

INFECTIOUS DISEASE PHYSICIANS' PERCEPTIONS ABOUT EBOLA PREPAREDNESS EARLY IN THE US RESPONSE: A QUALITATIVE ANALYSIS AND LESSONS FOR THE FUTURE

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On September 30, 2014, the first US patient with Ebola virus disease was diagnosed. Hospitals and healthcare systems identified many complex issues that needed to be addressed to prepare for possible future outbreaks. Here we summarize themes identified in free text responses from a query of infectious disease physicians from the Infectious Disease Society of America's (IDSA) Emerging Infections Network (EIN) early in the domestic Ebola response and place them into the context of biopreparedness for possible future events. We queried infectious disease physician members of the EIN from October 21–November 11, 2014, about their institutions' experience with Ebola preparedness at that time. Of 1,566 EIN physicians, 869 replied to this query, and 318 provided 448 write-in comments in response to the question, "What gaps have been identified in order for facilities to safely care for suspected Ebola patients?" or in a section for general comments. Six themes emerged from the responses: the unique challenges faced by small community hospitals (87 comments), the burden placed on infectious disease and infection control staff (61), ethical questions and planning for vulnerable populations (40), misinformation and stigma (29), financial issues faced by response staff (27), and long-term sustainability (16). This qualitative analysis provides insights into early thinking about challenges in preparing for Ebola and other emerging infections in the United States. The themes identified here should be considered during local, state, and national planning.

IN OCTOBER 2014, 2 HEALTHCARE PROVIDERS in the United States became infected with Ebola virus. Following this occurrence, infectious disease (ID) physicians throughout the United States were faced with many complex aspects of preparedness, such as developing facility infection control plans, training healthcare personnel, and answering questions about environmental cleaning, waste handling, and diagnostics.^{1–4} In addition to these concrete issues, misinformation, stigmatization, and fear led some authors to comment on the similarities in paranoia about

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returned healthcare workers responding to Ebola in West Africa and the response to the emergence of AIDS in the 1980s.⁵ While many of these concerns were addressed subsequently over the course of the response, ID physicians' observations early in the Ebola response in the United States can provide useful insights about infectious disease preparedness. In this article, we present a secondary analysis of themes identified in a query of physicians who are part of the Infectious Disease Society of America's (IDSA) Emerging Infections Network (EIN) about Ebola hospital preparedness in the United States.⁶

METHODS

From October 21 to November 11, 2014, we queried infectious disease physician members of the IDSA EIN—a provider-based network of practicing infectious disease physicians from all 50 states, the District of Columbia, Puerto Rico, and Canada⁷—about their institutions' experience with Ebola preparedness at that time. We sent an electronic query regarding Ebola personnel, screening protocols, personal protective equipment (PPE), laboratory testing, and patient care. A quantitative analysis of this query, including the practice characteristics of survey respondents, has been described previously.⁶ Respondents could provide write-in comments in response to the question, "What gaps have been identified in order for facilities to safely care for suspected Ebola patients?" or in a section for general comments. Because we received 318 write-in comments, which was several times greater than the 50-75 comments typically received with similar queries, we conducted a qualitative analysis.

As an intermediary step in this analysis, we defined a *category* as a collection of similar data sorted into the same place.⁸ Categories can thus be thought of as "buckets" into which similar comments were sorted. The categories were developed through repeated examination of respondent comments (ie, a data-driven process) in which similar portions of text were identified, separated from the document, and sorted so that major commonalities could be determined. We used a set of labels as a guide for sorting into categories.⁹ For example, comments that either directly mentioned "ethics" or discussed ethical concepts such as "do not resuscitate" orders were labeled as ethics and sorted into the ethics category. The 14 *categories* included: personal protective equipment; physical space issues and constraints; clinical laboratory testing issues; regional treatment centers; patient transport; follow-up of healthcare workers' staffing; coordination with federal, state, and local public health efforts; waste management issues; training, practice, and drills; the burden of preparedness; and communications. A *theme* was defined as a meaningful finding that runs through the data.⁸ The 6 themes became more apparent once the data had been sorted into categories.

Unclear and discrepant comments from respondents appeared to be related to the fact that the new CDC guidance was released on or near the time that the survey was open.¹⁰ Those completing the survey early during the 3-week period when the survey was open may not have had an opportunity to review the new guidance. When these discrepancies were discussed among authors, we reached a mutual understanding that the survey was not designed to assess changes over time and that we should instead focus on the main purpose of the survey and identify themes running through the comments. Results are presented here as 6 key themes.

RESULTS

As described previously, we sent the survey to 1,566 EIN members, of whom 869 (56%) responded.⁶ We excluded 143 respondents (16%) who did not see inpatients or replied that they were not aware of the Ebola planning process at their hospital. Of the 726 remaining respondents, 318 (44%) provided write-in comments. Comments came from physicians in 45 of 50 states; 5 of the 318 respondents were from Canada or Puerto Rico (Figure 1). Some states had multiple respondents who provided comments. For example, California had 29 respondents with comments and New York had 27.

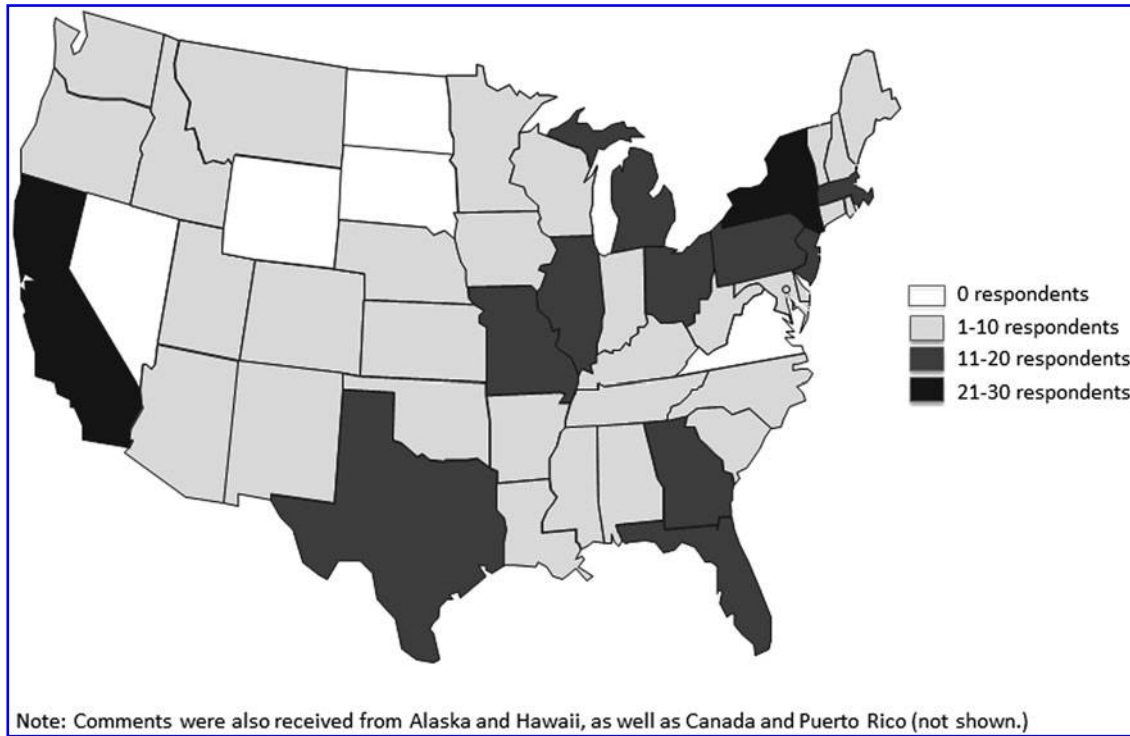
We compared practice characteristics (eg, bedsize, facility type, employment) for individuals who chose to offer comments versus those who did not. No statistically significant differences were seen (data not shown).

The 318 respondents provided a total of 448 write-in comments. There were more comments than respondents because a single respondent could answer more than 1 question. Of the 448 responses, 188 were general response-related comments, requesting clarification about issues such as PPE (69 comments); clinical laboratory (30 comments); guidance documents (23 comments); hospital coordination and patient transport (21 comments); federal, state, and local public health leadership (14 comments); waste management (14 comments); and other comments (17 comments) (Figure 2). Because many of these topics were addressed in subsequent guidance from CDC (<http://www.cdc.gov/vhf/ebola/>) as well as in the earlier quantitative article regarding this survey,⁶ they are not covered further in this article. Several key themes emerged from the remaining 260 responses (Figure 2).

Small Community Hospitals

In 87 responses, ID physicians described preparedness challenges at small community hospitals, including the need to establish regional treatment centers. CDC recommended subsequently that frontline healthcare facilities should be prepared to quickly identify and isolate those who have a travel or exposure history and Ebola signs and

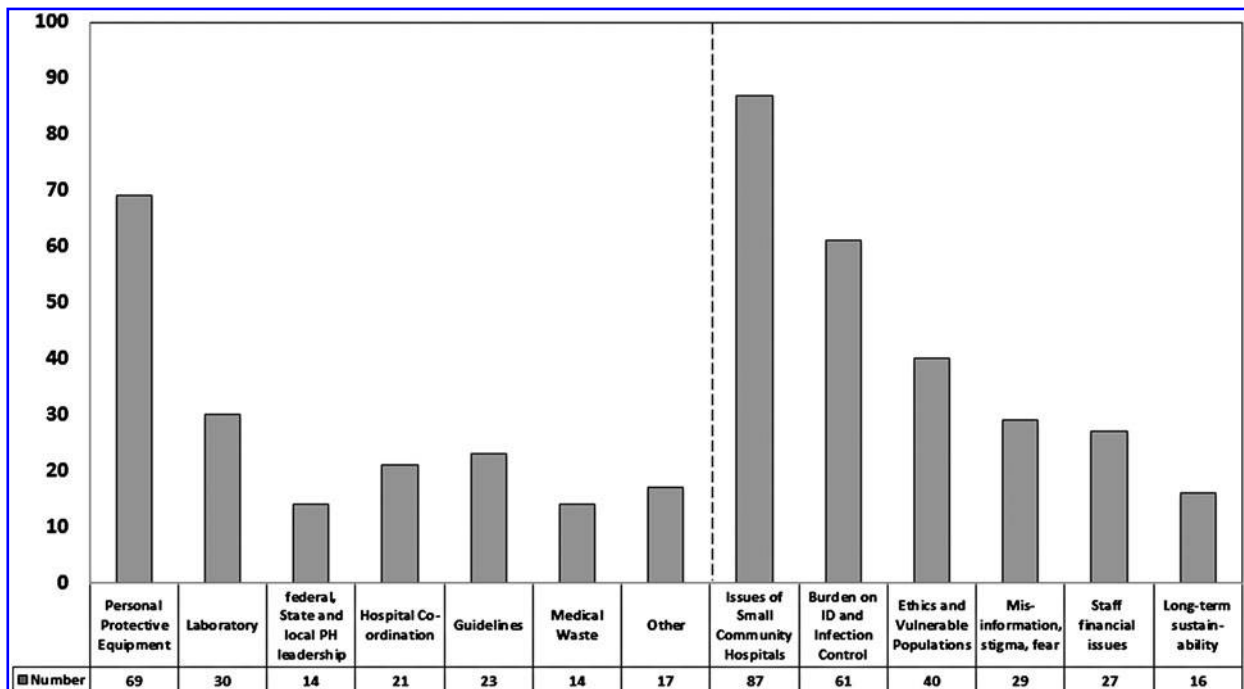
Figure 1. Geographic Distribution of 313 Infectious Disease Physicians Providing Comments About Ebola Preparedness, October-November 2014



symptoms.^{11,12} However, very early in the response, questions about preparedness presented challenges for some small community hospitals. “We are a tiny hospital, closest one to an international airport. We have only one room with negative pressure, and none in the ICU. Only one

ICU room even has a toilet,” a respondent noted. “[Our] administration is not supportive of isolation for the more common infections, because of the cost. If we had an Ebola patient there, the whole hospital would close.” Those working at small community hospitals reported they would

Figure 2. Frequency of Comments About US Ebola Preparedness, 318 Emerging Infections Network Physicians, October-November 2014



not have sufficient PPE available to train staff and still have supplies available for patient care. Some reported challenges with not having enough ICU and emergency department beds. “We also lack ICU bed capacity to care for a patient long term, without sacrificing multiple ICU beds,” a participant noted. Another described not having “adequate ER space where patient is to be sequestered while being tested.”

Burden on Staff

In 61 of the comments, participants described a large perceived burden on ID physicians and infection control staff, including their supervision of staff training. Respondents noted the large burden placed on infectious disease physicians and infection control staff who are seen locally as subject matter experts. Several respondents commented about the substantial added burden of preparedness activities, noting a “tremendous burden on staff, especially Infection Control, to achieve preparedness.” Some suggested that hospitals provide protected time for infectious disease leaders who must take on added responsibilities in addition to their clinical duties. Others commented that other aspects of infection control might suffer due to “taking time away from the needed Infection Prevention duties to train and now retrain healthcare workers.” A physician summarized, “A huge amount of time and labor has been spent in the last two weeks which diverted from all other activities.” “I have spent three weeks every day all day long working on our plan. So have two of my other staff,” another physician said. “The rush to get something in place is causing as much of a problem as the disease.”

Ethical Issues

We found 40 responses in which ID physicians identified a need to address ethical issues, including plans for vulnerable populations. A number of participants noted that ethics should not be overlooked amid the emphasis on issues such as infection control training. “In order to be able to have a safe response, there will need to be ongoing training. That takes dedicated time and resources, PPE, and personnel. Also, there needs to be some ethics guidelines issued,” said one respondent. Participants described debates regarding invasive procedures, asking, “Should dialysis, [endotracheal] intubation, and chest compressions be done? Should central lines be placed, or should care be by 2 large bore peripheral IVs?” Another wrote of how, at his/her hospital, “A discussion has ensued about Do Not Resuscitate issues, and limiting the aggressiveness of resuscitation efforts.” “[We] need to assess whether or not other institutions are considering invasive procedures (cardiopulmonary resuscitation, hemodialysis) which pose an even higher level of risk to healthcare workers; what is the expectation?,” a physician inquired. Another respondent described how monthly Ebola meetings at his/her hospital had been held since mid-

August 2014, then increased to weekly, and were now expanded to include their ethics committee.

Some ethical concerns had to do with staffing. A respondent asked, “Will staffing consist of volunteers versus an opt-out strategy?” Another asked if there should be plans to allow healthcare workers to refuse to provide one-on-one care. One person described how he/she was reminded that “doctors take a Hippocratic oath” when that individual tried to explain the difficulties identifying physicians who were willing to treat Ebola patients. Several participants commented that hospital staff would be willing to provide care for Ebola patients but would be afraid to go home to family. “Staff are fearful and concerned about monitoring in their homes because of the potential to have their family and home totally disrupted in the event of illness,” said one provider. “Feeling that to care for an Ebola patient could put their family at risk, not necessarily from actual illness but by having belongings destroyed! Thus, we are looking for lodging for volunteers.” Others asked, “Is my family at risk?” and noted, “One of the biggest challenges is staff willingness; many are willing to work but afraid to go home to family.” Physicians also reported that hospital staff expressed concerns about perceived risk to their other patients: “Staff seem to be very concerned about the possibility of caring for patients,” a respondent wrote. These concerns extended to vulnerable populations such as pregnant women and pediatric patients.

Countering Misinformation

In 29 comments, ID physicians identified a need for ongoing communication to counter misinformation and prevent stigma, even among educated hospital staff. “There is so much misinformation in the news that even our educated nursing staff is becoming somewhat paranoid about possibilities that could never arise.” A physician summarized: “The downstream consequences need to be anticipated and thoughtfully dealt with. This includes family members freaking out about you caring for a patient with Ebola, daycare facilities concerned about your child having the virus, other hospitals not wanting a healthcare worker who cares for Ebola patients to work/moonlight at their facility. If you have another part-time job that you depend on, this is a big problem.”

Housing and Financial Challenges

In 27 of the responses, ID physicians expressed concerns about housing and financial challenges for healthcare personnel when providing care for an infectious patient for an extended period. Respondents expressed concerns about potential challenges related to staffing, including financial and family issues. According to CDC’s “Interim U.S. Guidance for Monitoring and Movement of Persons with Potential Ebola Virus Exposure,” first published in fall 2014 and later updated, healthcare staff that provide care to Ebola patients in

US facilities, who are wearing appropriate PPE and without infection control breaches, have low (but not zero) exposure risk. As long as they remain asymptomatic and have direct active monitoring, they can continue to work in hospitals and patient care sites. However, healthcare staff caring for Ebola patients in US facilities in which other healthcare staff have been diagnosed with confirmed Ebola, with no identified breach of infection control, have a higher level of potential exposure (exposure level: high risk). These individuals would be under restrictions for 21 days following the last potential unprotected exposure.¹⁰

Several respondents focused on practical challenges if healthcare workers needed to have restricted movement for 21 days in the unlikely event that they were determined to be in a high-risk category. “Could we please plan for supporting exposed individuals at home! Meals-on-wheels, shopping, reinforcement of policies, plan for a bathroom slip and fall requiring an ER visit. Some kind of DOT-like monitoring,” one respondent noted. Another commented, “We are told that there will be a site for providers to live for 21 days if they are reluctant to return home during that period after (as well as during) the care of an infected patient.” Several others asked about monetary compensation and whether staff would continue to be paid during the 21-day postexposure period. Although furloughing was not recommended by CDC, the potential for it was a concern among providers. A respondent asked, “How can private practitioners devote the time to care for these patients and survive possible furloughing after seeing these patients without going bankrupt?” Another described, “Our critical care MDs and nephrologists are a private group—will they be willing to care for these patients as needed? Will there be assistance to help pay for all of this extra equipment?” Respondents noted that medical and nursing personnel might be unwilling to volunteer to care for Ebola patients because of concerns about 21-day restrictions, however unlikely, if they were determined to be in a high-risk category: “What will we do if not enough staff volunteer or show up for work when they are needed?”

Sustainability

There were 16 responses in which ID physicians identified long-term sustainability as a vital component of planning. Respondents also raised the question of long-term sustainability. One physician noted the “time it takes to train and get all this in place is quite exhausting.” Another agreed about the need to address long-term sustainability, noting, “This problem will potentially last for years and interest will wane. [It] will be hard to maintain training, rooms, isolation expertise, etc.” Anticipating CDC’s subsequent tiered approach to hospital preparedness,¹¹ a physician reported, “Longevity of the resources is paramount, hence, regional centers should be identified that have sufficient capacities to care for patients with highly contagious dis-

eases.” Another commented, “Our hospital’s initial exploration of this suggests an enormous demand for resources and time commitment.”

DISCUSSION

Qualitative analysis of the free text comments submitted by participants in the survey provides insights into the challenges that the US healthcare system faces as we confront the challenge posed by emerging infectious threats. Ebola demonstrated that, even with an outbreak in which the number of patients was relatively small, the number of people under investigation could be much larger, and the work and time needed to prepare for and take care of these individuals was not insignificant. As one respondent noted, “The rush to get something in place is causing as much of a problem as the disease.” The themes identified by infectious disease physicians should be considered when plans are being developed locally and nationally.

Since the first patient was diagnosed with Ebola in the United States, considerable progress has been made. The most common theme, noted in 87 comments, involved issues faced by small community hospitals and the need to designate regional treatment centers. As the response progressed, smaller hospitals were given a clear role as frontline healthcare facilities that should be able to quickly identify and isolate patients, notify hospital infection control and state and local public health officials, and prepare for patient transfer, if needed, to higher acuity Ebola treatment centers.¹¹ However, despite this progress, substantial challenges remain. For example, concern for the safety of family members and even fear of stigma and discrimination emerge clearly in 29 comments. As noted earlier, authors have commented on how the scientific ignorance and paranoia about healthcare workers responding to the Ebola epidemic in West Africa parallels the response to AIDS in the 1980s.⁵ Stigma, fear, and discrimination of those infected with and affected by HIV continues to be the Achilles heel of an effective response to the AIDS epidemic.

Whether Ebola will reemerge in Africa over the next decade is uncertain. However, given the history of emerging infectious diseases, it is likely that other diseases will emerge and will introduce new preparedness challenges. Concerns about Ebola preparedness that were identified in this study will be important topics to address while preparing for future emerging threats.

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