

COLA PRIMER # 80

***Safety in the Pathology Laboratory***

## ● Overview ●

The laboratory can be a hazardous place to work. Hazards to staff in the pathology laboratory include physical, environmental, biological, chemical, radioactive and ergonomic hazards, just to name a few. It is imperative that the laboratory have knowledge and understanding of all local, state, and federal requirements for laboratory safety to ensure a successful safety program and to keep laboratory staff safe on the job.

The purpose of this COLA Guide is to provide you with assistance in keeping your safety practices compliant with regulatory requirements and ensuring a safe working environment for the staff.

You can find more detailed safety-related COLA criteria under the FAC, CYT and HIS sections of the COLA Laboratory Accreditation Manual.

## ● OSHA ●

The *Occupational Safety and Health Act* requires employers to comply with safety and health standards and regulations set by OSHA or by a state with an OSHA-approved state plan. There are currently 28 states that have OSHA-approved plans. State plans must include standards and enforcement programs and must be at least as effective as OSHA's, though they may have additional or more stringent requirements. A complete list of OSHA approved State plans is available via the link in the reference section.

## ● Laboratory Safety Guidance ●

OSHA's publication "*Laboratory Safety Guidance*" is not a standard or regulation, but contains recommendations and descriptions of mandatory safety and health standards for the laboratory.

The publication includes the following standards:

- Occupational Exposure to Hazardous Chemicals in Laboratories
- Hazard Communication
- Bloodborne Pathogens
- Personal Protective Equipment (PPE)
- Eye and Face Protection, Hand Protection
- Respiratory Protection
- Control of Hazardous Energy

The publication contains details and requirements of safety plans and references applicable Code of Federal Regulations (CFR) standards.

The information in this primer is not all-inclusive; it includes highlights of the standards that cover the major hazards that staff may encounter in the pathology laboratory. Please reference OSHA's Laboratory Safety Guidance for additional details and full requirements.

Links to commonly-referenced OSHA publications and OSHA Fact Sheets are listed in the *Reference* section.

## ● Personnel and Training ●

All laboratory personnel must receive safety training regarding laboratory standards and safety plans. In addition to laboratory safety, staff must be trained on hazards such as latex allergy, fire, and electrical hazards. Training must also include information about Globally Harmonized System (GHS) labeling and Equipment Safety Data Sheets (SDS).

More details about personnel training and competency requirements can be found under the PER, CYT and HIS sections of the COLA Laboratory Accreditation Manual.

## ● Hierarchy of Controls ●

Occupational Health and Safety professionals use a "hierarchy of controls" to manage workplace hazards. These control measures, in order of effectiveness, are: engineering controls, administrative controls, work practices, and personal protective equipment.

## ● Chemical Hazards ●

The purpose of the Laboratory Standard is to ensure that staff are informed about the hazards of chemicals in their workplace and are protected from chemical exposures exceeding the allowable permissible limit (PEL). The laboratory must establish safe work practices and implement a Chemical Hygiene Plan (CHP) to evaluate the potential hazards of chemicals in the laboratory and to communicate the hazards and protective measures to the staff.

The laboratory must designate a Chemical Hygiene Officer (CHO) responsible for implementing the Chemical Hygiene Plan. The plan must also include standard operating procedures; information and training; chemical exposure monitoring where applicable to include formalin, formaldehyde, and xylene; engineering controls such as chemical fume hoods used when grossing specimens and staining slides; hazardous substances

protection; medical consultation and examinations when exposure occurs; and protective measures.

An eyewash and/or safety shower is required within the work area for immediate emergency use where an employee's eyes or body could be exposed to corrosive chemical materials.

Appropriate spill kits must be available in any area where chemicals are used or stored.

Regular chemical hygiene and housekeeping inspections must be performed. These should include review of spill kits, proper labeling of chemicals and proper storage to include acid, base, and flammables, and labeling of storage requirements.

### ● Hazard Communication ●

The laboratory must develop and maintain a written Hazard Communication Plan (HCP) that evaluates the potential hazards of chemicals and communicates the information and protective measures to staff. The plan must also include lists of hazardous chemicals in the laboratory; labeling of containers; and appropriate preparation and storage of the chemicals. Staff must be trained in the use of chemical SDS sheets and understand the hazards caused by chemicals that they are exposed to, including appropriate protective measures to be used when handling them. The laboratory must also develop and implement training on the HCP.

### ● Bloodborne Pathogens ●

The employer must develop a written Exposure Control Plan (ECP) and provide staff with training prior to beginning work that may involve occupational exposure to bloodborne pathogens. In addition, the worker must be offered the hepatitis B vaccination series. In the pathology laboratory, examples of exposure to bloodborne pathogens may occur when handling unfixed or fresh blood, body fluids and tissues. The standard covers all workers with “reasonably anticipated” exposure to blood or other potentially infectious materials. Employers must provide staff with all necessary personal protective equipment. The ECP requires employers to make an exposure determination which could include job classifications and task assessments, and implement appropriate engineering and workplace controls to minimize worker risk. The laboratory must also establish procedures for documenting and investigating accidents and incidents.

## ● Biohazard and Hazardous Waste ●

The bloodborne pathogens standard defines biohazardous waste as liquid or semi-liquid blood or other potentially infectious material (OPIM). Blood and body fluids, pathology tissues, and items contaminated by those materials, are biohazardous waste and must be disposed of accordingly. Laboratories generally contract with a biomedical waste company to manage waste disposal according to local, state, and federal guidelines.

Regulations for disposal of other hazardous waste vary from city to city and state to state. Chemicals or reagents that cannot be safely disposed of down the drain must be held for disposal and managed according to your local, state, and federal guidelines. Review the material’s SDS for instructions on safe disposal; if you are unsure whether or not you can dump down the drain, consult your hazardous waste vendor. Your hazardous waste vendor will assist in creating profiles for your hazardous waste. Any employee that signs a hazardous waste manifest must have documented up-to-date training.

Both biomedical and hazardous waste management may be controlled by the facility, and may not be the specific responsibility of the pathology department.

## ● Personal Protective Equipment ●

Personal protective equipment includes protection for eyes, face, head, extremities, protective clothing, and respiratory protection. This can include goggles, face shields, chest rest shields, gloves, lab coats, surgical and/or N95 masks, and respirators. Appropriate PPE will be based on the task and workplace assessments performed at and by your facility.

Some healthcare workers may be latex sensitive; in these cases the laboratory must ensure that latex-free alternative PPE is available to latex sensitive staff. Special precautions may also be needed to protect the worker from exposure to latex gloves and other products containing latex in the workplace. .

## ● Documentation ●

Ensure that all safety documentation is maintained as specified by your facility and COLA criteria ensuring compliance with all local, state, and federal regulations. Documentation to retain includes reports from inspections, incident reports and investigations, maintenance records for equipment and hoods, exposure control monitoring, and training.

## ● Definitions ●

CFR – Code of Federal Regulations  
 CHO – Chemical Hygiene Officer  
 CHP – Chemical Hygiene Plan  
 ECP – Exposure Control Plan  
 GHS – Globally Harmonized System  
 HCP – Hazard Communication Plan  
 OSHA – Occupational Safety and Health Administration  
 PEL – Permissible Exposure Limits  
 PPE – Personal Protective Equipment  
 SDS – Safety Data Sheets

## ● References ●

COLA Laboratory Accreditation Manual  
<https://public.powerdms.com/COLAMD/documents/333817>

OSHA approved state plans  
<https://www.osha.gov/stateplans>

OSHA Laboratory Safety Guidance  
<https://www.osha.gov/sites/default/files/publications/OSHA3404laboratory-safety-guidance.pdf>

### **OSHA Fact Sheets for quick reference:**

Bloodborne pathogens  
<https://www.osha.gov/sites/default/files/publications/bbfact04.pdf>

Chemical Hygiene Plan (CHP)  
<https://www.osha.gov/sites/default/files/publications/OSHAfactsheet-laboratory-safety-chemical-hygiene-plan.pdf>

Chemical Fume Hoods  
<https://www.osha.gov/sites/default/files/publications/OSHAquickfacts-lab-safety-chemical-fume-hoods.pdf>

Ergonomics for the Prevention of Musculoskeletal Disorders  
<https://www.osha.gov/sites/default/files/publications/OSHAfactsheet-laboratory-safety-ergonomics.pdf>

Hazard Communication – Steps to an effective Hazard Communications Program  
<https://www.osha.gov/sites/default/files/publications/OSHA3696.pdf>

Hazard Communication – GHS labeling, Pictogram  
<https://www.osha.gov/sites/default/files/publications/OSHA3491QuickCardPictogram.pdf>

Latex Allergy  
<https://www.osha.gov/sites/default/files/publications/OSHAquickfacts-lab-safety-latex-allergy.pdf>

Noise

<https://www.osha.gov/sites/default/files/publications/OSHAfactsheet-laboratory-safety-noise.pdf>

Personal Protective Equipment (PPE)

<https://www.osha.gov/sites/default/files/publications/bbfact03.pdf>