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Technical Bulletin

Cleaning up Blood/Body Fluids on Carpet

Concern over infectious diseases related to pathogens found in blood and body fluids continues to grow on a global basis. Today, it is critical to be more cautious when working around blood because of the uncertainties and the exposures which lead to greater risks.

This technical bulletin relates primarily to topical blood spots and spills that generally are confined to a surface area not to exceed 12-18 inches (30-45 cm) in diameter. It does not cover major trauma incidents or catastrophe occurrences. Quantities of blood or body fluids exceeding 12-18 inches (30-45 cm) in diameter, or that soak into carpet, pad and sub-flooring require removal as a hazardous medical waste or more elaborate procedures performed by specially trained professionals.

Uninfected blood is not a health threat, but, today, we rarely know the health status of the person from whom the blood originated. Therefore, it is only prudent to use OSHA's "universal precautions" and treat all blood, wet or dry, as if it were highly infectious.

There is no evidence that hepatitis B virus (HBV), hepatitis C virus (HCV), or immunodeficiency virus (HIV) have ever been transmitted to humans from a hard floor surface or a soft floor covering, such as carpet. Nonetheless, prompt removal and disinfection of an area contaminated by either blood or body fluids is prudent infection-control practice.

The following guidance is based on recommendations from The Centers for Disease Control and Prevention (CDC), OSHA and the public health community for reducing the risk of exposure to bloodborne pathogens during cleaning.

Given the uncertainties and normal anxieties associated with blood and body fluid spills, prudent and precautionary response to a spill of this type is always advised.

Most direct exposures to blood/body fluid spills do not result in infection. In general, the risk of human infection from such spills is very low. However, risk of infection from direct contact to blood/body fluids is based on many factors, including but not limited to:

- The pathogen involved
- Type of and duration of exposure
- The amount of blood/body fluids involved in the exposure

- The amount of pathogen in the blood/body fluids at the time of exposure

In commercial or institutional buildings, employers or administrators must have, as part of their safety or "hazard-communication" plan, a procedure for anticipating and reporting blood/body fluid spills and exposures, for evaluating the risk of infection. Accompanying this plan must be a procedure for blood/body fluid cleanup and cleaning waste disposal.

The following risk reduction precautions are recommended when removing blood or body fluid from carpet.

Whether blood/body fluid cleanup in carpet is undertaken by a professional carpet cleaner, custodian, housekeeper or homeowner, the following steps greatly reduce the risk of infection. All steps must be followed completely and in the order they are presented for this process to be fully effective.

The Center for Disease Control (CDC) and the public health community recommends using "universal precautions" when cleaning up blood/body fluid spills. The concept of "universal precautions" assumes that all individuals are infected with blood borne pathogens. It is especially important to avoid transfer of these pathogens by splashing contaminated materials into the mucous membranes of the eyes, nose or mouth, or into any cuts, abrasions or open sores. Universal precautions require the use of appropriate personal protective equipment (PPE), particularly disposable gloves, face shield, splash goggles or pocket mask, to prevent contact with bloodborne pathogens.

Pathogens are most viable immediately after a blood/body fluid spill. Response to spills must be made as rapidly as possible and include the following steps:

1. Contain blood/body fluid spills by creating a barrier around the perimeter of the spill with an absorbent compound, such as kitty litter, diatomaceous earth, sand or even salt.
2. Initially, in an effort to kill or deactivate a portion of the viable pathogen population, carefully pretreat (spray) the affected area with an appropriate disinfectant such as a mild detergent solution ½ teaspoon dishwashing liquid to one quart of cool water. Allow approximately 10 minutes of dwell time for the disinfectant to work.
3. Blot up treated blood/body fluid spills with paper towels immediately placing contaminated towels in a plastic bag and sealing it carefully.
4. Extract blood/body fluids from carpet using the following procedure:
    a. Initially, extract excess blood/body fluids using well controlled water flow and wet vacuuming.
    b. Next, rinse the carpet by thoroughly wetting the contaminated area with cool water and suctioning it up with a wet/dry vacuum, or a professional or home hot water extraction carpet cleaning machine.
    c. Do not permit fluids to migrate beyond their initial boundaries during the extraction process.

5. After the initial containment, vacuuming, disinfectant treatment and “pre-rinse” extraction, affected carpet areas should be completely and thoroughly saturated with an appropriate disinfectant solution. Standard EPA-registered chemical germicides, used according to label directions, can rapidly inactivate most pathogens of concern. Note that some standard germicides can damage carpet dyes or fibers, especially those containing chlorine bleach.
6. To prevent damage to carpet components, **one** of the following agents is recommended as an effective disinfectant solution:
   a. 70% alcohol (isopropyl)
   b. 3% hydrogen peroxide
   c. two tablespoons of house hold ammonia to two cups water
7. A dwell time of 10-20 minutes is required for the disinfectant to have its full effect on the pre-rinsed carpet.
8. Following disinfectant treatment, the affected carpet area must be saturated a second time with an appropriate detergent (neutral carpet cleaner (shampoo) or ½ teaspoon dishwashing liquid, such as Dawn® or Joy® to one quart of cool water). Do not use dishwashing liquids containing soil-attracting lanolin or hand lotions.
9. Allow approximately 5-10 minutes of dwell time for detergents to work.
10. Thoroughly flush affected carpet areas multiple times with water and extract it with a wet/dry vacuum or hot water extraction cleaning machine until excess moisture, detergent and residue is removed, and the carpet is no longer saturated
11. Force dry damp areas. Use fans that pass air directly over the damp carpet. Dry the carpet within 8-12 hours maximum.
12. Thoroughly clean and sanitize all equipment used in cleaning up blood/body fluids before storing them for future use.

Failing to follow the recommended steps in sequence merely dilutes the contaminations, while adding excess moisture that encourages microorganism development and amplification. This may result in future odor and sanitation problems.

Treat all absorbent compounds and towels, and extracted waste water as hazardous medical wastes, following workplace safety guidelines. Place all contaminated solid materials in plastic bags, sealing and properly labeling them with a biohazard label; or use red bags. Dispose of the bags as infectious waste in accordance with all applicable OSHA, or state or provincial safety and health regulations. Dispose of extracted waste water in a sanitary (treated) sewage system only. Homeowners can disinfect contaminated wastes prior to disposal by saturating them for 15-30 minutes in a 1-2 % solution (mix 1 part bleach to 5 parts water) or a 3% hydrogen peroxide*

Finally, after removing personal protective equipment and cleaning or disposing of it properly, first wash your hands and then wash all exposed skin surfaces thoroughly with soap and water.

References:

Centers for Disease Control, “Universal Precautions for Prevention of Transmission of HIV and Other Bloodborne Infections” Published 1987

Centers of Disease Control and Prevention, “Exposure to Blood – What Health Care Workers need to Know.”

National Safety Council, “Bloodborne Pathogens,” 4th edition.

US Department of Labor, Occupational Safety and Health Administration, “Bloodborne Pathogens.” Part 29 CFR Section 1910.1030.

*Note: household bleach, e.g., Clorox®, Purex® is purchased in a 6% solution. As an EPA-registered disinfectant, it is diluted 1:11 to make a ½% solution. Considering the possible inactivation by heavy organic loads of waste materials, a 1-2% (mix 1:5) is advised for waste decontamination purposes in this procedure. The disinfecting characteristics of sodium hypochlorite and hydrogen peroxide are approximately the same.

[The information contained in this paper was compiled and written by Michael Berry, DrPH, University of North Carolina and Jeff Bishop, Technical Advisor, IICRC.]