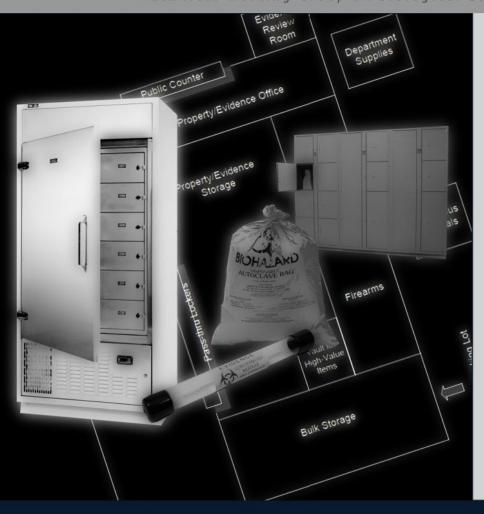


Technical Working Group on Biological Evidence Preservation



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# **NISTIR 7928**

# The Biological Evidence Preservation Handbook: Best Practices for Evidence Handlers

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## INTRODUCTION

Across the nation, headlines tell the story of evidence that has been mishandled, misplaced, lost, or destroyed. Often the blame for these mishaps is directed toward property and evidence custodians housed in law enforcement agencies nationwide. Many law enforcement agencies do not properly address, recognize, or support the efforts of their property rooms. Although these agencies bear ultimate responsibility for maintaining the integrity of the evidence, the real problem lies with a systemic failure to properly account for evidence from collection through final disposition. This failure reduces the public's confidence in the criminal justice system to produce just results in criminal and civil proceedings.

Biological evidence refers to samples of biological material—such as hair, tissue, bones, teeth, blood, semen, or other bodily fluids—or to evidence items containing biological material (DNA Initiative 2012). This biological evidence, which may or may not have been previously analyzed at a forensic laboratory, should be retained in an appropriate storage facility until needed for court or for forensic testing. Such evidence is frequently essential in linking someone to or excluding someone from crime scene evidence. The criminal justice system depends on presenting evidence to judges and jurors to help them reach a conclusion about the guilt or innocence of the defendant. All criminal justice stakeholders, including law enforcement officers, lawyers, forensic analysts, and fact finders, should be certain that the biological evidence they are considering has been properly preserved, processed, stored, and tracked to avoid contamination, premature destruction, or degradation. In addition, individuals who come into contact with biological evidence, such as evidence custodians, need to be confident that it has been packaged and labeled in a way that will allow them to efficiently locate relevant evidence for a case. To establish this confidence, all handlers of biological evidence should follow well-defined procedures for its optimal preservation.

The Biological Evidence Preservation Handbook offers guidance for individuals involved in the collection, examination, tracking, packaging, storing, and disposition of biological evidence. This may include crime scene technicians, law enforcement officers, healthcare professionals, forensic scientists, forensic laboratory managers, evidence supervisors, property managers, storage facility personnel, lawyers, testifying experts, court staff members, and anyone else who may come in contact with biological evidence. While many of the recommendations relate to the physical storage, preservation, and tracking of evidence at the storage facility, this handbook also covers the transfer of the material between the storage facility and other locations and discusses how the evidence should be handled at these other locations.

This report is divided into five main sections that detail issues and make recommendations related to biological evidence storage, tracking, preservation, and disposition. A glossary, which provides standard definitions of the technical terms used in this report, follows these sections.

## **RETAINING BIOLOGICAL EVIDENCE**

While most states have established their own statutes and/or policies for biological evidence retention, some have not. It is imperative that high-level guidance be given to biological evidence handlers regarding the circumstances under which evidence must be kept. This section defines recommended best practices for retaining biological evidence, including the length of time such evidence should be kept. It also provides guidance on identifying what biological evidence should be retained.

## **BIOLOGICAL EVIDENCE HAZARDS AND HANDLING**

Contact with bodily fluids can spread disease such as those caused by bloodborne pathogens, and individuals handling biological evidence should treat it as hazardous to ensure safety. This section offers recommendations on various aspects of biological evidence handling, including the use of personal

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protective equipment (PPE), Federal standards, the management of spills or accidents, and biological waste disposal.

### PACKAGING AND STORING BIOLOGICAL EVIDENCE

The use of well-defined procedures for packaging, storing, and tracking can maintain biological evidence integrity for testing. Personnel involved in managing biological evidence often face challenges because of the size and location of the storage facility, supplies available for packaging, adequacy of tracking systems and resources, and other issues. This section identifies current best practices to maintain evidence integrity from initial packaging to final disposition.

## CHAIN OF CUSTODY AND EVIDENCE TRACKING

Providing an accurate and complete chain of custody record ensures that the evidence that arrives in court is what was collected at the crime scene. An accurate chain of custody identifies and tracks the evidence from the time it was collected—including the method by which it was obtained—through final disposition for each individual who had possession and responsibility. This section discusses various evidence tracking systems and recommends procedures to improve all aspects of chain-of-custody recordkeeping.

#### **EVIDENCE DISPOSITION**

Jurisdictions face limitations because of storage space and preservation requirements and must make choices about when to keep or how to dispose of certain evidence. This section makes recommendations for best practices, policies, and procedures to decide what evidence needs to be retained and the length of time it needs to be retained in accordance with applicable statutes.

### **TECHNICAL WORKING GROUP ON BIOLOGICAL EVIDENCE PRESERVATION**

The recommendations in this document are not mandated by any governing body; they are provided as recommended best practices developed and agreed upon by the Technical Working Group on Biological Evidence Preservation. This working group consists of experts in all aspects of biological evidence preservation (see following list) who have devoted time to researching and documenting the best advice that current technology allows.

The Technical Working Group on Biological Evidence Preservation convened in August 2010 with the goal to provide guidance to evidence custodians who have been traditionally plagued by the lack of such guidance. Little attention has been paid to how handlers of biological evidence should properly store it after collection and through post-conviction. Although storage conditions alone are a major issue, the group quickly discovered that obstacles with biological evidence that need to be addressed to ensure integrity include packaging, proper maintenance and tracking throughout its chain of custody, appropriate disposition, and policies at the state, local, and departmental levels.

Through these analyses and discoveries, the Technical Working Group developed its charge: "To create best practices and guidance to ensure the integrity, prevent the loss, and reduce the premature destruction of biological evidence after collection through post-conviction proceedings."

The working group met nine times over two years. The working group developed this handbook through a consensus process in which each member had an opportunity to influence the recommendations and writing. Despite the diversity of backgrounds and views, the working group was able to reach substantial agreement on most issues, including formal recommendations.

Overall, the document is the working group's best attempt at providing practical guidance while addressing some of the broader issues in evidence management. The storage of biological evidence is

just one consideration, albeit a critical one, in a larger system of evidence storage; therefore, the group has put forward some recommendations that can also be applied to other forms of evidence preservation management. The scope of this report, however, is limited to biological evidence only.

The working group hopes that this document is useful in addressing the needs of its readers and will spark an ongoing dialogue about more ways to improve evidence management systems. Please visit <a href="http://www.nist.gov/oles/">http://www.nist.gov/oles/</a> to obtain more resources to help your organization better preserve its biological evidence.

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#### **S**PONSORSHIP

The NIJ is the research, development, and evaluation agency of the U.S. Department of Justice and is dedicated to researching crime control and justice issues. NIJ provides objective, independent, evidence-based knowledge and tools to meet the challenges of crime and justice. The Office of Investigative and Forensic Sciences is the Federal Government's lead agency for forensic science research and development as well as for the administration of programs that provide direct support to crime laboratories and law enforcement agencies to increase their capacity to process high-volume cases, to provide needed training in new technologies, and to provide support to reduce backlogs. Forensic science program areas include Research and Development in Basic and Applied Forensic Sciences, Coverdell Forensic Science Improvement Grants, DNA Backlog Reduction, Solving Cold Cases with DNA, Post-Conviction DNA Testing Assistance, National Missing and Unidentified Persons System, and Forensic Science Training Development and Delivery.

A non-regulatory agency of the Department of Commerce, the National Institute of Standards and Technology (NIST) promotes U.S. innovation and industrial competitiveness by advancing measurement

science, standards, and technology in ways that enhance economic security and improve our quality of life. It accomplishes these actions for the forensic science community through the Law Enforcement Standards Office (OLES) Forensic Science Program, which directs research efforts to develop performance standards, measurement tools, operating procedures, guidelines, and reports that will advance the field of forensic science. OLES also serves the broader public safety community through the promulgation of standards in protective systems; detection, enforcement, and inspection technologies; public safety communication; and counterterrorism and response technologies.

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## I. RETAINING BIOLOGICAL EVIDENCE

This section provides guidance on preventing the premature destruction of biological evidence. This section focuses on criminal proceedings; however, the retention of biological evidence may be applicable to civil cases and proceedings. This section includes the following:

- guidance regarding biological evidence identification
- recommendations on the retention of biological evidence for certain crime categories
- recommendations on the retention of biological evidence for different case statuses

Preserving and readily retrieving biological evidence from adjudicated and unsolved cases has benefits for all members of the criminal justice system. As the identification power of DNA evidence is recognized, it is clear that crime-solving potential resides latent in biological evidence from crime scenes. Therefore, each state should consider the legal and policy issues that address the retention of biological evidence and should establish procedures that describe the type and length of time for which evidence should be retained for each type of crime. Although most states already have legislation that dictates which categories of crime qualify for long-term storage of biological evidence, some jurisdictions have problems interpreting and implementing policies within property and evidence rooms. For those states and localities in which there is limited or vague guidance or in which stakeholders are reconsidering requirements, the working group recommends the following retention considerations and requirements.

#### **Recommendation I-I:**

All persons who have responsibility for the intake and/or storage and disposition of biological evidence should take online, in-classroom, or other forms of training on evidence management.

#### **IDENTIFYING BIOLOGICAL EVIDENCE**

Existing state laws vary in their definitions of what constitutes biological evidence in the context of evidence retention. A review of the National Institute of Justice's (2002) list of items from which biological evidence can be found for criminal cases illustrates the variety of items that can be successfully tested with current technology. Further, touch DNA, or DNA contained in shed skin cells that transfer to surfaces that humans touch, can be sampled from countless objects and surfaces (Daly, Murphy, and McDermott 2012).

However, requiring the retention of all physical evidence that can potentially contain DNA would result in the retention of all evidence collected unless it was screened to determine the possible presence of genetic material. Therefore, this handbook's recommendations attempt to balance the interests of justice with practicable storage concerns and to offer a minimum threshold for biological evidence retention. The table below describes different types of evidence that can contain biological evidence, which, in turn could be tested for DNA.

Table I-I: Examples of Sources of Biological Evidence (National Institute of Justice 2002)

Evidence	Likely Location of DNA on the Evidence	Source of DNA	
Baseball bat or similar weapon	Handle, end	Sweat, skin, blood, tissue	
Hat, bandanna, or mask	Inside	Sweat, hair, dandruff	
Eyeglasses	Nose or ear piece, lens	Sweat, skin	
Facial tissue, cotton swab	Surface area	Mucus, blood, sweat, semen, ear wax	
Dirty laundry	Surface area	Blood, sweat, semen	
Toothpick	Тір	Saliva	
Used cigarette	Cigarette butt	Saliva	
Stamp or envelope	Licked area	Saliva	
Tape or ligature	Inside/outside surface	Saliva, skin	
Bottle, can, or glass	Side, mouthpiece	Saliva, sweat	
Used condom	Inside/outside surface	Semen, vaginal or rectal cells	
Blanket, pillow, sheet	Surface area	Sweat, hair, semen, urine, saliva	
"Through and through" bullet	Outside surface	Blood, tissue	
Bite mark	Person's skin or clothing	Saliva	
Fingernail, partial fingernail	Scrapings	Blood, sweat, tissue	

Potential sources of biological evidence can include, but are not limited to, the types of evidence listed in Table I-I. In some cases, even these evidence types may not contain DNA or may provide information of no probative value. Therefore, an official with experience, training, and insight into the context of the individual case should ultimately determine if an item could contain biological evidence and should be retained as such. These officials may include detectives, attorneys, investigators, crime scene technicians, and/or crime laboratory staff members. Property and evidence custodians, however, rarely have the expertise or insight into the context of a specific case to make initial determinations of what should be kept and whether it is biological evidence.

#### **Recommendation I-2:**

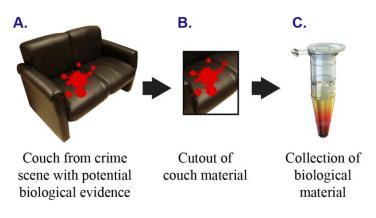
Prior to a property and evidence custodian accepting biological evidence, it should be clearly marked and labeled by the submitter as biological evidence, allowing it to be tracked within the evidence management system and stored appropriately from intake through disposition.

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### BULKY EVIDENCE: CONSIDERATIONS FOR LONG-TERM EVIDENCE RETENTION

To facilitate forensic testing for trial and post-conviction proceedings, it is essential to store and track as much of the evidence as necessary. However, it may be extremely difficult to maintain large or bulky items of evidence from which biological material is derived. Figure I-I depicts the collection of biological material from a large bulky item—such as a couch—for forensic testing. For the long term, agencies might find it sufficient to retain samples taken from a large item (see B. and C. in figure I-I) as opposed to the large item on which biological evidence may have been located (see A. in figure I-I). Other examples of bulky evidence include a car, the wall/ceiling of a house, carpet, or another large piece of furniture such as a bed. If the origin of a sample is well documented (such as through photographs or case files), it may not be necessary to store the entire couch for testing and future re-testing.



#### Figure I-1: Collection of evidence from large/bulky items.

#### **Recommendation I-3:**

Property and evidence custodians should consult with investigators, laboratory analysts, and, when appropriate, prosecutors to determine whether only representative sample(s) should be retained in situations in which samples are too large or too costly to store. Property and evidence custodians, investigators, laboratory analysts, and prosecutors should discuss situations in which prosecutors should be consulted. These decisions should not be made exclusively by property and evidence custodians.

#### **RECOMMENDED CRIME CATEGORIES FOR WHICH EVIDENCE SHOULD BE PRESERVED**

In addition to defining what should be retained, the category of crimes for which biological evidence should be retained must also be prescribed. Individual state laws vary greatly in this regard (see appendix B for a listing of existing state laws regarding biological evidence retention).

#### EFFECT OF "CASE STATUS" ON THE RETENTION OF BIOLOGICAL EVIDENCE

When determining the duration of time that biological evidence must be held, it is essential to understand what is meant by "case status" for criminal cases. Generally, there are four categories of case status:

- Open Cases (i.e., no suspect, but investigation continuing)
- Charges Filed (i.e., suspects charged and court proceedings active)
- Adjudicated (i.e., conviction, dismissal, or acquittal)
- Unfounded/Refused/Denied/No Further Investigation

This section provides an overview of each of these categories and discusses the implications of biological evidence disposition for each. For the purposes of illustration, this handbook uses the crime categories that are used in the Federal Bureau of Investigation's National Incident-Based Reporting System (NIBRS). This system classifies 22 types of offenses as Group "A" crimes and 11 types of lesser offenses as Group "B" crimes. Table 1-2 uses the NIBRS crime categories.

#### **OPEN CASES**

Open cases are those in which one or more suspects have not yet been identified or charged, a suspect has been identified but not yet charged, or the investigation is ongoing. As a standard practice, it is recommended that the evidence be maintained by the holding agency for as long as the statute of limitations for the crime or as applicable by law.

#### **Recommendation I-4:**

Biological evidence that is collected in the course of an open investigation should be retained indefinitely for homicides and, at a minimum, for the length of the statute of limitations for all other offenses.

#### **CHARGES** FILED

Standard practice dictates that all evidence in any case being prosecuted is maintained in the event that the evidence is needed for laboratory analysis or court proceedings. When charges are filed, a person has been charged and court proceedings have been or will be initiated. Evidence custodians should be notified if charges have been filed to (1) communicate case status for evidence release requests and (2) assist evidence custodians in determining disposition status.

#### **Recommendation I-5:**

A communications link should be established between investigators, prosecutors, and the responsible custodial agency to be able to determine if charges are filed.

#### ADJUDICATED

A case is adjudicated when a final judgment has been rendered in a legal proceeding. The disposition of evidence in adjudicated cases varies according to the crime category. Knowledge of the retention statutes in one's state is essential. Additional guidance is provided in table I-2. Appendix B identifies evidence retention laws in the United States as a reference.

#### **Recommendation I-6:**

Biological evidence should be preserved through, at a minimum, the period of incarceration in the following crime categories, as defined in NIBRS, regardless of whether or not a plea was obtained: homicides, sexual assault offenses, assaults, kidnapping/abductions, and robberies. For all other Group A and B offenses, biological evidence may be disposed of upon receipt of authorizations.

#### **UNFOUNDED/REFUSED/DENIED/NO FURTHER INVESTIGATION**

In cases categorized as unfounded, refused, or denied, or for which no further investigation will be conducted, evidence can be disposed of upon receipt of disposition approval from the assigned investigator unless such disposal is prohibited by law. This category includes instances in which the

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victim chooses not to press charges, the prosecutor decides not to file charges, the investigator determines no arrest will be made, or the case is exceptionally cleared.

#### **Recommendation I-7:**

After it is determined that charges will not be sought or filed, evidence, including any biological evidence, need not be retained unless destruction is prohibited by statute.

#### CRIME CATEGORY/CASE STATUS/PERIOD OF RETENTION CHART

In the exercise of his/her duties, the property and evidence custodian may determine the status of cases in his/her custody and may decide whether contact should be made with the investigating officer or prosecutor. Crime categories/classifications vary from state to state; therefore, *knowledge of the specific categories in one's own state is crucial*. Table I-2 provides guidance.

	CASE STATUS				
Crime Categories (NIBRS*)	Open <sup>†</sup>	Charges Filed	Adjudicated	Unfounded/ Refused/Denied/ No Further Investigation	
Homicide Offenses	Retain indefinitely	Retain indefinitely	At a minimum, retain for the length of incarceration <sup>‡</sup>	Dispose of upon receipt of authorization§	
Sexual Offenses	At a minimum, retain for the length of the statute of limitations <sup>§</sup>	Retain pending adjudication§	At minimum, retain for the length of incarceration <sup>‡</sup>	Dispose of upon receipt of authorization§	
Assault Offenses, Kidnapping/ Abduction, Robbery					
All Other Group A & B Offenses			Dispose of upon receipt of authorization§		

#### Table I-2: Summary of Biological Evidence Retention Guidelines for Crime Categories

<sup>&</sup>lt;sup>\*</sup> The Federal Bureau of Investigation's National Incident-Based Reporting System (NIBRS) classifies 22 types of offenses as Group "A" crimes and 11 types of lesser offenses as Group "B" crimes. Table 1-2 uses the NIBRS crime categories.

<sup>&</sup>lt;sup>†</sup> Cases in which someone was found not guilty after criminal proceedings and additional suspects have not yet been identified or charged should follow the same guidance as open cases.

<sup>&</sup>lt;sup>‡</sup> Statutes regarding the disposition of biological evidence from homicide, sexual offenses, and other crime categories vary from state to state. Almost all states that have statutes require that such evidence be held for the period of incarceration; a few states require that the evidence be held for the period of probation, parole, or registration as a sex offender. Custodians should check their state statutes. Written authorization for disposal should be obtained from the assigned case investigator. (Note: If the assigned investigator is no longer employed by the agency, a designated investigator should give written approval.)

<sup>&</sup>lt;sup>§</sup> Section V provides further guidance regarding the disposition process.

## II. BIOLOGICAL EVIDENCE SAFETY AND HANDLING

## PURPOSE

This section provides guidance on biological evidence safety and handling concerns and includes:

- discussion of universal precautions
- guidance regarding the use of personal protective equipment (PPE)
- guidance regarding exposure control plans
- guidance on the disposal of regulated waste

Individuals handling any evidence should assume that all of it may contain potentially hazardous biological material. Anyone handling biological material may be exposed to harmful infectious diseases. The following section discusses procedural implications related to the safe handling of biological evidence and guidance on the way individuals should protect themselves.

#### **UNIVERSAL PRECAUTIONS**

The U.S. Occupational Safety and Health Administration (OSHA) developed universal precautions to protect workers from exposure to human blood or other potentially infectious materials. It is not possible to determine if every bodily fluid or stain collected from crime scenes is contaminated with a bloodborne pathogen; therefore, all bodily fluids and tissues are presumed to be contaminated. When individuals handle any type of biological evidence, procedures need to be in place to reduce or eliminate the risk of exposure to bloodborne pathogens that can transmit disease (OSHA 2012). Common diseases/viruses caused by exposure to bloodborne pathogens include hepatitis and human immunodeficiency virus (HIV). These raise the most concern because of the potential for lifelong infection and the risk of death associated with infection once an individual is exposed.

#### PERSONAL PROTECTIVE EQUIPMENT

The appropriate use of PPE is intended to protect the individual and the evidence from cross-contamination. PPE includes disposable gloves, disposable overalls, laboratory coats, masks, and eye protection. Every agency should prepare a written policy or directive informing evidence handlers of biological safety concerns and PPE requirements. Directives should include the following universal precautions and work practices, as identified by OSHA (2012), or state regulations derived from OSHA.

- **PPE** should be used in every situation in which there is a possibility of exposure to blood or infectious diseases. Gloves and protective clothing should be worn when providing first aid or medical care, handling soiled materials or equipment, and cleaning up spills of hazardous materials. Face protectors, such as splash goggles, should be worn to protect against items that may splash, splatter, or spray.
- **PPE must be clean and in good repair.** PPE that is torn or punctured, or that has lost its ability to function as an effective barrier, should not be used. Disposable PPE should not be reused under any circumstances. While using PPE, individuals should not touch their eyes or nose with gloves.
- **PPE must be removed when it becomes contaminated and before leaving the work area.** Used protective clothing and equipment must be placed in designated areas for storage, decontamination, and disposal.
- Dried blood or other dry potentially infectious material should not be assumed to be safe. PPE should be used when handling these items.

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- When wet material is spilled, the area containing blood or other potentially infectious material should be covered with paper towels or rags, doused with a disinfectant solution (10 % bleach solution), left for at least 10 minutes, and removed. Materials should then be placed in a waste disposal bag designated for biohazardous material. Appropriate PPE should be used throughout this process.
- Hazardous biological evidence packages must be appropriately labeled with biohazard labels and signage. Without the biohazard label (see figure II-1) other employees could inadvertently be exposed to risk or could contaminate the evidence. The labeling and signage guidance also applies to any shelves or rooms where these items are being stored. Additionally, a ventilation system may be required to ensure that employees are working in a safe workplace.



Figure II-1: Biohazard label.

#### **Occupational Safety and Health Administration (OSHA)**

OSHA, established by the Occupational Safety and Health Act of 1970, authorizes the Secretary of Labor to develop and promulgate occupational safety and health standards, to develop and issue regulations, to conduct investigations and inspections, to determine the status of compliance with safety and health standards and regulations, and to issue citations for noncompliance with safety and health standards and regulations. The Act also requires that states with an approved state plan provide for the development and enforcement of safety and health standards. Twenty-one states operate their own job safety and health programs (three additional states cover only state and local government employees). States with approved programs must set job safety and health standards that are "at least as effective as" comparable Federal standards. In most cases, states adopt standards identical to Federal ones (OSHA 2012).

OSHA's *Bloodborne Pathogen Standard* is designed to protect the millions of workers in healthcare and related occupations from the risk of exposure to bloodborne pathogens, such as HIV and the hepatitis B virus (HBV). The standard creates numerous requirements for workplaces where workers handle blood or other potentially infectious materials, including bodily fluids.

## EXPOSURE CONTROL PLAN

Crime laboratories, property and evidence rooms, and other locations where biological evidence is stored should have exposure control plans in place that are designed to minimize or eliminate occupational exposure to bloodborne pathogens. An exposure control plan is an employer's written policy that outlines the protective measures the employer takes to eliminate or minimize employee exposure to blood and potentially infectious diseases. At a minimum, the plan must contain the following:

- an exposure determination that identifies job classifications and, in some cases, tasks and procedures that involve occupational exposure to blood and potentially infectious diseases
- procedures for evaluating the circumstances surrounding an exposure incident
- a schedule of how and when other provisions of the standard will be implemented, including methods of compliance, communication of hazards to employees, and recordkeeping (OSHA 2012)

Each employee handling biological evidence must be trained on all related requirements and exposure risks.

Agencies should strictly limit the number of employees with exposure to these types of hazardous materials, either through staffing or segregation of biohazardous materials. (See section III for more information.)

#### **BIOLOGICAL EVIDENCE DISPOSAL**

#### **REGULATED WASTE**

The OSHA standard also defines wastes that should be regulated and monitored. Regulated waste, as defined in *Bloodborne Pathogen Standard*, is liquid or semi-liquid blood or other potentially infectious materials, contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed, items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling, contaminated sharps, and pathological and microbiological wastes containing blood or other potentially infectious materials (OSHA 2012).

Regulations governing the disposal of regulated waste or waste that requires special handling exist at the state level, most often from the state's department of health. Generally, state laws require that regulated waste be rendered non-infectious prior to disposal. Once the biohazard is decontaminated, it can be disposed of like any other solid waste.

#### **STAGING FOR DESTRUCTION/DECONTAMINATION**

Items to be destroyed or decontaminated must be removed from the active inventory and staged in an area for "bio items" that are scheduled for "destruction" and appropriate disposal.

There are several methods that can be used to destroy or decontaminate biohazardous material.

- Incineration. Incineration involves the actual burning of the waste. This method both destroys and decontaminates the evidence. Although effective, incineration is associated with serious air quality concerns. Evidence handlers should consult local and state laws for guidance.
- **Thermal Treatment.** Similar to incineration, thermal treatments use heat to destroy any pathogens present in biological material. There are several types of thermal treatments, such as autoclaves, microwaves, and dry heat systems. Each of these can be used to render biological evidence safe prior to disposal.
- **Chemical Treatment.** The most common method of decontamination is the use of chlorine either in the form of sodium hypochlorite solution (commonly known as bleach) or in the form of the more powerful (and correspondingly more hazardous) gas, chlorine dioxide. These compounds are relatively cheap and effective (HERC 2012).

Individuals responsible for destroying or decontaminating evidence should consult state regulations and the crime laboratory before deciding on an appropriate and safe method for destroying or decontaminating evidence. More information on biological evidence disposition requirements is provided in section V.

Technical Working Group on Biological Evidence Preservation

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