Care Facility Planning

- List of actions and resources recommended to hospitals in developing emergency plans

Survey and Certification Emergency Preparedness website

- Information for health care facilities in developing emergency plans and response

Health Care Provider Voluntary After Action Report and Improvement Plan Template

- Template for providers to document and assess emergency planning and responses

Exhibit B-2 contains point estimates and 95-percent confidence intervals for statistics for specific HHS resources used by hospitals. All statistics are derived from the OIG survey on hospital preparedness, completed by 368 hospitals (10 Special Pathogen Centers and 358 other hospitals) from December 2016 through April 2017.

Exhibit B-2: Sample Sizes, Point Estimates, and Confidence Intervals

Estimate Description	Sample Size	Point Estimate	95-Percent Confidence Interval
Resources from CDC			
Guidelines for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings	368	94.1%	91.3%–96.1%
Ebola Virus Disease: Hospitals website	368	88.6%	85.0%–91.4%
Health Advisory Network (HAN)	368	83.0%	78.9%–86.4%
Hospital Pandemic Influenza Planning Checklist	368	78.4%	74.1%–82.3%
Resources from CMS			
Emergency Preparedness Checklist: Recommended Tool for Health Care Facility Planning	368	59.2%	54.3%–64.0%
Survey and Certification Emergency Preparedness website	368	35.7%	31.1%–40.6%
Health Care Provider Voluntary After Action Report and Improvement Plan Template	368	24.6%	20.5%–29.1%
Resources from ASPR			
ASPR-funded Healthcare Coalitions	368	78.3%	73.9%–82.1%
Hospital Surge Evaluation Tool	368	35.5%	30.9%–40.4%
Technical, Assistance Center, and Information Exchange (TRACIE)	368	28.3%	24.0%–33.0%

Source: OIG analysis of data from OIG survey of hospital preparedness, 2018.

APPENDIX C: Agency Comments

ASPR Comments



DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of the Secretary

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

TO: Office of Inspector General, Department of Health and Human Services

FROM: Robert P. Kadlec, MD, MTM&H, MS
Assistant Secretary for Preparedness and Response

SUBJECT: OIG Draft Report: *Hospitals Reported Improved Preparedness for Emerging Infectious Diseases After the Ebola Outbreak* – **INFORMATION**

The Department of Health and Human Services's (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR), Centers for Disease Control and Prevention (CDC), and Centers for Medicare & Medicaid Services (CMS) appreciate the opportunity to review and comment on this draft report. ASPR, CDC, and CMS all work together to ensure hospitals and the nation's health care system are prepared for and able to support a response to future emerging infectious disease. All three agencies support individual efforts to sustain investments made between 2014 to the present that build and enhance infrastructure to support capabilities to treat patients with, or suspected of having, an infectious disease such as Ebola. The Office of Inspector General's (OIG) recommendation regarding all three agencies and ASPR, CDC, and CMS's response to that recommendation is discussed below.

OIG Recommendation

ASPR, CDC, and CMS should continue to help hospitals sustain preparedness for emerging infectious diseases (EID), by coordinating guidance and providing practical advice for all hospitals.

HHS Response

ASPR, CDC, and CMS concur with this recommendation and will continue to help hospitals sustain preparedness for EIDs by coordinating guidance and providing practical advice for all hospitals.

ASPR, CDC, and CMS thank OIG for their efforts on this issue and look forward to working with OIG on this and other issues in the future.

A handwritten signature in black ink, appearing to read "R. Kadlec", written over a horizontal line.

Robert P. Kadlec, MD, MTM&H, MS

CDC Comments



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Centers for Disease Control
and Prevention (CDC)
Atlanta GA 30329-4027

TO: Inspector General, U.S. Department of Health and Human Services

FROM: Director, Centers for Disease Control and Prevention

DATE: September 12, 2018

SUBJECT: Office of Inspector General (OIG) Draft Report: *Hospitals Reported Improved Preparedness for Emerging Infectious Diseases After the Ebola Outbreak*, OEI-06-15-00230

The Centers for Disease Control and Prevention (CDC) appreciates the opportunity to review and comment on the Office of Inspector General's (OIG) draft report regarding hospital preparedness for emerging infectious diseases (EIDs). The U.S. Department of Health and Human Services' (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR), the Centers for Medicare & Medicaid Services (CMS), and CDC all work together to ensure the nation's hospitals and healthcare system are prepared for and able to support a response to an EID in the future. All three agencies are supporting individual efforts to sustain investments made between 2014 to the present in order to build and enhance infrastructure to support capabilities to treat patients with or suspected of having an infectious disease such as Ebola.

CDC's response to OIG recommendations follow.

OIG Recommendation

ASPR, CDC, and CMS should continue to help hospitals sustain preparedness for EIDs by coordinating guidance and providing practical advice for all hospitals.

HHS Response

CDC concurs with this recommendation and welcomes continued collaboration with ASPR and CMS to protect patients and healthcare personnel from emerging infectious diseases.

OIG Recommendation

CDC should clarify and promote the details and ongoing status of its tiered framework to ensure that hospitals are aware of their responsibilities in the event of a future EID.

CDC Response

CDC concurs with this recommendation and will work with healthcare facilities and systems; state, local, tribal, and territorial health departments; professional organizations; other federal agencies; and other relevant partners to provide clarity and guidance to support and improve hospital preparedness in the event of an EID outbreak.

Page 2 – Inspector General, U.S. Department of Health and Human Services

Thank you for the opportunity to review and respond to this report. I look forward to further collaboration in the future.

Handwritten signature of Robert R. Redfield, MD in black ink.

Robert R. Redfield, MD

CMS Comments



DEPARTMENT OF HEALTH & HUMAN SERVICES

Centers for Medicare & Medicaid Services

200 Independence Avenue SW
Washington, DC 20201

DATE: SEP 19 2018

TO: Daniel R. Levinson
Inspector General

FROM: Seema Verma *SV*
Administrator

SUBJECT: Office of Inspector General (OIG) Draft Report: Hospitals Reported Improved Preparedness for Emerging Infectious Diseases After the Ebola Outbreak, OEI-06-15-00230

The Centers for Medicare & Medicaid Services (CMS) appreciates the opportunity to review and comment on the Office of Inspector General's (OIG) draft report regarding hospital preparedness for emerging infectious diseases. The HHS Office of the Assistant Secretary for Preparedness and Response (ASPR), the Centers for Disease Control and Prevention (CDC), and CMS all work together to ensure hospitals and the nation's healthcare system are prepared for and will be able to support a response to an emerging infectious disease in the future. All three agencies are supporting individual efforts to sustain investments made between 2014 to the present to build and enhance infrastructure to support capabilities to treat patients with or suspected of having an infectious disease such as Ebola.

OIG's recommendations and ASPR, CDC, and CMS's responses to these recommendations are discussed below.

OIG Recommendation

ASPR, CDC, and CMS should continue to help hospitals sustain preparedness for EIDs, by coordinating guidance and providing practical advice for all hospitals.

HHS Response

ASPR, CDC and CMS concur with this recommendation and will continue to help hospitals sustain preparedness for emerging infectious diseases by coordinating guidance and providing practical advice for all hospitals.

OIG Recommendation

CDC should clarify and promote the details and ongoing status of its tiered framework to ensure that hospitals are aware of their responsibilities in the event of a future EID.

CDC Response

CDC concurs with this recommendation and will work with healthcare facilities and systems; state, local, tribal, and territorial health departments; professional organizations; other federal

agencies; and other relevant partners to provide clarity and guidance to support and improve hospital preparedness in the event of an EID outbreak.

OIG Recommendation

CMS should add EIDs to the definition of “all-hazards” in the State Operations Manual (SOM) to promote inclusion of EIDs in hospital emergency planning.

CMS Response

CMS concurs with OIG’s recommendation. CMS will include language in the State Operations Manual to specifically identify emerging infectious diseases in the definition of “all-hazard.”

ACKNOWLEDGMENTS

Cory Carr, Deborah Cosimo, Nathan Dong, Malinda Hicks, and Jesse Valente served as the analysis team for this study. Office of Evaluation and Inspections staff who provided support include Kevin Farber, Seta Hovagimian, and Christine Moritz.

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This report was prepared under the direction of Ruth Ann Dorrill, Regional Inspector General for Evaluation and Inspections in the Dallas regional office, and Amy Ashcraft, Deputy Regional Inspector General.

To obtain additional information concerning this report or to obtain copies, contact the Office of Public Affairs at Public.Affairs@oig.hhs.gov.

ENDNOTES

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- ⁵⁶ The Certification and Survey Provider Enhanced Reporting (CASPER) system is a CMS administrative database that includes hospital certification, results of onsite visits, and a summary of patient characteristics. OIG received the CASPER data on June 7, 2016.
- ⁵⁷ The Rao Scott modified chi-squared test was statistically significant at the 95-percent confidence level for differences between CAHs and all other hospitals having different preparedness levels in in 2014 ($p < 0.0001$) and in 2017 ($p = 0.0040$).
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- ⁵⁹ The Rao Scott modified chi-squared test was statistically significant at the 95-percent confidence level for differences between unprepared hospitals and prepared hospitals with regard to seeking guidance from all three relevant HHS agencies: ASPR, CDC, and CMS ($p = 0.0225$).
- ⁶⁰ The Rao Scott modified chi-squared test was statistically significant at the 95-percent confidence level for differences between unprepared hospitals and prepared hospitals with regard to challenges in maintaining adequate equipment and supplies, including vendor services ($p = 0.0005$).