

# US capability for treating Ebola outbreak appears sufficient but limited

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The United States has sufficient capacity for treating another outbreak of the Ebola virus, but financial, staffing and resource challenges remain a hurdle for many hospitals and health systems attempting to maintain dedicated treatment centers for highly infectious diseases, according to new study released today. The research was published online in *Infection Control & Hospital Epidemiology*, the journal of the Society for Healthcare Epidemiology of America (SHEA).

"In the past year, the United States saw an intense effort across the country to rapidly expand the [capacity](#) for high-level isolation patient care," said John Lowe, PhD, a lead author of the study. "Our study shows an unprecedented increase in the number of high-level isolation beds across the country and found a variety of approaches to achieving this capability."

Following the 2014 U.S. outbreak, which killed one patient and sickened two healthcare workers, the Centers for Disease Control and Prevention designated 55 sites to treat Ebola Virus Disease, including nine regional centers in major metropolitan areas, with total capacity of approximately 120 beds. Prior to this, the vast majority of hospitals were inadequately prepared to care for patients with suspected or confirmed Ebola. Under the direction of CDC, sites have expanded their capabilities, yet remain 'limited' in overall capacity. The study recommends further investigation of whether the U.S. has dedicated sufficient resources, proper staffing and training to manage a potential outbreak.

Researchers from the University of Nebraska Medical Center, Harvard Medical School, Emory University, New York-Presbyterian Hospital and Indiana University School of Public Health surveyed the capabilities and capacity of all the designated Ebola treatment centers and received responses from 47 or 85 percent. The researchers found that while the development of the centers heightened nationwide preparedness levels, challenges remained in providing the necessary treatment, and often strained an institution's capacity, especially in key areas such as waste disposal, staffing and pediatric care:

- **Waste disposal:** Responses highlight the extremely high cost of disposing of large quantities of highly infectious waste that is generated by even a single Ebola patient. The costs associated with the installation of proper onsite waste disposal equipment, including incinerators, is approximately \$100,000 and only 11 institutions reported having this capability; the remaining centers must transport the waste for disposal offsite and would have to spend millions of dollars to do so, while also increasing the risk of exposure of the pathogen to staff during the packaging and transportation process.
- **Staffing:** Large numbers of staff are needed to care for an individual patient due to the intensity of treatment, the extended need for personal protective equipment, and the necessity to limit work shifts in the patient room to 2-4 hours to combat physical and mental fatigue. Because staff participation in Ebola treatment centers is voluntary, scheduling and back-fill issues become complicated, as does the question of how to sustain a fully-trained team when a treatment unit is unoccupied.
- **Patient populations:** To date, no pediatric patients with Ebola have been treated in the U.S. Because of this, not much is known on the level of resources and staffing that would be needed. Additionally, survey responses show the majority of centers have much more capacity to handle adult patients and do not plan care

for pediatric patients, highlighting the need to distinguish capacity for each population.

"We have strengthened our nation's ability to properly contain a highly unlikely [outbreak](#) of Ebola. However, the ability to treat outbreaks of other infectious viruses which are airborne, such as Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) would be challenging," said Lowe.

Nearly all off the centers surveyed have also volunteered to participate in a U.S. Highly Infectious Disease Network to continue to advance this field through peer review and consensus efforts to further develop the national capacity for high-level isolation care.

**More information:** Jocelyn Herstein, Paul Biddinger, Colleen Kraft, Lisa Saiman, Shawn Gibbs, Aurora Le, Philip Smith, Angela Hewlett, John Lowe. 'Current Capabilities and Capacity of Ebola Treatment Centers in the United States.' Web (Dec. 9, 2015).

Provided by Society for Healthcare Epidemiology of America

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