

## Cleaning and Decontamination of Ebola on Surfaces

### *Guidance for Workers and Employers in Non-Healthcare/ Non-Laboratory Settings*

Workers tasked with cleaning surfaces that may be contaminated with Ebola virus, the virus that causes Ebola Virus Disease (EVD, or Ebola), must be protected from exposure. Employers are responsible for ensuring that workers are protected from exposure to Ebola virus and harmful levels of chemicals used for cleaning and disinfection.

#### Guidelines for cleaning and disinfection

- Workers must wear appropriate personal protective equipment (PPE) when conducting cleaning and decontamination activities.
- Immediately clean and disinfect any surfaces contaminated with blood, urine, feces, vomit, or other body fluids that are suspected or known to contain Ebola virus.
- Isolate areas of suspected Ebola virus contamination until decontamination is completed to minimize exposure of individuals not performing the work.
- Use signage to restrict access to areas of suspected or known Ebola virus contamination until decontamination is completed to minimize exposure of individuals not performing the work.
- Treat any visible contamination with a suitable disinfectant (described at right).
- If there is a bulk spill or bulk matter (e.g., vomit or diarrhea), cover the material fully with absorbent material (e.g., paper towels), then pour disinfectant on to saturate the area.
- Allow disinfectant to soak into spills for the recommended time period for the specific disinfectant being used (see manufacturer's instructions).
- To assure complete disinfection, further disinfect the surface after the bulk material(s) has been removed, using a suitable disinfectant.

#### Disinfectants for Ebola virus

- Use an EPA-registered disinfectant suitable for non-enveloped viruses (e.g., norovirus, rotavirus, adenovirus, poliovirus) to treat contamination/spills and to disinfect surfaces after bulk spill material has been removed.
- Non-enveloped viruses are typically more difficult to destroy than enveloped viruses, such as Ebola. Stronger disinfectants used to destroy non-enveloped viruses are considered effective against more susceptible enveloped viruses.
- See EPA List L of selected registered antimicrobial products for use against Ebola virus: [www.epa.gov/oppad001/list-l-ebola-virus.html](http://www.epa.gov/oppad001/list-l-ebola-virus.html).
- Always follow the manufacturer's instructions (e.g., concentration, application method and contact time) for the specific disinfectant being used.
- When EPA-registered disinfectants are unavailable, a 10% solution of common household bleach in water (e.g., 1 cup of bleach in 9 cups of water) may be an effective alternative.
- **Never mix chemicals together.** Certain combinations of chemicals can be deadly or can reduce the effectiveness of the disinfectant.

- Ensure adequate ventilation in areas where workers are using disinfectants, including by opening windows and doors, or using mechanical ventilation equipment.
- In some cases, the use of chemical disinfectants may require an employer to train workers on how to protect themselves against chemical hazards and comply with OSHA 's Hazard Communication, [29 CFR 1910.1200](#), and other standards.
- Use tools, such as tongs from a spill kit, as much as possible rather than doing cleanup work directly with gloved hands.
- After cleaning and disinfection work is complete, remove PPE in a way that avoids self-contamination, as described below.
- Avoid cleaning techniques, such as using pressurized air or water sprays, that may result in the generation of bioaerosols.

### **Guidelines for waste disposal**

- Double-bag materials and place it in a leakproof container to further reduce the risk of worker exposure. Use a puncture-proof container for sharps.
- It may be necessary to dispose of contaminated objects with porous surfaces that cannot be disinfected.
- Dispose of waste from surface cleanup in accord with OSHA's Bloodborne Pathogens standard, [29 CFR 1910.1030](#); CDC guidelines, [www.cdc.gov/vhf/ebola/hcp](http://www.cdc.gov/vhf/ebola/hcp); and the U.S. Department of Transportation's (DOT) Hazardous Materials Regulations (HMR), [phmsa.dot.gov/hazmat/transporting-infectious-substances](http://phmsa.dot.gov/hazmat/transporting-infectious-substances).

### ***Use appropriate protective equipment***

Employers must select personal protective equipment (PPE) that will protect workers against Ebola virus and other hazards to which they may be exposed. Workers must wear PPE to help minimize exposure to the virus via mucous membranes or non-intact skin, or through inhalation of bioaerosols (aerosolized droplets containing infectious particles that can be inhaled). Examples of PPE that may be needed during cleaning and decontamination include:

- Nitrile gloves (consider double gloving, including heavy-duty rubber gloves over nitrile);
- Goggles or face shields;
- Fluid-resistant or fluid-impermeable gowns, coveralls, and aprons;
- Facemasks (e.g., surgical masks) that cover the nose and mouth; and
- Dedicated work clothing and washable shoes with shoe/boot covers.

In some cases, additional respiratory protection (e.g., N95 or powered air-purifying respirators, or better) may be necessary to protect workers from exposure to Ebola and/or disinfectants. Depending on the hazards posed by the size of a spill, degree of contamination, or other factors, required PPE may be different than what is described in this Fact Sheet.

Training, practice, and observation of workers in correct donning and doffing of PPE are important infection control measures. Workers should put on PPE in a way that minimizes the risk of skin and mucous membrane contact with potentially infectious materials; and remove PPE in a way that avoids self-contamination. This may include removing outer gloves simultaneously with gown or coveralls, decontaminating PPE between removal steps, or other measures. The order of PPE removal may vary depending on the type of PPE a worker uses, the nature of the work tasks being performed, and which devices or garments are contaminated, among other factors.

For updated information, see [www.osha.gov/ebola](http://www.osha.gov/ebola) or CDC's Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus: [www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html](http://www.cdc.gov/vhf/ebola/hcp/environmental-infection-control-in-hospitals.html). The National Institute for Occupational Safety and Health (NIOSH) also provides recommendations for the selection and use of protective clothing and respirators for protection against biological agents: [www.cdc.gov/niosh/docs/2009-132](http://www.cdc.gov/niosh/docs/2009-132).

## Use appropriate respiratory protection

- In instances where workers may be exposed to bioaerosols (e.g., as a result of spraying liquids or air during cleaning) suspected of or known to contain Ebola virus, additional respiratory protection is needed. In these cases, medically qualified workers must use, at a minimum, a NIOSH-approved, fit-tested N95 respirator.
- Wearing a respirator for extended periods of time can be uncomfortable. Workers who need to use respirators for long durations may find powered air-purifying respirators more tolerable.
- Respirators used for protecting workers against Ebola virus may not be effective for also protecting them from exposure to certain toxic chemicals used for cleaning and decontamination. To learn more about the requirements for selecting an appropriate respirator to protect against chemical exposure (elastomeric respirator with appropriate chemical cartridges or a supplied-air respirator), consult OSHA's Respiratory Protection standard, [29 CFR 1910.134](#), and the manufacturer's Safety Data Sheet (SDS) for the specific chemical(s) that workers are using. See OSHA's Respiratory Protection web page: [www.osha.gov/SLTC/respiratoryprotection](http://www.osha.gov/SLTC/respiratoryprotection).

## Follow applicable OSHA standards

- Employers must ensure that they comply with OSHA's Bloodborne Pathogens standard, [29 CFR 1910.1030](#), to protect workers who may be exposed to blood or other potentially infectious materials.
- OSHA's Personal Protective Equipment (PPE) standard, [29 CFR 1910.132](#), provides additional information about selection and use of appropriate PPE, training and other requirements. Respirators are covered by OSHA's Respiratory Protection standard, [29 CFR 1910.134](#).
- Employers must comply with OSHA's Hazard Communication standard, [29 CFR 1910.1200](#), when their workers use certain chemicals for cleaning and decontamination.

- In some cases where a specific OSHA standard doesn't apply, the General Duty Clause (Sec. 5(a)(1)) of the *Occupational Safety and Health Act* requires employers to furnish to each employee employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to employees.

### Additional OSHA resources

- Safety and Health Topics web page for Ebola [www.osha.gov/SLTC/ebola](http://www.osha.gov/SLTC/ebola)
- Safety and Health Topics page for Bloodborne Pathogens (and Needlesticks) [www.osha.gov/SLTC/bloodbornepathogens](http://www.osha.gov/SLTC/bloodbornepathogens)
- Safety and Health Topics web page for PPE [www.osha.gov/SLTC/personalprotectiveequipment](http://www.osha.gov/SLTC/personalprotectiveequipment)
- Safety and Health Topics web page for Respiratory Protection [www.osha.gov/SLTC/respiratoryprotection](http://www.osha.gov/SLTC/respiratoryprotection)
- Safety and Health Topics web page for Hazardous and Toxic Substances [www.osha.gov/SLTC/hazardoustoxicsubstances](http://www.osha.gov/SLTC/hazardoustoxicsubstances)
- Hazard Communication web page [www.osha.gov/dsg/hazcom](http://www.osha.gov/dsg/hazcom)

### Assistance for Employers

OSHA's On-site Consultation Program offers free and confidential advice to small and medium-sized businesses in all states across the country, with priority given to high-hazard worksites. On-site Consultation services are separate from enforcement and do not result in penalties or citations. Consultants from state agencies or universities work with employers to identify workplace hazards, provide advice on compliance with OSHA standards, and assist in establishing safety and health management systems. To locate the OSHA On-site Consultation Program nearest you, call 1-800-321-6742 (OSHA) or visit [www.osha.gov/consultation](http://www.osha.gov/consultation).

**Note:** This document is not intended to cover all OSHA standards that may apply. State Plans adopt and enforce their own occupational safety and health standards at [www.osha.gov/dcsp/osp](http://www.osha.gov/dcsp/osp). Additionally, this guidance is not for cleanup and decontamination of Ebola virus released as a biological weapon. See OSHA's emergency preparedness and response resources for information related to biological terrorism: [www.osha.gov/SLTC/emergencypreparedness](http://www.osha.gov/SLTC/emergencypreparedness).

**This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: 1-877-889-5627.**

**For assistance, contact us. We can help. It's confidential.**



**[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)**



U.S. Department of Labor