

Case study: Nebraska's Ebola isolation and decontamination approach

March 2 2015

The Nebraska Biocontainment Unit (NBU), located at the Nebraska Medical Center, has shared its protocol for Ebola patient discharge, handling a patient's body after death and environmental disinfection in the March issue of the American Journal of Infection Control, the official publication of the Association for Professionals in Infection Control and Epidemiology (APIC).

Discharge process for a patient treated for EVD

Patients are discharged after two consecutive blood samples taken 24-hours apart are confirmed undetectable for Ebola virus (EVD). After all surfaces are cleaned and mopped by healthcare workers, the patient dons a clean, disposable gown and takes a 10-minute chlorhexidine-gluconate shower. While showering, the path the patient walked to the shower is mopped with hospital-grade disinfectant. Then the patient dons another clean, disposable gown with shoe covers and is met by a healthcare worker in full [personal protective equipment](#) (PPE), who escorts the patient to the NBU exit corridor. Here the patient undergoes another 10-minute CHG shower before changing into clean street clothes and leaving the facility.

Body removal for a patient with EVD

After a patient with EVD dies, the patient is identified by a family member through a video link and then healthcare workers place

dressings over the body and wrap it in bed sheets. The body is then moved to a double heat sealed, biosafety level 4 containment bag, and the bag and the bed are then disinfected with bleach. Two [healthcare workers](#) in PPE transfer the body into two 18-mil-thick leak-proof, laminated vinyl bags and close, seal, and disinfect the bags. This process is repeated with a second, identical vinyl bag before the body is removed from the hospital to the funeral home, where, after receiving permission from the family, it is cremated.

Environmental decontamination of isolation unit

After discharge, the patient room is cleared of linen and solid waste by personnel in full PPE and the unit is sealed and left undisturbed for 48 hours while 15-19 high-efficiency particulate absorption-filtered air exchanges per hour flow throughout the unit to promote desiccation of EVD. Healthcare workers then decontaminate the unit via manual disinfection and ultraviolet germicidal irradiation (UVGI). All floors are mopped twice with hospital-grade disinfectant and medical equipment is disinfected according to manufacturer recommendations. Four UVGI generators are used as a final step after all surfaces have been bleach wiped, clustering multiple generators around equipment to reduce shadows. After UVGI, the unit is sealed once again for 48-hours to promote further desiccation. After this, the unit is deemed safe for entry without PPE.

"We acknowledge that our cleaning procedures go well beyond what is required to return the patient care area back to a safe environment," state the study authors. "However, given the morbidity and mortality of EVD, and the misinformation regarding the spread of the Ebola virus, our additional cleaning measures represent a cost-effective way to ensure safety and address public perception."

More information: APIC has compiled a resource center for

healthcare workers looking for [more information on Ebola](#).

"Nebraska Biocontainment Unit patient discharge and environmental contamination after Ebola care," by Katelyn C. Jelden, Shawn G. Gibbs, Philip W. Smith, Michelle M. Schwedhelm, Peter C. Iwen, Elizabeth L. Beam, A. Kim Hayes, Nedra Marion, Christopher J. Kratochvil, Kathleen C. Boulter, Angela L. Hewlett, and John J. Lowe appears in the *American Journal of Infection Control*, Volume 43, Issue 3 (March 2015).

Provided by Elsevier

Citation: Case study: Nebraska's Ebola isolation and decontamination approach (2015, March 2) retrieved 24 May 2024 from <https://medicalxpress.com/news/2015-03-case-nebraska-ebola-isolation-decontamination.html>

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