



Emerging Threats

Preparing for Infectious Disease Outbreaks

Last year's Ebola outbreak revealed the need for US health care organizations to enhance their preparedness to respond to certain health threats. In hospitals nationwide, infection preventionists scrambled to get their facility up-to-speed on Ebola—although a widespread outbreak was unlikely, an organization's response to a single Ebola patient would require significant investment and coordination of staff and supplies. Lessons learned from the Ebola crisis can help organizations assess their preparedness for addressing a wide range of new or unexpected infection risks—for instance, the new strain of enterovirus (D68), which infected hundreds of children across the United States and caused several deaths in late 2014.^{1,2}

Ebola: A Case Study

When two nurses caring for a patient diagnosed with the Ebola virus disease (EVD) at Texas Health Presbyterian Hospital, Dallas, became infected with Ebola, it forced every health care worker to truly consider

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Evaluating your preparedness for emerging infectious disease can help identify vulnerabilities and improve your organization's overall performance in infection prevention and control. (Photo by Athalia Christie, courtesy of the US Centers for Disease Control and Prevention)

how well they followed basic infection prevention and control (IC) practices.

“It was an assumption that all hospitals in the US were ready to take care of patients with Ebola,” says Lisa Waldowski MS, APRN, CIC, infection control specialist for The Joint Commission, “And that those involved in the care of an infectious patient such as EVD would know how to put on PPE [personal protective equipment] and take it off. We lifted up some ugly truths about our IC processes.”

Now, EVD has caught the attention of every health care organization in the United States, and health care teams have responded to this threat by creating detailed Ebola IC plans, conducting multiple Ebola education sessions, and drilling on the donning and doffing of PPE for patients with Ebola.

“Whenever infection risks change, you have to readdress your risk assessment and IC plan,” says Waldowski, “Ebola would be a perfect example of this.” Therefore, health care organizations should take similar steps whenever the risks of acquiring or transmitting infectious diseases significantly change.

This article will discuss how health care organizations can revise their IC risk assessments and plans to include EVD and describe how to be compliant with various Emergency Management (EM) and IC standards when it comes to Ebola (See “Related Requirements,” right, for a list of related standards. The complete text—and whether it applies to your health care setting—can be found in your *Comprehensive Accreditation Manual*, or E-dition®).

Putting Ebola into Perspective

The Ebola epidemic in West Africa is the largest outbreak of the disease in history, with a total of 14,413 cases of EVD and 5,177 reported deaths from EVD as *The Source* went to press.¹ “In the capital of Sierra Leone alone, they had more than 500 cases of Ebola diagnosed in one week,” says Susan M. Slavish, MPH, CIC, infection preventionist and consultant for Joint Commission Resources. “This current outbreak is more widespread and is affecting more people than previous outbreaks, which have been relatively limited and self-controlled.”

However, it is important to consider that only two people in the United States have died from EVD, including the index case, Thomas Duncan, at Texas Health, and a health care worker who helped in Sierra Leone and expired while receiving care at Nebraska Medical Center, in Omaha.^{1,3} To help put the US mortality risks related to EVD into perspective, influenza continues to be a powerful threat in the United States, killing more than 23,000 people,

Related Requirements

Joint Commission Standards: Preparing for Ebola Virus Disease

- **IC.01.03.01** The organization identifies risks for acquiring and transmitting infections.
- **IC.01.04.01** Based on the identified risks, the organization sets goals to minimize the possibility of transmitting infections.
- **IC.01.05.01** The organization has an infection prevention and control plan.
- **IC.01.06.01** The organization prepares to respond to an influx of potentially infectious patients.
- **IC.02.01.01** The organization implements its infection prevention and control plan.
- **IC.02.02.01** The organization reduces the risk of infections associated with medical equipment, devices, and supplies.
- **IC.02.03.01** The organization works to prevent the transmission of infectious disease among patients, licensed independent practitioners, and staff.
- **IC.03.01.01** The organization evaluates the effectiveness of its infection prevention and control plan.
- **EM.01.01.01** The organization engages in planning activities prior to developing its written Emergency Operations Plan.
- **EM.03.01.03** The organization evaluates the effectiveness of its Emergency Operations Plan.

on average, each year.⁴

Given the speed and frequency with which we can travel around the world and the closeness within which we live to animal habitats,² Ebola is just the one of many infectious threats for which US health care organizations will need to be prepared.

Conduct a Risk Assessment

Every organization is at risk for potentially confronting a patient with Ebola symptoms. “We are so global in regard to travel at this point,” says Waldowski. “No one would have thought, with the current airport screening process, that Texas would be the first location for an Ebola patient.” But people can come from West Africa by plane without symptoms for Ebola and then travel to a more remote location before their symptoms set in, as was the case with Duncan.³

Standard **IC.01.03.01** requires organizations to conduct (and document) a risk assessment for acquiring various infections. A risk assessment for Ebola will be conducted similarly to other infectious disease risk assessments, considering the organization’s geographic location, population served, services provided, and surveillance activities or other IC data.

“As part of their risk assessment, organizations have to determine how real or remote their threat for Ebola is,” says Slavish. “Is the organization located near one of the five designated international airports that receive travelers from Ebola-affected regions or in the middle of a desert and nowhere near an airport? Does the local community include populations of people from western Africa?”

Slavish recommends that organizations may want to sit down with other members of the community (for example, the local health department or health care association) to discuss the potential threats for acquiring Ebola in the community.

The second part of Standard IC.01.03.01 requires organizations to assess their risk for transmitting infections. “There is more than just geographic location and population served in a risk assessment,” says Waldowski. “Organizations have to look at their internal risk for transmitting Ebola by looking at areas such as staff competency and training, environmental services training, and equipment and supplies needed to manage Ebola safely, to name a few.”

Set Goals

According to Standard IC.01.04.01, organizations must set goals to minimize the possibility of transmitting infections. “The goals are driven by the risk assessment,” says Waldowski. “One goal could be that there is no ongoing transmission from an index patient in the hospital, or there could be a goal for staff education followed by drills for donning and doffing PPE at specific time intervals, biweekly or monthly.”

Create an IC Plan

Standard IC.01.05.01 requires organizations to create an IC plan. A team of IC professionals, infectious disease and emergency medicine physicians, nurses, appropriate administrators, and other leaders from biomedical, laboratory, and environmental services, to name a few of the multidisciplinary team members, must create the IC plan for Ebola together. “Many of the overarching themes are already embedded in your organization’s current IC plans,” says Waldowski. “You may adjust accordingly for Ebola specific content.”

Overall, the IC plan must be based on evidence-based national guidelines. “Your IC plan should be science based, and leaders should make decisions based on the most recent clinical information we have,” says Waldowski. “When there are gaps in the knowledge, reach out to experts who have had actual experience with treating EVD patients, such as Emory University Hospital, Nebraska Medical Center, or the National Institutes of Health.”

Some initial considerations for an IC plan for Ebola are whether or not the organization will care for patients

diagnosed with Ebola or transfer these patients to a facility designated as capable to care for patients with Ebola (*see* the list of 48 Ebola treatment centers at <http://www.cdc.gov/vhf/ebola/hcp/current-treatment-centers.html>).

“If a small facility has a patient who they think may have Ebola, they can physically isolate them and then work with the local health department to get them transferred to a designated caring facility,” says Slavish. “You wouldn’t expect a 50-bed hospital to care for a patient like this because they won’t have the supplies, staff, or set up.”

One of the benefits of designated caring facilities for Ebola is that appropriate supplies can be funneled to these organizations. “Supplies should be designated for the institutions that will be more likely to care for patients with Ebola rather than having every hospital in the community trying to get enough supplies when it may not be appropriate for them to care for the patient in the first place.”

In addition, a designated caring facility goes along with the principle of allowing organizations to volunteer to care for patients with Ebola. Every organization can adopt this volunteer principle by identifying nurses, physicians, respiratory therapists, and other caregivers ahead of time who are willing to take care of patients with Ebola symptoms. “When you have people who are willing to care for the patient, you will get better care than if you force a care provider to care for a patient they are fearful of,” says Slavish.

Science-based education on Ebola, comprehensive shared IC plans for Ebola, and drilling on donning and doffing PPE will also reduce the fears that health care providers may have when caring for patients with Ebola symptoms. “It is important to focus on the science as opposed to the fears that may have been generated by the media,” says Waldowski.

The IC plan should also address necessary communication pathways within the organization (leadership communicating to staff members as well as necessary information to patients and families) and outside of the organization (such as local/state health departments, federal agencies, or the media) after a patient presents to the organization with Ebola symptoms. “Organizations can have important phone numbers available ahead of time,” says Waldowski, “because a suspect or confirmed patient may arrive during an off shift, on the weekend, or when a key person is on vacation.”

IC plans involving EVD must include many other provisions, such as procedures for the following:

- Obtaining personal protective equipment (PPE) supplies to take care of patients with Ebola

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- Transporting blood samples from patients with Ebola symptoms within and outside of the organization
- Disposing of waste generated by a patient with Ebola symptoms
- Disinfecting or sterilizing nondisposable medical equipment and supplies used with an Ebola patient

Prepare for an Influx of Infectious Patients

As per Standard **IC.01.06.01**, organizations must create a written plan for responding to an influx of patients with Ebola. “An influx makes you think you have a massive number of people that would inundate the organization,” says Waldowski, “but for Ebola, one patient is enough to drain the hospital’s resources. It would be challenging for an organization to care for more than one or two EVD patients at the same time, based on patient acuity, duration, and resources involved in patient care.”

“Organizations plan for an influx of patients with Ebola the same way they do for an influx of patients with any infectious disease,” says Slavish. “If we have one patient, this is how we do it. If we have two patients, this is how we do it, and so on.”

Implement the IC Plan

The minute a patient with symptoms of Ebola enters the organization (either through the emergency department or a transfer into the organization), everyone within the organization must implement the IC plan, as per Standard **IC.02.01.01**.

“I like to think about other types of patients that may present with Ebola symptoms as opposed to the usual adult male scenario,” says Waldowski. “Are you able to care for a pregnant woman or pediatric patient with Ebola? Organizations should consider the challenges with a pediatric patient, as you have to plan for the parent being with the child.”

Organizations should also consider any barriers that prevent the IC plan from being implemented correctly (for example, not identifying patients with Ebola symptoms and inadvertently sending them home with an influenza diagnosis or improperly donning and doffing PPE) and find ways to overcome these barriers.

Prevent Transmission of Ebola

To comply with Standard **IC.02.03.01**, which requires organizations to prevent the transmission of Ebola to other patients and health care providers, organizations can look to

the Centers for Disease Control and Prevention (CDC) for resources.

“In the event that there is an exposure to Ebola or any other infectious disease,” says Waldowski, “The organization also needs to have a process in place for monitoring the potential infection within subsequent identified patients or health care providers.”

According to the CDC, proper PPE is just one of the strategies needed to prevent transmission of Ebola among patients and health care workers. Rather, health care organizations should also follow the CDC’s five pillars of safety, which include the following¹:

- Facility leadership that maintains a culture of safety
- Designated on-site Ebola manager responsible for oversight of Ebola precautions
- Clear, standardized Ebola procedures
- Trained health care providers who have done donning and doffing of PPE drills and know how to ensure that skin is not exposed when PPE is applied
- Trained observer to identify any errors in putting on or taking off PPE (in real time) and correct the error before a potential exposure occurs

Leaders must choose the right PPE for their organization based on CDC recommendations, which currently involve two distinct options for PPE (either the N95 respirator with full face shield or a powered air-purifying respirator [PAPR] with a hood), but allow some variability within each of these options (such as a fluid-resistant or impermeable gown that extends to the mid-calf or a coverall).¹

Not every organization uses the same PPE protocol—even the experts at Emory University Hospital and Nebraska Medical Center use different methods, which have both been successful at preventing the transmission of Ebola to other patients and health care providers.⁵ For example, Nebraska Medical Center uses the gown, hood, boot cover, and N95 mask method, and Emory University Hospital uses coveralls, PAPRs, and booties.

Furthermore, the CDC specifically cautions organizations that choose to use additional PPE, saying that organizations must consider the risks and benefits of their changes.⁶ For example, some organization may decide to use three pairs of gloves as opposed to the two pairs recommended by the CDC, even though three pairs of gloves has not been proven to be effective and can even make it more difficult for providers to take care of the patient.⁵ “If staff experience problems with the PPE,

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they might want to talk to leadership and ask to reexamine the protocol,” says Slavish.

Organizations must evaluate the IC plan as is required by Standard **IC.03.01.01**. If possible, organizations should evaluate their IC plans for Ebola before they have to implement the plan with an actual patient. “Organizations that use simulation to see their real gaps, from the patient’s point of entry into the organization to the day-to-day treatments for Ebola patients, can reduce their risks with Ebola,” says Waldowski. “Some organizations have utilized an actor who comes through the ER with Ebola symptoms and triggers the implementation of the IC plan.”

This simulation can also be used to fulfill Standard **EM.03.01.03**, which requires organizations to evaluate the effectiveness of their Emergency Operations Plans. “I can see a health care organization choosing Ebola to be a part of the semiannual disaster drill,” says Slavish. “It engages the community so that everyone sees how it works and we know how to make the plan better and safer for people.” **TS**

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