



KEY POINT SUMMARY

OBJECTIVES

The objective of this paper is to present the successful infection control measures undertaken at Communicable Diseases Units in two hospitals in the U.S. in light of their accepting EVD transfer patients for treatment in 2014.

Environmental infection control considerations for Ebola

Lowe, J. J., Olinger, P. L., Gibbs, S. G., Rengarajan, K., Beam, E. L., Boulter, K. C., ... & Frislie, B. 2015 | *American Journal of Infection Control*. Volume 43, Issue 7, Pages 747-749

Key Concepts/Context

The impact of the 2014 outbreak of the Ebola virus disease (EVD) in West Africa was felt in the United States when patients were transferred for treatment. Following the first Ebola death in the U.S. and given the high risk factors associated with the disease, infection control and prevention measures were stepped up in hospitals around the country. This paper presents the strategies involved in the successful management of patient and medical waste in two hospitals – Emory University Hospital Serious Communicable Diseases Unit (SCDU) and Nebraska Medicine’s Biocontainment Unit (BCU).

Methods

The paper presents the strategies involving the management of solid and liquid wastes in Emory Hospital SDCU and Nebraska Medicine BCU.

Findings

The presentation revealed the following strategies in the disposal of waste from Ebola-infected patients:

Nebraska Medicine BCU:

- Solid waste in patient care rooms → Health care workers (HCWs) placed into clear autoclave bags and secured → put into another autoclave bag in the corridor with autoclave tape → bag taken by HCW in full personal protective equipment (PPE) and put in autoclave in isolation unit or waste-holding container → after successful sterilization is validated by the autoclave, the waste is put in a red biohazard bag, top twisted and goose-necked → placed in a medical waste shipping box for incineration → directly transported to incinerator in a dedicated truck.



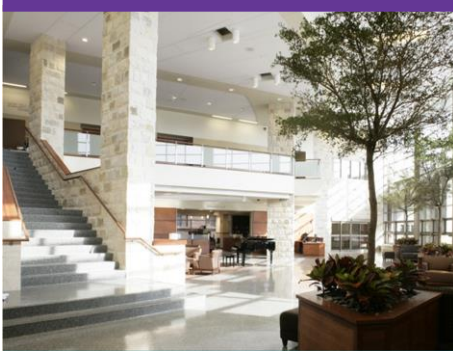
DESIGN IMPLICATIONS

This is a presentation of infection control measures undertaken – although design aspects have not been elaborated upon, the article does allude to the necessity of a dedicated isolation unit (equipped with resources for hazardous waste management) for handling patients with highly contagious diseases.

- Linen
 - BCU linen is dyed blue to distinguish from rest of hospital linen.
 - Patient linen and HCWs' PPE handled like other BCU solid waste
 - HCWs' scrubs and undergarments are discarded in isolation unit before showers → these and used towels are put in green nylon fluid-repellant laundry bags → subject to autoclave sterilization → laundered in small-batch laundry facility → ready for reuse.
- Liquid waste generated by patient
 - Pretreated in commode with Ecolab Neutral Disinfectant Cleaner for 25 minutes → cover placed over toilet → flushed
 - Bedside commode waste put in toilet commode by HCWs in full PPE → treated → disposed.
 - Effluent dialysis liquid → put in stainless steel mixing container in patient room shower → treated with Ecolab Neutral Disinfectant → disposed
- Patient arriving by ambulance
 - Entrance corridor cleared before arrival of ambulance → BCU staff in full PPE wait inside and outside the entrance → patient put in isolation unit → emergency personnel exit unit following standard exit protocol → BCU HCWs wipe and disinfect floors, doors, and walls from entrance to isolation unit → PPE and other wastes from ambulance processed as BCU solid waste.

Emory SDCU

- Solid waste from patient room put in red biohazard bags with 200-300ml water → bag is secured and its outside wiped with bleach wipes → put in a second bag (secured and outside wiped with bleach wipes) → bag moved to anteroom → put in an autoclave specific bag; secured with autoclave rubber band and outside wiped with bleach wipes → placed in a covered waste container outside anteroom; lid secured and outside of container wiped with bleach wipes → bags removed from container and placed in autoclave → inside and outside of the empty container and lid wiped with bleach wipes → after sterilization is complete, bags put in two red bags twisted and goose-necked → placed in a medical waste shipping box for incineration → directly transported to incinerator in a dedicated truck; bleach wipes disposed as solid waste.



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- Liquid waste
 - Pretreated prior to disposal: commode pretreated with MicroChem Plus → commode covered, flushed twice
 - Non-ambulatory patient: autoclave-capable bedside commode used → treated with MicroChem Plus before use → after use, solidifier added → disposed similarly to solid waste
 - Vomit: solidifier added to bag → disposed similarly to solid waste
- Patient arriving by ambulance
 - SDCU staff in full PPE wait inside and outside the entrance → patient put in isolation unit, emergency personnel leave → floors, doors, and walls from entrance to isolation unit wiped and disinfected by Environmental Service personnel → PPE of emergency personnel and staff and other wastes from ambulance processed as solid waste

Limitations

The authors do not identify any limitations to the strategies they discuss in the paper. This paper only presents the strategies undertaken by the two facilities.

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RESEARCH DESIGN
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