Dialysis Safety

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Dialysis Wall Boxes and Drains

WHAT TO KNOW

There are several infection prevention and control issues unique to wall boxes. Wall boxes need to be cleaned, disinfected, and properly maintained to decrease risk of patient infections.

Overview

Dialysis wall boxes are frames recessed into the wall at each hemodialysis station that contain connections for the dialysis machine to receive acid and base concentrates and treated water, and dispose of waste products.

There are several infection prevention and control issues unique to wall boxes. They can become easily contaminated with microorganisms, which can subsequently be transferred to dialysis patients, a vulnerable group at high risk of infection.

Thus, wall boxes need to be cleaned, disinfected, and properly maintained to decrease risk of patient infections.

Wall boxes contributed to a large number of infections in patients on dialysis in this outbreak: Multicenter Outbreak of Gram-Negative Bloodstream Infections in Hemodialysis Patients. Summarized in the table below are infection prevention and control issues identified during the outbreak investigation, and recommended strategies for infection prevention.

Issues and suggested strategies for wall box maintenance and interventions for infection prevention:

Staff may lack awareness of infectious risks associated with wall boxes and necessary infection prevention and control measures.

- **Educate** staff on the risks associated with wall boxes and practices to prevent wall box-related infections.
- **Hand hygiene** should be performed after coming into contact with wall box or any of its components; reinforce and regularly assess compliance with hand hygiene.

Wall boxes are part of the immediate patient care environment and are considered contaminated or dirty.

- Each facility should **develop policies about the specific frequency and methods for wall box surface disinfection**. Follow the manufacturer's label instructions for proper dilution, preparation, contact time, and use of disinfectant. Suggestions for disinfectant selection and use are described within CDC's Environmental Surface Disinfection in Dialysis Facilities: Notes for Clinical Manager PDF
- Wall box surfaces should be **disinfected at least daily** (e.g., at the end of the day after all patients have dialyzed); cleaning and disinfection might be needed more frequently (e.g., when visibly dirty).
- **Cleaning and disinfection of the wall box should be performed after the patient has left the station**, and not during patient care activities.
- An **Environmental Protection Agency (EPA)-registered hospital disinfectant** should be applied to all surfaces of the wall box and any attached hoses. Chemicals should not be mixed; follow product instructions for use.
- Ensure **high touch surfaces** (e.g., connections for acid, bicarbonate, and reverse osmosis water) are disinfected.
- Wipes or other supplies used to disinfect the wall box should **be discarded after use and not used to disinfect other surfaces** in the dialysis station.
- More than one disinfectant wipe or application may be needed to ensure all wall box surfaces are **visibly wet** with disinfectant to achieve **contact time specified by the manufacturer**.

Wall boxes contain drains that are predisposed to the development of biofilms.

- Interventions to **decrease the rate of biofilm formation** should be considered as a preventive measure on a routine schedule for drains and traps (e.g., drain cleaners, drain gels, enzymatic cleaners). Chemicals should not be mixed; follow product instructions for use.

Wall box drains may become clogged; splashing and foaming at the wall box may occur.

- Interventions performed by a qualified plumber aimed at **removing clogs** should be used; the frequency or type of these interventions may need to be modified over time to address clogging if there is not an adequate response.
- Alternative wall box designs that **separate dirty (waste line and drain) from clean (acid, bicarbonate, and reverse osmosis water supply connections) areas** and **relocate or reconfigure the air gap** may be needed if foaming or splashing are a persistent problem.

Biofilms in wall box drains may contain opportunistic pathogens that can cause healthcare-associated Infections (HAIs).

- **Conduct routine surveillance** (e.g., monthly) for HAIs, including bloodstream infections, and regularly review results.
- Blood cultures positive for **Gram-negative organisms** commonly found in **water-related biofilms** should prompt investigation into possible **reservoirs in the patient environment**, including wall boxes.
- **Contact local or state public health authorities** to help investigate potential wall box-related infections and clusters.

SOURCES

CONTENT SOURCE:

National Center for Emerging and Zoonotic Infectious Diseases (NCEZID)