

# BIOHAZARD RISK MANAGEMENT

Risks, Liability, and Other Considerations Associated with Blood and  
Biological Spill Incidents

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# Risks, Liability, and Other Considerations Associated with Blood and Biological Spill Incidents

As public awareness of biohazards grows, whether it be Ebola, measles' outbreaks, food recalls due to listeria, or various other infectious diseases, preparedness for a blood or biological spill is critical. Knowing the proper protocols to follow internally and who to use as a qualified external resource is key to mitigating risk exposures when dealing with potentially infectious biological incidents. This paper will explore the risks associated with blood and biological spills, including an overview of the various rules and regulations associated with biological incidents and the correlating negative outcomes associated with noncompliance. We conclude with suggestions for proactive preparedness and best practices in the event of a biological exposure incident.

## Risks Associated with Blood and Biological Spills

Blood and bodily fluids are carriers to a multitude of infectious bacteria, fungi, protozoa, and viruses, which are easily spread. The CDC estimated that in 2010, 23.6 million people visited physician offices for infectious and parasitic diseases<sup>1</sup>. One out of every 26 people has Hepatitis B<sup>2</sup>; one out of every 77 people has Hepatitis C<sup>3</sup>; and one out of every 258 people has HIV<sup>4</sup>. In Oregon, a study of 920 employees working at a large residential facility for the developmentally disabled revealed that 10% of the workers had contracted Hepatitis B over the course of their employment<sup>5</sup>. Researchers believe these cases are directly related to contact with infected clients in the workplace.

In addition, some pathogens can survive outside of the human body, some for up to months at a time: Hepatitis B can survive outside the human body for up to 7 days<sup>6</sup> and Hepatitis C can survive for up to 3 weeks<sup>7</sup>, while *C. Diff. (Clostridium difficile)* spores have been found to survive outside the body on hard surfaces for up to 5 months<sup>8</sup>. Immediately remediating a blood or biological spill is critical, but even more critical is performing cleaning and remediation properly to avoid the continuing spread of infectious pathogens.

Some employers believe any employee can clean up a blood or biological spill. While there are regulatory requirements that say otherwise, there are also risk considerations to who should be

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<sup>1</sup> <http://www.cdc.gov/nchs/fastats/infectious-disease.htm>

<sup>2</sup> <http://www.hepb.org/hepb/statistics.htm>

<sup>3</sup> <http://www.cdc.gov/hepatitis/C/cFAQ.htm#statistics>

<sup>4</sup> <http://www.cdc.gov/hiv/statistics/basics.html>

<sup>5</sup> Hepatitis B and workers in institutions for the mentally retarded: risk of infection for staff in patient care. *Am J Prev Med* 5(3):170-4, 1989.

<sup>6</sup> <http://www.cdc.gov/hepatitis/C/cFAQ.htm>

<sup>7</sup> <http://www.cdc.gov/hepatitis/B/bFAQ.htm#statistics>

<sup>8</sup> David A. Burns, John T. Heap, Nigel P. Minton. "Clostridium difficile spore germination: an update". *Research in Microbiology*. Vol. 161, Iss. 9. 2010. 730-734

performing a blood spill clean-up. First, without proper protective equipment, cleaning up after blood and biological spills can result in the spread of the disease from one individual to another. Even when using personal protective equipment, if not trained properly on its use, including proper ways to put on and take off the equipment, an employee can still contract a disease from engaging with exposed blood or biological material. The most recent example of this is a health care worker who contracted Ebola when treating a patient infected with the disease at her place of employment. Although she was given personal protective equipment, it is alleged that she was not trained properly on its use and subsequently contracted the potentially life-threatening disease<sup>9</sup>.

In addition, if an employee is not trained on the appropriate methods to disinfect surfaces from bloodborne pathogens, there is risk that the pathogen will still exist on surfaces and therefore could be contracted by any person who next touches the surface, i.e. no person-to-person contact is needed to transmit the disease. In 2010, a group of soccer players fell ill with the Norwalk Virus (“norovirus”) days after one player was sick; it was discovered that the larger group became ill because they ate food carried in a reusable grocery bag that was in the room with the original sick player<sup>10</sup>. The norovirus pathogen survived on the bag and spread to the bag’s contents, thereby causing nine other individuals to contract the virus. And in the first instance of its kind, a recently conducted study discovered a strong likelihood that a 22-year-old woman contracted HIV through sharing non-disinfected manicure equipment with an HIV-positive person<sup>11</sup>.

As discussed more fully below, the liability from such risks can grow and spread from a small workers compensation claim to a civil lawsuit to regulatory fines to negative media. But proactive preparedness and best practices in the event of a biological spill can help safeguard against these liabilities.

## Overview of Regulatory Requirements

Blood and biological materials can contain bloodborne pathogens such as HIV, Hepatitis B, Hepatitis C, and MRSA, and as such, are deemed a safety threat to individuals, the environment, and potentially the public at large. Consequently, multiple federal and state agencies have promulgated regulations applicable in the event of a blood or biological spill.

### Occupational Safety & Health Administration (OSHA)

Under the Bloodborne Pathogen Standards, 29 CFR 1910.1030<sup>12</sup>, and associated Standards, OSHA mandates employee safety protocols for any employer whose employees may come into contact with blood or biological fluids in the performance of their work. These protocols include but are not limited to:

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<sup>9</sup> *Nina Pham v. Texas Health Resources, Inc.*; Dallas County District Court, Texas; Case No. DC-15-02252; March 2, 2015.

<sup>10</sup> Journal of Infectious Diseases: Investigators trace of role reusable grocery bag in norovirus outbreak. Biomedical Market Newsletter; 5/12/2012, Vol. 21, p1

<sup>11</sup> AIDS Research and Human Retroviruses. November 2014, Vol. 30, No. 11: 1150-1153

<sup>12</sup> Occupational Safety & Health Administration, Bloodborne Pathogen Standard.  
[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_id=10051&p\\_table=STANDARDS](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=10051&p_table=STANDARDS)

- Maintaining written exposure control plans on blood-borne pathogens (BBP), personal protective equipment (PPE), hazardous communications, and respirator protocol.
- Training all employees who may be exposed on these protocols on an annual basis.
- Providing Hepatitis B vaccinations at the employer's cost to employees who may be exposed and/or documenting the employee's declination of the vaccination.
- Having a medical examination performed on all employees who may be exposed and who would wear respirators as part of their PPE to ensure they are medically able to work and breathe while wearing the respirator.
- Wearing all appropriate PPE when exposed to both seen and unseen biological materials, including BBP-rated suits, gloves, booties, and face protection (typically face masks or respirators).
- Doing an initial assessment of any hazards or risks to employees who may be exposed at the job site and making the proper modifications to the work to address such hazards and risks.
- Proper donning and doffing of all PPE to ensure no cross-contamination and no direct contamination to the employee.
- Packaging potentially infectious materials (blood, bodily fluids, and affected materials) in red biohazard bags and in secondary rigid containers if puncture exposure risks are present.

In addition, depending on the work performed, additional OSHA requirements in the following areas must be followed:

Heat Stress/Injury:

*Workers can quickly become overheated while working in non-permeable suits.*

Ladder/Lift Safety:

*Ladders or scissor lifts can be necessary for reaching high contaminated areas (i.e. ceilings).*

Lock-Out/Tag Out:

*Necessary when remediating electric commercial machinery due to industrial accident.*

Asbestos Awareness:

*Blood can often times be present on asbestos-containing popcorn ceilings in structures.*

Power Tool Safety:

*Workers often times need power tools to remove affected flooring, drywall, and other areas.*

For more information, visit OSHA's website at: [www.osha.gov](http://www.osha.gov)

## Environmental Protection Agency (EPA)

Within the biohazard remediation industry, the EPA regulates disinfectants, specifically the use and efficacy claims of disinfectants, i.e. advertising what percentage or what types of germs the disinfectant kills. The EPA mandates all antimicrobial disinfectant labels contain specific information, including strict instructions for disinfectant use in order to achieve promoted efficacy claims. For example, the EPA requires antimicrobial disinfectant labels to identify the type of surfaces, objects, or items intended for treatment by the disinfectant, the necessity for removal of

gross filth or soil (instructions must be provided for thorough cleaning of surfaces prior to application of the product, unless the product has been shown to be effective in the presence of moderate amounts of representative soil), and the contact time for necessary effectiveness<sup>13</sup>. In addition, antimicrobial disinfectants must be registered with the EPA so they can be evaluated for the effectiveness against certain microbials; any disinfectant that does not contain an EPA registration number directly on the label has not been approved by the EPA and therefore cannot claim to have disinfecting properties.

Look at the bottle of Lysol® cleaning product in your kitchen – you’ll see an EPA Registration Number along with instructions for cleaning, sanitizing, and disinfecting. If you read carefully, you will see that to truly disinfect a surface, as required to kill the advertised 99.9% of germs, you will need to pre-clean the surface, spray on the disinfectant, let sit for 10 minutes, and then wipe down again. The reason for the 10-minute dwell time is because lab tests have been performed demonstrating that 10 minutes of contact time between the disinfectant and the affected surface is necessary to truly and effectively kill various pathogens.

### State environmental agencies

The majority of states have promulgated regulations governing the management of medical waste, which includes blood, biological material, and affected items. These regulations prescribe specific requirements for the packaging, handling, labeling, generation, transportation, manifesting, and storage of biomedical waste in addition to the regulations required by OSHA, DOT, and other agencies. These regulations are extensive and require very specific processes to be followed to ensure that medical waste is properly managed and not allowed into the general public stream. In addition, several states require permits or licenses for biohazard remediation companies to either generate, transport, and/or store biomedical waste within that state. To review the specific medical waste management requirements for a specific state, contact that state’s environmental protection agency and/or public health department.

## Negative Outcomes Arising from Blood and Biological Spills

One of the most harmful and dangerous consequences a non-compliant employer can face is injury, illness, or death of an employee caused by improper exposure to blood or biological materials (see again *Pham v. Texas Health Resources, Inc.*; Dallas County District Court, Texas; Case No. DC-15-02252). Although certain instances may be covered by workers compensation insurance, the courts appear to be imposing harsher standards on employers who blatantly expose their employees to the potential of injury, illness, or death through non-compliant blood and biological material exposure. In Washington in 2007, a school custodian was forced to clean up the remains of a student’s suicide at the school<sup>14</sup>. The custodian was allegedly directed by the superintendent to clean up the suicide scene and move a backpack she later learned belonged to the victim that contained a suspicious device that authorities detonated using a robot; she was then allegedly asked

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<sup>13</sup> Label Requirements for Antimicrobial Pesticides Used on Hard Surfaces, Environmental Protection Agency, DIS/TSS-15 / March 24, 1981 (Last Updated May 9, 2012); [http://www.epa.gov/oppad001/dis\\_tss\\_docs/dis-15.htm](http://www.epa.gov/oppad001/dis_tss_docs/dis-15.htm)

<sup>14</sup> *Rothwell v. Nine Mile Falls Sch. Dist.*, 149 Wn. App. 771, 206 P.3d 347, 2009 Wash. App. LEXIS 904, 157 Lab. Cas. (CCH) P60796 (2009).

to return to the school to serve cookies and coffee to grieving students and keep the media from the school. The custodian later began to suffer from Post-Traumatic Stress Disorder and brought a lawsuit against the school district. The school district argued that the custodian could not sue the district directly as she was limited only to actions through the workers compensation statutes. However, the court found that the employer's actions in forcing this custodian to clean up the remains of a student she knew personally so intentionally severe that the PTSD did not fall under the definitions of the workers compensation laws. Therefore, the custodian was permitted to sue the employer directly. In this instance, not only did the employer incur attorneys' fees in defending and appealing this lawsuit, but it is likely that it also paid out to the custodian in a settlement agreement to avoid additional expenses and trials.

In addition to the legal liability associated with improper cleaning of blood and biological material, companies and employers can be also be subject to hefty regulatory fines. OSHA has historically issued high regulatory fines for companies found in violation of the Bloodborne Pathogen safety standard. In 1999, a Texas employer who manufactured medical and surgical diagnostic equipment was fined \$137,500 for multiple violations of the BBP Standard including failure to utilize universal precautions, inadequate exposure determinations, failure to provide bloodborne pathogen training, failure to provide the Hepatitis B vaccine and post-exposure follow-up to employees potentially exposed, and failure to provide appropriate personal protective equipment<sup>15</sup>. In 2001, a Massachusetts ambulance service was fined \$16,100 for similar infractions<sup>16</sup>. And in 2004, a New York commercial laundry service was fined \$140,850 for failing to protect its employees from potential exposure: \$63,000 for failing to properly disinfect surfaces contaminated with blood or other potentially infectious materials and failing to develop and implement a schedule for disinfecting these areas, and \$77,850 for 19 other infractions, including an incomplete and outdated exposure control plan, failing to supply personal protective equipment, not providing the Hepatitis B vaccine to workers in a timely manner, inadequate post-exposure follow-up, and inadequate employee training on bloodborne hazards<sup>17</sup>.

There have been several citations issued over the last decade pertaining to improper medical waste handling and disposal as well. In New York, one company was cited a fine of \$75,000 for failing to obtain proper financial assurances, failing to obtain a permit, poor housekeeping, lack of inadequate refrigeration, inadequate labeling, and failing to limit access to storage areas. A New Mexico business was fined \$14,000 for improperly disposing of infectious waste at a landfill not permitted to accept such waste. And in Arizona, a company was issued a citation for \$65,000 for disposing of regulated medical waste in regular waste containers.

Equally damaging is the media attention that biological incidents can attract and the resulting negative press and reputational concerns. In the instance of the Washington school district case, there were several articles following the status and outcomes of the trial court and the appellate court, all continuously noting that the custodian had been forced to clean up the remains of a deceased student. The attorney for the custodian, William Powell, was quoted in multiple articles stating, "There are people who do clean up the mess after one of these horrible murders or suicides happen," referring to private professionals. "But the superintendent in this case chose not to do

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<sup>15</sup> USDL-OSHA-99-112-8-10.

<sup>16</sup> BOS 2001-167.

<sup>17</sup> 04-1739-NEW /BOS 2004-212.

that. He should have known better.”<sup>18</sup> Such reputational blows can have a direct impact on sales and revenue for the business going forward, adding to the potential overall loss.

## Best Practices for Responding to Blood and Biological Spills

### #1: Be prepared for a blood and biological spill.

A proactive approach is the first and best chance at mitigating risk once a spill occurs. In the event of a spill incident, time will be of the essence – the lack of a proactive management response plan can not only severely impede an efficient, safe, and effective remediation but can also increase the risk of harm to employees and the public due to responsible persons trying to figure out what to do on the fly. Take the opportunity to plan in advance: establish an emergency preparedness plan; train the appropriate designated safety representatives on the details of the emergency preparedness plan; create an internal resource list of outside parties (with contact information) to connect with as a situation develops; establish a communication protocol for all employees so they understand who to contact in the event of a situation; and routinely remind employees of the communication and safety protocols. In the event of a blood or biological spill, the saying, “An ounce of prevention is worth a pound of cure,” overwhelmingly rings true.

### #2: Utilize qualified professional resources to handle spills for you.

Given the risks and liability associated with blood and biological spills, consultation with a qualified expert in biohazard remediation is recommended. The biohazard remediation industry, also known as crime or trauma scene clean-up, was established approximately 20 years ago to fill a gap in the traditional remediation market (i.e. flood, water, fire, mold remediation). Just as with mold remediation, there is a science behind the steps necessary to effectively and safely disinfect scenes after a blood or biological spill. While there are professional experts who have helped pioneer the industry and the science behind it, there are equally newer start-ups that have seen or heard about the industry from movies or television, as well as traditional remediation companies seeing an additional revenue opportunity. They enter this industry due to what is perceived as a low cost barrier to entry (i.e. “I don’t mind the sight of blood, so all I need is some dish gloves, a mop, and a bucket.”), but as outlined in this paper, there are extensive and costly rules and regulations governing the biohazard remediation industry which can lead to regulatory citations, lawsuits, and further injuries and/or death. Be sure to fully vet any company you work with in the biohazard remediation space to ensure that they are truly qualified: they meet all regulatory requirements, they are properly insured, and they are well-versed in the proper, effective, and safe methods of remediation<sup>19</sup>.

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<sup>18</sup> The Spokesman-Review, April 22, 2009.

<sup>19</sup> A checklist to help you evaluate biohazard remediation company resources is available at <http://www.aftermath.com/biohazard-company/crime-cleanup-28-point-checklist/>.



## Conclusion

Blood and biological material contains a plethora of harmful pathogens and therefore should be remediated quickly and effectively to avoid further damage and liability. However, asking untrained employees to perform the cleanup themselves can lead to not only employee injury, but also the potential spread of disease to others due to improperly disinfected surfaces. Being prepared before a spill incident occurs and utilizing professional, specialized resources may help mitigate against legal liability and monetary losses, and potentially prevents the spread of infectious diseases from the larger population.