



AUGUSTA

UNIVERSITY

College of Allied Health Sciences
Department of Undergraduate Health Professions

Academic Year 2023-24

Safety Manual

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INTRODUCTION

Covid19

Review <https://www.augusta.edu/student-affairs/student-resources/> for up-to-date Augusta University guidelines.

General Safety

Common sense, first aid and preventive measures should be practiced.

Safety in the laboratory is important to both the individual and the institution. Accidents increase morbidity and mortality. It is false economy to save time at the expense of safety. Whatever time is saved is lost by the accident. This is verified in large industries where extensive safety programs have been instituted at great expense, with the expectation of a net savings.

All spills and accidents must be reported immediately to the Program Directors. The appropriate forms can be obtained from laboratory instructors. See examples of forms in Appendix.

Chemical Safety

Chemicals are routinely used for testing purposes and stored in the laboratory. All chemicals will be handled according to institutional chemical policies and procedures. These policies are maintained by the Augusta University (AU) Environmental Health and Safety (EH&S) Chemical Safety Office (CSO). All Department of Undergraduate Health Professions (UHP) personnel (faculty, staff, and students) should recognize hazards associated with chemicals in the student laboratories and in the clinical internships. Each individual is expected to follow institutional safety policies throughout the student laboratories and clinical internships. All chemicals must be disposed of according to institutional chemical safety policies and procedures.

Infection Control

In most instances, the infective status of a patient's blood or body fluids is not known at the time specimens are collected or laboratory tests are being performed. These policies are maintained by the AU EH&S Biological Safety Office (BSO). Direct contact with infective patient material is the most likely means of acquiring an occupational infection. Precautionary measures against exposure to blood and body fluids must be consistently used by healthcare workers. The approach of Standard Precautions is used to prevent exposure of healthcare workers to infectious agents and should be routinely used. All UHP personnel (faculty, staff, and students) should recognize the problems involved in preventing and controlling infections in the student laboratories and in the clinical internships. Each individual is expected to follow infection control policies, which have been incorporated, into the General Safety Requirements policies throughout the student laboratories and clinical internships. UHP Infection Control policies and procedures have been developed in accordance with the AU Medical Center Clinical Pathology Laboratories Infection Control policies and procedures.

PURPOSE

The purpose of this document is to establish supplementary safety policies and procedures for the UHP department. The objective is to provide a safe environment for faculty, staff, students, and visitors while increasing awareness of the potential risks involved in working in clinical and research laboratories. This manual is to be used in conjunction with AU institutional policies and procedures for general safety, chemical hygiene, and infection control.

RESPONSIBILITIES

Department Chair

Ana Thompson, RDH, MHE

Provide a safe environment for employees, students, patients and visitors and to appoint a Department of Undergraduate Health Professions Safety Officer.

Department Safety Officer

Assist in the development and implementation of Safety and Infection Control Policies, and to provide faculty, students, and staff with current changes in policies and procedures.

- CLS – Brett Rice
- NMT – Greg Passmore
- RTT – Kevin Kindle

Faculty

Develop and monitor appropriate work practices to maintain a safe educational environment for faculty, staff, students, and visitors. Ensure that the Safety Officer is supplied with documentation of adequate training for working within the educational lab setting. The faculty is responsible to enforce safety guidelines and policies within the educational lab settings.

Student and Staff

Follow department and hospital policies and procedures to protect themselves, faculty, students, and visitors. Complete appropriate safety training annually, comply with student/employee health guidelines, and report any accidents to the faculty and the AU Student / Employee Health Department.

ENGINEERING CONTROLS

Proper utilization of engineering controls along with sound work practice controls are the primary methods used to prevent occupational exposure to blood borne pathogens. Engineering controls are used to isolate the employee from the hazard. The student laboratory and/or the clinical internship clinical laboratory will provide the following engineering controls:

Biosafety Cabinets: A properly used and maintained biosafety cabinet will markedly reduce the possibility that an aerosol will be inhaled by a laboratory worker. Class II biological

safety cabinets are used in some laboratories to contain the spread of aerosol borne particles and to protect the sterility of what is being manipulated within the cabinet.

Chemical Fume Hoods: Fume hoods are used to separate the employee from hazardous fumes. Chemical fume hoods and biosafety cabinets should not be used interchangeably.

Note: Biosafety cabinets and chemical fume hoods should be certified annually, after being moved, and after all maintenance. It is the responsibility of the AU UHP department to see to the purchase and replacement of all parts in the student laboratories in a timely manner so as to not endanger the health and well-being of any individual[s] or place the institution at risk. Any unit not certified should be taken out of service immediately and not used until it has passed recertification.

Note: All Clinical Laboratory Science (CLS) students receive specific training on the proper use of biosafety cabinets and chemical fume hoods as part of their training curriculum.

Differential Pressure Rooms: In certain areas of the laboratory, rooms have less [-] air pressure relative to other areas/rooms of the laboratory. Generally, most laboratory/clinical areas draw air from adjacent hallways/non-lab areas for containment purposes. Clinical internship site laboratories are required by federal regulations to maintain differential pressure rooms in the laboratory work area.

Disposable Labware: Disposables are used throughout the student laboratories and clinical internship laboratories to reduce the risk of exposure to bloodborne pathogens.

Non-disposable Labware: All labware that is non-disposable will be chemically decontaminated with approved disinfectants and autoclaved, where applicable.

Sharps Containers: The UHP Department and clinical internships sites will maintain a "Sharps" drop system in all patient and laboratory areas. All sharps used on patients, tissues, and specimens should be immediately disposed of by placing them in the drop-system. Containers should be puncture-resistant, leak-proof, have a latching lid, and be held upright to prevent spillage. In addition, sharps disposal containers should not be filled beyond their designated limit (i.e. $\frac{3}{4}$ full).

Splatter Shields: Some tasks, such as removal of caps from vacutainer tubes, do not require the use of biosafety cabinets. A splatter shield is an adequate means of preventing mucous membrane contact of aerosols and splatters in certain situations. Some type of barrier should be used to prevent exposure via aerosol/splatter when opening specimen containers.

WORK PRACTICE CONTROLS

Work Practice Controls alter the way in which a task is performed. In technical work areas of UHP, Work Practice Controls include:

- Restricting access to unauthorized personnel;

- keeping lab doors shut at all times;
- locking doors when lab is not occupied,
- prohibiting eating, drinking, smoking, storing utensils;
- applying cosmetics; and prohibiting handling contact lenses;
- prohibiting mouth pipetting;
- prohibiting food from being stored in areas/refrigerators where potentially infective material[s] might be stored;
- providing handwashing stations and requiring their use;
- routinely decontaminating work areas and equipment;
- keeping space between benches, cabinets, and equipment accessible for cleaning;
- requiring sharps to be handled in a safe manner;
- using personal protective equipment when handling specimens;
- require all employees to participate in yearly safety training.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

All faculty, staff and students must use personal protective equipment, where appropriate, whenever risk of exposure remains after instituting proper Environmental and Work Practice Controls. Proper use of PPE is intended to prevent exposure to infectious agents during the duration of time in which the PPE is in use.

Protective body clothing should be fluid resistant with a closed or buttoned front and cuffed sleeves. The department of UHP will provide an adequate selection of sizes and alternate styles of PPE for all students and staff. Such equipment includes but is not limited to the following: disposable aprons, caps, non-latex gloves, gowns, laboratory coats, and shoe covers; eye protection; face shields; and masks. Gloves will be inspected before use to ensure they are intact. Gloves must be changed immediately when torn, punctured, or contaminated. Under NO circumstances are gloves to be reused. Gloves will be disposed of in appropriate biohazardous waste cans. Hands should be washed immediately upon removal of gloves. Gowns must be removed before leaving the work area and after the garments become contaminated. Upon removal, place in designated areas or containers when being stored, discarded, or washed. Under No circumstances is contaminated protective clothing to be taken home. Face shields must also be removed prior to leaving the work area and decontaminated after each use.

LATEX PROGRAM

AU is a non-latex environment when non-latex products exist. The laboratory uses non-latex gloves. Latex allergy can result in serious health problems for workers. Students or staff with complaints/symptoms of latex sensitivity or dermatitis, should promptly notify the faculty, fill out an accident/injury report and report to student/employee health.

WASTE

AU is committed to providing a safe environment for patients, visitors, and employees. Good management of hazardous waste should be part of any department's standard operating

procedure. The AU Environmental Health and Safety (EH&S) assists the department in reviewing all federal, state, and local regulations regarding waste disposal.

Any regulatory changes are communicated to the faculty, staff, and students through the Departmental Safety Officer.

Disposal: Care should be taken to separate potentially infectious waste, sharps, non-biohazardous waste, and chemical waste.

1. Infectious waste that has not been chemically decontaminated cannot be poured down any drains. It must be placed in red bag lined storage boxes. Contaminated waste is picked up by Environmental Services and autoclaved in accordance with the department "Handling and Disposal of Waste" procedure. Microbial cultures are chemically decontaminated prior to disposal. Disposable laboratory supplies that are contaminated that cannot puncture red bag liners may be placed in the red lined storage boxes for disposal.
2. Contaminated sharps and glass must be disposed of in an approved sharps disposal containers for storage and transport. Notify Environmental Services for pick-up.
3. Non-biohazardous must be placed in grey or clear bags to be picked up by Environmental Services for disposal. For chemically contaminated waste, consult with EH&S on proper disposal procedures.
4. Chemical waste disposal should be performed in a manner that causes minimal harm to people, the environment and other organisms. All hazardous chemical waste is to be segregated from other waste, collected and temporarily held by the laboratory. Hazardous chemical waste is picked up weekly by contacting EH&S (1-2663). See the Appendix of the Chemical Hygiene Manual for the Chemical Tag Procedure. Certain non-hazardous waste may be disposed of down the drain. Contact Chemical Safety for information on a case-by-case basis before pouring a chemical down the drain. Refer to Chemical Hygiene Plan for more information.

Reducing Waste: Every effort should be made to reduce the overall volume of biohazardous and non-biohazardous waste that is generated by the laboratory. The student laboratory uses the following methods for reducing waste when appropriate:

1. Obtain hazardous reagents in small quantities when possible.
2. Substitute reagents that are more dangerous for less dangerous ones. A less hazardous reagent would be one that poses less of a risk in terms its overall health, flammability, reactivity, and other special hazards. Refer to institutional Chemical Safety Guidelines for more information regarding chemical hazards.
3. Recycles hazardous chemical waste and non-hazardous waste when applicable. For questions regarding recycling chemical waste contact EH&S at 1-2663.

4. Relocates surplus or unwanted chemicals to EH&S for redistribution or disposable when possible.

SAFETY REVIEWS/INSPECTIONS

The Safety Officer periodically reviews the laboratory safety manuals to insure compliance with safe work practices and regulatory changes. Hazard Surveillance Inspections by EH&S are performed periodically. EH&S provides laboratory safety auditing and chemical storage facility inspection and monitoring.

BLOOD AND BODY FLUID EXPOSURE

Below information is on Student Health Services website:

<https://www.augusta.edu/shs/blood-and-biohazard.php>

ON CAMPUS OR WITHIN 30 MINUTES OF AU CAMPUS:

1. Immediately cleanse wound with soap and water or irrigate splash areas (eyes, mucous membranes) with normal saline or water.
2. Notify attending physician/nurse supervisor to report incident and order labs from source patient (HIV Ab, HCV Ab, HBV Ag and other labs if necessary).
3. Complete hospital/clinic incident report and Student Health Intake Form (form located on SH website). Please include patient demographics (name, MR# & source code, if assigned). Keep a copy of all paperwork.
4. Within 3 hours of exposure, report to Student Health (706-721-3448) located in Pavilion II, Mon-Fri, 8:00 am – 4:30 pm. If closed, report to nearest ER for labs and assessment for HIV prophylaxis.
5. If treating provider has questions concerning your exposure, call the PEP Line at 1-888-448-4911.
6. Submit a copy of your exposure paperwork to Student Health at shsrecords@augusta.edu

OUTSIDE OF AU CAMPUS (OVER 30 MINUTES AWAY FROM CAMPUS):

1. Immediately cleanse wound with soap and water or irrigate splash areas (eyes, mucous membranes) with normal saline or water.
2. Notify attending physician/nurse supervisor to report incident and order labs from source patient (HIV Ab, HCV Ab, HBV Ag and other labs if necessary).
3. Complete hospital/clinic incident report and Student Health Intake Form (form located on SH website). Please include patient demographics (name, MR# & source code, if assigned). Keep a copy of all paperwork.
4. Within 3 hours of exposure, report to facility Employee Health or nearest ER for labs and assessment for HIV prophylaxis.
5. If treating provider has questions concerning your exposure, call the PEP Line at 1-888-448-4911.

6. Submit a copy of your exposure paperwork to Student Health at, shsrecords@augusta.edu

"CLEAN" AND "CONTAMINATED" AREAS

Lab coats, gloves and other personal protective equipment must be removed and stored in appropriate areas prior to exiting laboratory or clinic areas. Lab coats must not be worn into office areas, lounges, break rooms, etc. Lab coats must not be hung on the backs of chairs. The designation of the technical area as either "clean" or "contaminated" should be determined by the faculty responsible for labs in the respective areas.

If technical areas are considered clean areas (e.g., administrative work areas, student locker rooms, and other specially designated areas), efforts should be made to prevent contamination of telephones, terminal keyboards, doorknobs, and other items commonly touched by both gloved and ungloved hands. Faculty, staff, and students are required to remove gloves and wash hands before touching equipment and when leaving the technical area.

If technical areas are considered contaminated, all surfaces may be touched with gloved hands unless otherwise specified. All surfaces are considered contaminated (including phones, terminal keyboards, doorknobs, and other items in these areas). Persons entering these areas with ungloved hands are responsible for gloving and/or thorough handwashing after touching equipment.

HEPATITIS VACCINE

Hepatitis B transmission to the healthcare worker is a real and ever-present risk. Hepatitis B may be transmitted in the workplace via direct contact and by parenteral inoculation. AU requires that all healthcare students receive a series of (3) immunizations. However, students who have/will have direct patient contact are further required to have a positive Hepatitis B antibody titer (to be drawn 4-8 weeks after the third injection) on file in Student Health Services (706-721-3448). Faculty and staff vaccination requirements are determined by AU Occupational Health (706-721-3418). Contact responsible departments for questions regarding payment for vaccination series .

GENERAL SAFETY AND INFECTION CONTROL REQUIREMENTS

Standard Precautions

Standard Precautions are used at all times. Each and every specimen should be treated as though it is infective. Do not rely on flagging systems. All UHP personnel (faculty, staff, and students) are required to practice appropriate barrier protection when working with potentially infective material.

Personal Articles

Personal articles (including cell phones and car keys) should not be stored in the technical work areas of the laboratory. All personal articles should be kept in areas away from potentially infective material.

Smoking

Smoking is not permitted inside any AU building or on campus grounds.

Eating and Drinking

Eating and drinking or storage of utensils used for such activities are also prohibited in the technical work areas. Chewing gum is not permitted. Students must not put anything in their mouth (e.g. pens, pencils).

Refrigerators

Food is not permitted in technical refrigerators. These refrigerators must state that food storage is prohibited.

Dress Code

Faculty, laboratory assistants, and student are required to dress appropriately for all student laboratories. If the student is not dressed appropriately, they will not be allowed to enter into or perform the student laboratories until corrected.

- **Shoes** that cover the entire foot are required. These should not be cloth. They can be either leather or plastic, and there cannot be any holes in the shoes.
- **Pants or skirts** must cover the entire legs but not touch the floor. Shorts or short skirts CANNOT be worn.
- Appropriate **PPE** that is required for the laboratory must be worn.
- Long **hair**, past shoulder length, must be tied back away from face. (Beards that hang from face should be tied and covered with a facial hair mask or a surgical mask).
- Long dangling **earrings** must not be worn.
- **Fingernails** – should be short (1/4 inch or less), clean, well-manicured and appropriate for the work setting. Artificial nails have a high potential for growth and transmission of bacteria and fungi and are not allowed.
- All **cuts** must be covered with a Band-Aid before entering the student laboratory.

Cosmetics

Application of cosmetics, or manipulation of contact lenses, lip balms, and eye medication in the technical work area is prohibited.

Aerosols

Avoid aerosolization whenever working with infective material. If aerosols are likely, wear goggles and mask. If there is a potential for unavoidable splashing, face shields and disposable waterproof aprons/coveralls are recommended. When possible, aerosol shields should be used on centrifuges used to spin patient specimens. Where appropriate, Biological Safety Cabinets should be utilized to minimize potential for exposure to aerosols.

Sharps

Try to avoid the use of sharps whenever possible. Needles should not be recapped, bent or broken. All sharps should be properly disposed of by placing them in an AU approved,

puncture resistant sharps container.

Glassware

Reusable glassware should be free from cracks and sharp edges that could cause injury. All glassware contaminated from contact with blood, body fluids and tissues should be decontaminated with appropriate germicidal agents prior to being autoclaved or washed and placed back into use. Broken glassware to be disposed of should be placed in puncture resistant containers labeled as Sharps. Call Environmental Services to pick up sharps containers. Plastic supplies will be used, whenever possible, to minimize the amount of contaminated glassware produced.

Transporting Patient Materials

All patient material received in the laboratory must be transported in an intact, biohazard specimen container sealed tightly. Transport of patient materials outside of lab requires an additional leak-proof, tightly sealed container (according to Department of Transportation Guidelines for Shipping). Any container with material on its exterior should be first cleaned then decontaminated with the appropriate EPA approved hospital disinfectant. If soggy, place in leak-proof container. Allow 15 minutes for adequate decontamination for small volumes. Larger volumes will require a longer decontamination time. Refer to manufacturer's directions to find out decontamination times for larger spills. If unsure of decontamination time, contact EH&S (706-721- 2663).

All contaminated material to be disposed of, must be placed in red bag lined biohazard containers.

Routine Decontamination:

Laboratory work areas including hoods and Biosafety cabinets should be decontaminated with an AU-approved disinfectant (Bleach Rite or Opticide 3) or a freshly prepared 1:10 dilution of house bleach at the end of each work shift. Wear gloves when performing decontamination.

Infectious Waste:

The Environmental Protection Agency has designated as infectious, all waste that may contain pathogenic agents that can cause disease in persons exposed to the waste. The following items have been designated as infectious:

- Animal bedding and other waste from animal rooms
- Animal carcasses and body parts
- Blood and blood products
- Contaminated equipment
- Contaminated food and foodstuffs
- Contaminated laboratory waste
- Cultures and stocks of etiologic agents
- Dialysis unit waste
- Discarded biologicals
- Isolation waste

- Pathology waste
- Contaminated Sharps
- Surgical/Autopsy waste

These items will be disposed of according to the AU's biomedical waste disposal protocol.

Handwashing

Handwashing is the single most important measure in preventing infection. Handwashing is the vigorous rubbing together of all hand surfaces lathered with a soapy agent followed by a thorough rinse. Handwashing should be frequent and thorough. Frequency of handwashing is dependent upon the type of task being performed. Handwashing should be part of each person's routine personal hygiene. Additionally, handwashing should be performed as soon as possible after known contamination. A 3-5 minute thorough scrub with surgical soap at the beginning and end of each work shift has been recommended in order to prevent pathogens from becoming resident flora.

Hand Protection and Hand Care

Frequent handwashing, gloving and removing gloves may lead to dryness, fissures and dermatitis. Some of these problems may be prevented by thorough washing to remove glove powders, adequate rinsing to remove soap and complete drying with application of a hand moisturizer (non-petroleum based and hospital approved) as needed. Sometimes the condition may require changing brands of gloves or soap. In extreme cases, hydrocortisone creams may be needed. Intact skin is the best barrier against most organisms. Even small breaks are potential portals of entry. Take care of all wounds. Apply antibiotic ointments and change Band-Aids as needed. When Band-Aids are needed, use waterproof ones.

Laboratory Equipment

"Standard Precaution" measures must be followed by all personnel performing cleaning or maintenance activities on equipment that is contaminated with infective material. All equipment must be properly decontaminated with an approved disinfectant prior to performing maintenance procedures and/or removing equipment from the lab. Instructors will provide students with guidelines for cleaning of instruments. When emptying waste material, take care to avoid contact and aerosolization via splatter. Centrifuges should be used in a manner that avoids aerosols. All tubes of specimens must be covered with a secure fitting cap or with parafilm before centrifugation to avoid producing aerosols. Do not open centrifuges until the rotor has come to a complete stop. Use aerosol containment shields on centrifuges whenever possible. After centrifugation, use gauze pads when opening test tubes to minimize exposure to aerosols.

Laboratory Reports

Students will not take home laboratory reports that were generated in the student laboratories while handling infectious agents. The students will not remove any material from the student laboratory, such as pencils, notebooks and will not take into student laboratories any materials that will be taken home at a later date, unless that object can be cleaned with the approved disinfectant.

Biological Spill Cleanup

All spills of blood and body fluids should be promptly cleaned up. Put on a gown, gloves and if splashing is anticipated, eye protection. Absorb the spill using disposable towels. Discard towels in a red bag lined receptacle. Using an EPA, hospital-approved disinfectant or a freshly prepared 1:10 dilution of household bleach, cover the spill and allow standing for 10 minutes. Remove disposable towels and discard as above.

Remove personal protective equipment and wash hands thoroughly. UHP is responsible for cleanup of small spills. For large spills, notify EH&S at 706-721-2663.

Remember that the safety of students, visitors, and staff is of primary importance and cleanup is secondary.

Good Housekeeping and Sanitation:

- A laboratory free of unnecessary clutter and cleaned on a regular basis will help to prevent and control infections.
- Environmental Services staff are responsible for insuring that floors and office areas are cleaned on a scheduled basis, with an EPA hospital approved disinfectant. Floors are stripped using EPA hospital approved chemicals and non-skid wax is applied periodically.
- Environmental Services personnel are also responsible for cleaning such areas as door sills, window sills and hallway fixtures such as railings.
- Biohazardous waste should be segregated from non-biohazardous waste.
- Do not hang clothing on or near heating or cooling units, heating instruments, or open flames.
- Do not allow waste to accumulate in any area. Waste should be disposed of daily. Recyclables (not from clinic or lab) should be placed into specially designated containers.
- Laboratory personnel are responsible for cleaning instruments as necessary and bench tops at the end of each shift. Bench tops should be cleaned with a 10% household bleach in water prepared daily or other AU approved disinfectant (Opticide-3). Ensure the dilution is made accurately as solutions that are too weak, as well as too strong, are not as effective as 10%.
- Faculty and/or staff are responsible for inspecting lab areas for cleanliness.

Glassware

Whenever possible, plastic supplies will be used to minimize amount of contaminated glassware produced and to minimize possibility of breakage and exposure. Exceptions to this policy will include:

Chemistry – use of glass volumetric pipettes, flasks, beakers, cylinders, test tubes for preparation of chemicals used in laboratory procedures and analyte analysis. Plastic pipettes are not acceptable for use in these procedures (leaching of chemicals from plastic could cause problems with analyte analysis).

Analyte analysis also requires use of glass tubes.

Microbiology – use of glass slides for gram staining procedures and use of glass culture tubes. Plastic slide are not an acceptable alternative for gram staining procedures. Glass beakers and culture tubes are used to prepare culture media, which requires autoclaving for sterilization.

Hematology – use of 12 x 75 mm glass, siliconized glass, or plastic (specific for assay, check with instructor) tubes for coagulation studies, use of glass hemocytometer chambers and cover slips, for determination of cell counts, use of glass slides for preparation of peripheral blood smears, use of glass volumetric pipettes for preparation of chemical reagents, use of glass tubes for urine confirmatory tests, use of glass coplin jars for staining procedures. Plastic tubes and slides are not acceptable for use in testing procedures (leaching of chemicals from certain plastic could cause problems with coagulation test results and/or cell analysis, heat generated during urine confirmatory tests would melt plastic tubes; glass coplin jars are needed for staining procedures due types of chemicals that are used –e.g. methanol).

Blood Bank – use of 12 x 75 mm glass tubes for blood bank testing procedures, use of glass slides for typing procedures. Plastic tubes and slides are unacceptable for use in blood bank testing procedures (agglutination is affected as well as antibody titer levels).

Molecular – Use of glass beakers, flasks, cylinders to prepare agarose gel and use of glass vials to prepare sterile water (autoclaving). Plastic beakers, flasks and cylinders are not suitable for the preparation process, which requires agarose gel to be heated to boiling temperatures.

Do not use broken or chipped glassware. Do not attempt to pick it up by hand. Use tongs, forceps or other instruments. Discard it in appropriate sharps containers.

Do not leave pipettes sticking out of bottles, flasks beakers or sharps containers.

Do not attempt to remove stoppers on glass tubing by forcing. If they are stuck, cut the stoppers off. Dispose of contaminated, broken or discarded pieces of glassware in a sharps container.

Non-contaminated, broken glassware can be disposed of in a puncture proof container (non-biohazardous). (Disposal of broken glass, contaminated or non-contaminated, along with paper and trash is a hazard to the custodial staff.)

Hot glass - heated containers should be handled with a non-asbestos protective glove or instrument (e.g., tongs, forceps).

Laboratories that reuse glassware and equipment should have a procedure in place to properly decontaminate the glassware and equipment prior to reuse.

No infectious materials are to be pipetted with manual glass pipettes.

Centrifuges

Operation guidelines:

- Do not operate centrifuges unless the covers are closed (including serofuges). Keep hair, beard, hair ribbons or other frilly or dangling items OUT OF THE WAY. Keep

- lab coats buttoned to prevent neck ties or other loose clothing from being a hazard.
- Do not centrifuge uncovered tubes of specimens (blood, urine, sputum) or flammable liquids. Centrifugation creates a vacuum and volatilizes liquids.
- (Contaminated items become aerosols, flammable liquids become bombs, etc.) USE CAPS OR PARAFILM or where appropriate use serum separating devices.
- After centrifugation, remove tubes from centrifuges carefully and inspect for damage. Do not attempt to remove broken tubes from centrifuge with hand. Use forceps, tongs, or other instruments. Dispose of broken glassware appropriately. Decontaminate centrifuge with approved disinfectant before reuse
- When removing tube caps, use gauze pads to minimize aerosols.

Posted Policies and Procedures

Safety Policies are posted or readily available to all personnel. The *Environmental Health and Safety Emergency Response* flip chart guide and building evacuation routes are posted in all laboratory areas.

Emergency Eyewash

Emergency eyewash stations are located within each student laboratory. All personnel must know the location of the nearest eyewash safety shower and must ensure that the area under the shower is kept free of obstructions. Eyewash stations and safety showers are tested and flushed at least monthly by UHP staff.

Eyewash procedure:

1. Activate eyewash and allow water to run for 3 minutes to remove rust or microorganisms that may have contaminated the water line.
2. Check for equal pressure. Both streams should cross in the center.
3. Check the adequate flow of water.
4. Check for clogged drains.
5. If inadequate flow, unequal pressure, or clogged drains are noticed, contact AU Facility Management at 1-2434 to initiate corrective action.
6. White vinegar can be used to remove mineral deposits from eyewashes. Remember to wash hands afterwards.
7. Document all inspections, flushing, cleaning, etc. in each section on inspection card.

Venipuncture

Venipuncture may be performed by faculty, staff, and students for student education. Whenever possible, needles used for venipuncture should have safety devices incorporated as part of the system to avoid unnecessary risk of a needle stick. Students will be taught how to properly use needles equipped with safety devices. Students will be taught how to perform venipunctures using appropriate infection control procedures. Students will be taught how to properly dispose of contaminated venipuncture supplies.

Patient Specimens used for Teaching

Patient specimens may be acquired for use in the laboratory for student teaching purposes. It

is unknown if these samples contain infectious agents or not. Therefore, all patient specimens must be handled using “Standard Precautions” and must be disposed of according to established biohazard waste management protocols.

EMERGENCY EVACUATION PLAN

In the event of a needed evacuation, an announcement will be made over the internal paging system or will be made verbally. An Emergency Evacuation Plan and Emergency Evacuation Routes are posted in all areas. If the posted evacuation route is inaccessible, an alternate route should be chosen.

In the event of a fire (Code 17 – Code Red) the elevators should never be used for evacuation; stairwells should be used instead.

Persons in the area at the time of needed evacuation, who are unfamiliar with the area, will be shown the appropriate routes of evacuation by the personnel in that particular area. Handicapped persons or persons needing assistance due to injuries or illness will be assisted by the personnel in that area following established evacuation routes.

FIRE PREVENTION AND EQUIPMENT

Fire drills are conducted periodically by AU Safety Office. The EC and EF buildings have monitored quarterly fire drills. The alarm sounds in the entire building. Fires can be divided into four important classes, designated Classes A, B, C, and D. People working in the lab should be knowledgeable about different kinds of fire and the kinds of fire extinguishers to be used.

Class A Fire

This is a fire of ordinary combustibles, for example, paper, cloth, wood, trash, etc. This kind of fire may be put out by water or a Chemical A Fire Extinguisher.

Class B Fire

This is a fire of flammable liquids, for example, gasoline or organic solvents. A flammable liquid fire can be put out by a dry-chemical, foam, or carbon dioxide fire extinguisher. Water should **never** be used for such fires.

Class C Fire

This is an electrical fire, for example, motor, wiring, etc. Only dry-chemical or CO₂ - type fire extinguishers should be used. Water should **never** be used for this type of fire.

Class D Fire

This is a fire of combustible metals, certain chips, shavings, turnings, etc. This kind of fire may be extinguished by the dry-powder type extinguisher, sand, or NaCl.

Every lab should be fully equipped with firefighting equipment that includes appropriate types of fire extinguishers, fire blanket, sand bucket, air mask and safety shower. Fire equipment should be checked and tested at regularly scheduled intervals. These checks are performed and documented by Health Systems Safety and Security.

Sand or absorbent material

Used to contain spread of spilled liquids. See the Chemical Hygiene Plan for more extensive instructions.

Fire extinguishers

Fire extinguishers are of the CO₂ or dry powder type. They may be used on any type of fire. To use: Unlatch from wall mounting, pull pin, point hose in direction of fire, and squeeze handles. Spray from side to side at the base of the fire. Do not touch the metal case of a CO₂ extinguisher while in use.

Fire blankets

Fire blankets may be used to smother a clothing fire by wrapping the victim or rolling them on the ground. Fire blankets may also be wrapped around a person who has to pass through a burning area.

Non-Asbestos protective gloves

Used to move or handle a small burning object, or to handle hot vessels, or to turn off hot valves or handles.

CAUTION: Gloves may be permeable. Steam or hot liquids can soak through and cause injury.

Code Red: Each lab should have a Code Red Procedure posted and all lab personnel should be able to readily implement the procedure. All personnel should know the evacuation route for their lab.

1. Remove all personnel in the immediate area and close doors to area affected.
2. Activate the nearest fire alarm box regardless of the size of the fire. DIAL 1-2911 (AU Public Safety). Give the location and kind of Code Red.
3. Calmly notify other personnel in the area.
4. Attempt to extinguish the fire with the proper fire extinguisher provided in your area. If fire is too large for you to handle, evacuate the area and close all doors behind you.
5. Follow established fire safety and evacuation procedure for your area.
6. Remain calm. Never yell "FIRE".

Safety Training: Students participate in Safety Training, which includes fire safety training and fire extinguisher training during the Introduction to Clinical Laboratory Science Practice course in the Fall semester.

Prevention

Be aware of ignition sources - open flames, heating elements and spark gaps (motors, light switches, friction and static). SMOKING is not permitted on the AU campus.

Do not use flammable liquids in presence of ignition sources - and conversely - keep ignition sources away from areas where flammable liquids are used and/or stored and away from.

Flammable liquids should also be kept away from heat sources at all times.

Flammable liquids give off vapors, which may also burn or explode. Be sure flammable liquids are properly stored.

Quantities of one gallon or over in SAFETY CANS.

BULK STORAGE should be in flammable liquid storage cabinets and kept separate from oxidizing material. Small quantities "in use" should be stored in well-ventilated areas.

Do not store any flammable liquid in area exposed to direct sunlight.

Other Medical Emergencies

If you should encounter an individual that is experiencing another type of medical emergency (e.g., fainting, convulsions or seizures, symptoms of heart attack), contact Public Safety (1-2911) immediately. Make sure you give the specific location of the individual (e.g., Health Science Building, Room EC 3401).

Do not attempt to move the victim or administer any type of emergency care. Stay with individual until help arrives.

In Mobile lab at Lawrenceville GA, call 911.

ELECTRICAL SAFETY

Grounding Requirements:

1. All laboratory instruments and equipment must be adequately grounded to ensure user safety.
2. Electrical current leakage checks must be performed at least annually. In addition, checks must be performed 1) before initial use, and 2) after instrument use.
3. Repair or modification that may compromise the electrical integrity of the instrument or when an electrical problem is suspected.
4. Exceptions to these requirements are 1) devices protected by an approved system of double insulation or its equivalent, which must be marked as such, and 2) equipment operating at 240 volts, which must be checked only for ground integrity.
5. The Fire Safety Office conducts routine surveys of all areas of the institution for general electrical safety. Problems that are found are forwarded to the person responsible for the area or unacceptable practice for resolution.
6. Authorized service repair person who make repairs or modifications that may compromise the electrical integrity of the instrument should check and document that they have checked for current leakage and grounding or instruct the faculty or staff to contact AU. Facilities Management personnel.

General Requirements:

1. Surge protectors must be located off the floor to reduce the risk of physical damage.

2. Extension cords should be avoided. If used, they must be the 3-way type, contain a breaker or fuse, and properly grounded. Gang plugs are prohibited.
3. Use only CO₂ or dry chemical fire extinguishers for the control of fires involving electrical equipment that is connected to "live" power lines. If water, soda-acid, or foam type extinguishers are used on such fires, the resulting liquid can provide dangerous conducting paths for current.
4. Avoid contact with an electrical device that is connected to a "live" power line while your hands are wet or damp. Any amount of moisture on the surface of the skin greatly reduces its resistance to current, thereby increasing the danger of severe shock.
5. Replace any worn wire immediately.
6. Take precautions to avoid spilling reagents on electrical equipment. If spillage occurs, the instrument must be turned off immediately and dried thoroughly.
7. Unplug and mark all wet or malfunctioning instruments and caution co-workers about the kind of hazard.
8. Before opening equipment for troubleshooting or maintenance purposes, be sure it is unplugged.
9. Disconnect electrical switches on all power-driven machines or motors before beginning any repair work to ensure that the instrument cannot be set in motion accidentally.
10. Replace blown fuses by the same type and size (ampere) of fuse.
11. If the fuses on an instrument blow frequently, investigate the possibility of a short circuit or overload.
12. Never insert fuses into a live circuit.
13. An unbalanced load in a centrifuge may cause the instrument to vibrate. The operator should check to ensure that the head is symmetrically loaded, tube caps are correctly sealed, and swinging buckets are symmetrically placed. Ensure that swing-out cups are supported correctly and swing freely; lubricate as needed.
14. Never exceed the maximum speed rating for the centrifuge head.
15. Do not defeat or disconnect centrifuge cover safety interlocks.
16. Keep hands and any articles being worn (equipment, necklaces, etc.) away from the moving parts of instruments.

RESCUE OF SHOCK VICTIMS

Immediately call AU Public Safety 1-2911 to request assistance and report the accident. In the case of an electrical accident, the victim may not be able to free himself from contact with the associated wires, terminals and electrodes. It is critical that the victim be quickly removed from electrical contact. The rescuer should observe the following precautions to prevent injury to himself in the process:

- Do not touch the person with your bare hands until you are certain that the associated circuit has been broken or turned off.
- If the circuit cannot be turned off, use a dry wooden stick, or other insulator material to free, or if necessary, to knock the victim from the contact. If none of these items are readily available, cover your hands thoroughly with dry clothing and, while standing upon a dry insulator material, push or pull the victim away.

Be certain that your body does not come into contact with wires or terminals.

CHEMICAL SAFETY

The UHP department follows AU EH&S Guidelines for Chemical Safety. Please refer to AU Chemical Safety Office web link <http://www.augusta.edu/services/ehs/chemsafe/> for detailed information regarding institutional chemical safety policies and procedures.

BIOLOGICAL SAFETY

The UHP department follows AU EH&S Guidelines for Chemical Safety. Please refer to the AU EH&S Biological Safety Office web link <http://www.augusta.edu/services/ehs/biosafe/> for detailed information regarding institutional biological safety policies and procedures. In addition, the laboratory has developed supplementary guidelines including fundamental laboratory techniques, proper operation of equipment, and the proper utilization of personal protective devices that can effectively reduce the risks of work-related infections in the student in clinical internship laboratories. These supplementary guidelines have been incorporated into the General Safety Section requirements within this document.

OSHA CATEGORIZATION OF LABORATORY TASKS

OSHA requires that all tasks performed in a health care facility be categorized as to their potential for exposure to blood, body fluids and tissues. This step is to insure that effective and appropriate measures have been put in place. The appropriate safety equipment and/or personal protective devices utilized depend on the particular task being performed. All tasks within a particular category do not require the same degree of protection. All laboratorians shall wear appropriate long, closed front lab coats or uniforms with cuffed sleeves. Some tasks will require the use of disposable gloves. If there is a potential for splashing or creating an aerosol, goggles or face shields must be worn. Disposable waterproof aprons or coveralls are recommended if there is a potential for splashing infective material on the worker. OSHA's categorization system is as follows:

Category I: Category I tasks involve exposure to blood, body fluids, and/or tissues as part of the routine. "Single Barrier" protection should be followed. All Clinical Laboratory Science (CLS) and Nuclear Medicine Technology (NMT) students fall into this category.

Category II: Category II tasks involve no exposure to blood, body fluids, and/or tissues as part of the routine but may require performing Category I tasks without advance notice. Protective gear should be immediately available. All Radiation Therapy (RTT) students fall into this category.

Category III: Category III tasks involve no exposure to blood, body fluid, and/or tissues. Protective gear is not necessary.

SAFETY TRAINING

All CLS, NMT and RTT faculty staff and students are required to complete the following

training: University System of Georgia (USG) Right-to-Know Training Modules
 RTK Basic Awareness with the Global Harmonized
 System Training RTK Hazardous Waste Awareness
 Training
 RTK Blood-Borne Pathogens Training

Refer to <http://www.augusta.edu/services/ehs/> for more information regarding these requirements.

AU Environmental Health and Safety Initial Chemical and Biological Safety Training
 Refer to <http://www.augusta.edu/services/ehs/> for more information regarding these requirements.

Radiation and MRI Safety Training (NMT and RTT Students Only) as required by the AU Radiation Safety Office. Refer to <http://www.augusta.edu/services/ehs/> for more information regarding radiation and MRI safety training requirements.

Additional **program specific training requirements** may apply. Please refer to individual program Standard Operating Policies (SOPs) regarding additional program specific training requirements.

HEALTH SCREENING REQUIREMENTS

1. All faculty and staff must be screened by Occupational Health & Safety before working with infectious materials. Any available vaccinations (Hepatitis B Vaccine) which would reduce the risk associated with exposure to any of the agents in the laboratory safety protocol must be offered to all personnel or a signed waiver must be obtained by the Program Director.
2. All students must meet vaccination requirements of AU Student Health. All students enrolled in the program are required to meet the health requirements set forth by AU Student Health. All vaccinations must be kept up to date. The students will be handling blood and body fluids so they must have the Hepatitis B vaccination or sign a waiver explaining that they understand the risks and choose not to take the vaccine. Please, contact student health services for more information at <http://www.augusta.edu/shs/>.
3. Persons who are at increased risk of infection, or for whom infection may have serious consequences, must not be allowed to enter the laboratory when work with infectious agents is in progress. They may enter with the expressed permission of the Program Director.
 - a. Students are not required to divulge their health status to the faculty at AU. However, students will be working with infectious agents that require Biosafety Level-2 containment and practices in the student laboratories.
 - b. In clinical internships, students could encounter agents that required higher Biosafety containment and practice levels. Clinical affiliates will provide

appropriate PPE and training for students in the clinical facilities who may encounter these agents. Clinical affiliates are required to complete safety training for students prior to or on the first day of their internships.

STUDENT INTERNSHIP LABORATORY SAFETY CHECK-OFF

All students enrolled in the Clinical Laboratory Science Program complete the following safety training activities upon admission to the program:

- Three University System of Georgia (USG) Right-to-Know (RTK) Training modules: RTK Basic Awareness with the Globalized System Training, Hazardous Waste Awareness Training, and Blood Borne Pathogens Training.
- AU Environmental Health and Safety Initial Chemical and Biological Safety training.
- Safety training modules incorporated into the CLSC 3220/6220 Introduction to Clinical Laboratory Science course.
- HIPAA training
- The students also undergo additional safety training incorporated into other CLS curriculum courses (e.g. CLSC 4445/6445 Clinical Microbiology).
- Various safety procedures apply to different clinical internship sites due to specific floor plans and fire escape routes, location of safety equipment, maximum allowed occupancy in the labs, etc.

To make sure that student's experience during clinical internship is safe and that the student follows specific procedures to assure safe practice, the student is required to become familiar with all safety procedures applicable to the individual clinical site, just like all new employees hired in the laboratory.

Each clinical internship site will assure the Clinical Laboratory Science Program at Augusta University that the student has gone through safety training no later than on the first day of the internship.

A list of safety/orientation items is provided below and is followed by signature sheet (Appendix A). The sheet must be dated and signed by the Laboratory supervisor or safety training personnel, and by the student.

The signed list should be returned via brrice@augusta.edu to Mr. Brett Rice in the AU Clinical Laboratory Science Program. If you have any questions, please call **706-721-7627**.

Appendix A – Clinical Laboratory Scientist Safety Check-off List

Item	Checkoff
Laboratory Policy	
Work hours and breaks	
Dress code	
Initiative	
Record keeping	
Responsibilities; Honor Code	
HIPAA Training (a reminder only); Patient Confidentiality	
Report shredding	
Computer Use	
Injuries	
Laboratory cost containment – reagents, xeroxing	
Telephone use	
Lab coats, gloves and other PPE	
Food and beverages	
Absences (illness, doctor appointments, job interviews)	
Contact information for laboratory supervisors or lead techs	
Annual Safety – Location of Safety Manuals	
Personal safety and valuables	
Employee identification	
Workplace violence	
Codes	
Emergency	
Cardio-respiratory arrest	
(Pediatric) patient abduction/elopement	
Bomb threat	
Fire	
Phone number: activation, announcement, responsibility	
Location of alarms, blankets, extinguishers	
Emergency escape route	
Standard Precautions	
Biomedical waste	
Clear bag	
Red bag	
Sharps containers	
Personal Protective Equipment	

Item	Checkoff
Standard Precautions	
N95 - Students are not allowed to enter patient rooms with transmission-based precautions unless they get fit tested for N95 respirator.	
Incident/Accidental Exposure Reporting - During the first week at the clinical site, students should be made aware of any institutional regulations about seeking care for, and how to report, incidents and biological exposures.	
Hazardous Chemicals and Electrical Safety	
Eye wash	
Shower	
Toxic	
Flammables	
Storage	
Compressed gas cylinders	
Labels	
SDS	
Waste	
Spills	
Electrical safety	
Specific clinical site training items (list below)	

I have attended the Laboratory Orientation and received information on safety, codes, hazardous chemicals, electrical safety, standard precautions, laboratory policy, and rules of conduct. I will adhere to hospital and laboratory policies during my internship. I have read the Student Conduct Code, understand the provisions of it, and agree to abide by it. The Student Conduct Code can be found at AU Student Manual. I have assured the clinical site that I have previously completed the HIPAA training and agreed to follow these regulations.

Student Name: _____

Clinical Site: _____

Student Signature: _____ Date: _____

Internship Site Clinical Laboratory Representative (Manager, Supervisor, or Safety Officer):

Representative Signature: _____ Date: _____

Appendix B – Augusta University Student Health Service Blood/Body Fluid Exposure Form



"S" Code/Source #: _____

Augusta University Student Health Service Blood/Body Fluid Exposure Form

RECIPIENT(STUDENT) INFORMATION—Please answer all questions pertinent to your exposure:

Name: _____ School: _____
 Cell phone #: _____ Date of Incident: _____ Time of Incident: _____
 Site of incident: AU Clinic/area, specify: _____ College of Dental Medicine
 Outside AU, specify facility & location: _____
 Did incident happen in a homeless/free clinic? Yes No
 Anatomical site of your injury (left hand/finger, etc): _____
 Anatomical site of source patient (area instrument/needle last touched): _____
 Did your injury bleed? Yes No
 How did you clean/treat your injury? _____ or N/A
 How was your injury caused:
 Needlestick: Type of needle → Hollow or Solid → Were you recapping the needle? Yes No
 Dental Instrument-specify: _____
 Blade/Scapel Broken glass Other, specify: _____
 Was blood visible on the needle/instrument? Yes No Unsure
 Bite, specify source → Human Animal, specify: _____
 Splash—specify origin (gastric, vomit, blood, etc.): _____
 Was there visible blood in the splash contents: Yes No Unsure
 Please provide a brief narrative of the incident (what happened): _____

Describe your injury (check all that apply):

Superficial Deep
 Puncture Scratch Laceration
 Other description: _____

Do you have a history of a chronic illness such as HIV or hepatitis? Yes No

SOURCE PATIENT INFORMATION – Please provide as much information known about the source patient:

Source Patient Name: _____ MR #: _____
 DOB: _____
 Is patient homeless? Yes No Unknown Does patient have any tattoos? Yes No Unknown
 Source patient coverage: Private Insurance No Insurance Medicaid Medicare Unknown
 History of liver disease, yellow jaundice or abnormal liver tests? Yes No
 History of bleeding disease? Yes No History of STI? Yes No
 History of a blood transfusion and/or received blood products between 1978 – 1985? Yes No
 History of IV recreational drug use? Yes No History of alcoholism? Yes No
 Males – history of sexual contact with another man? Yes No Safe sex practiced? Yes No
 Sexual partner(s) with history of IV drug use? Yes No
 Please indicate lab tests done on source:
 HIV Antibody Hepatitis C Antibody
 Hepatitis B Antigen

Office use only: Student's Last tetanus: _____
 Student Hepatitis B antibody titer: Positive Negative Unknown (pending)
 PEP Line Consulted (Date & Time): _____ or N/A
 Follow up dates: _____ 2wk appt _____ or N/A

ID: _____

WC#: _____

Augusta University Employee's Report of Accident/Injury

Section A: To be completed by Employee

1. Employee's Name: _____
(Last)
(First)
(Middle)
2. Home Address: _____
3. Employee SSN: _____ 4. Home Phone No: _____
5. Date of Birth: _____ 6. Male Female 7. Marital Status: _____
8. Height: _____ 9. Weight: _____ 10. Dominant Hand: Right Left
10. Employee's Hobbies: _____
11. Number of dependents under age 18: _____ 12. Military Service? _____ 13. Branch: _____
14. Job Title: _____ 15. Dept Name/Dept: _____

ACCIDENT INFORMATION

16. Date of Accident: _____ 17. Time of Accident: _____ A.M. P.M.
18. Location of Accident (Be specific, include room no, bldg, floor, etc :) _____
19. Time the work day began on the day of the accident: _____ A.M. P.M.
20. Type of Injury (burn, needle stick, exposure, etc.) _____
(List which finger, hand, part of body, etc.)
21. Describe the circumstances involved in this accident/injury (be sure to state the job related duty you were performing at the time of accident): _____

TREATMENT INFORMATION

22. Were you treated: YES NO (circle one) If "yes", where? _____
23. Condition: _____ 24. Were medications given/prescribed? _____
25. Witnesses to accident: Name _____ AU Ext: _____
 Name _____ AU Ext: _____
26. Primary Care Physician Name and Number: _____

(Employee's Signature)

(Signature of Immediate Supervisor)

Appendix D – Undergraduate Students Research Laboratory Access after Hours

Undergraduate student access to UHP research laboratories is important to the mission of the department and AU. Undergraduate student access must be strictly supervised by providing the appropriate oversight and monitoring of student activities at all times. Some students have requested and may require access to laboratories after-hours (5:00 pm – 7:00 am) because of scheduling conflicts such as work and classes. It is the responsibility of the principle investigator (PI) of the laboratory to ensure the safety of students who require access to laboratories. After-hours access to research laboratories for undergraduate students can be granted on a limited basis but only when scheduling conflicts prevent the student from participating and entering the laboratory during normal business hours. The PI is responsible for verifying a student's need to have access to the laboratory after-hours. The need for after-hours access to the laboratory should be determined by the PI on a case-by-case basis in consultation with AU Environmental Health and Safety.

There are three requirements for giving UHP undergraduate students access to the laboratory after-hours.

1. The student must have completed the following:
 - a. Initial Chemical and Biological Safety training offered as a 4-hour didactic course. It is required one time. Refer to <http://www.augusta.edu/services/ehs/biosafe/biotraining.php> for more information regarding these requirements.
 - b. Annual Biological Safety Refresher Training is offered online and required annually after completion of the Initial Training Course. Refer to <http://www.augusta.edu/services/ehs/biosafe/biotraining.php>
 - c. Basic Awareness with the Global Harmonized System, Hazardous Waste Awareness and Blood Borne Pathogens Right-to-Know training modules. All three are offered online. Basic Awareness with the Global Harmonized System is required once; the other two are required annually. Refer to <http://www.augusta.edu/services/ehs/chemsafe/rtktraining.php>
 - d. For more information regarding these requirements
 - e. Completion of the Laboratory Safety Checklist, which was provided during the Initial Training Course. It is required once. The Checklist can be found in the UHP Safety Manual.
2. Undergraduate students may only engage in tasks or procedures that are minimal risk. The PI should carefully evaluate the work proposed for the undergraduate student and indicate which tasks pose the least risk. The PI should assess risk in consultation with EH&S. Only minimal risk tasks are to be performed without direct supervision. Higher risk tasks may only be performed when supervision is present.

3. As a general rule and prudent laboratory practice, undergraduate students should not be left alone in a laboratory environment after-hours. However, if such is required, UHP PI's must implement the compensatory measures to insure the safety of the student. Some examples may include a buddy-system, supervision by another member laboratory (not necessarily the PI), or a call-in system.

Appendix E – Radiation Laboratory Safety Rules

It is the responsibility of those working with radioactive materials to protect themselves and others from radioactive hazards arising from their work. Poor examples and careless working habits can unnecessarily expose others or contaminate facilities. The following safety rules shall be posted in the laboratory and shall be observed at all times:

- Eating, drinking, smoking, and the application of cosmetics are prohibited in areas that are posted for radioactive materials use.
- Food may only be consumed in areas designated and marked as no-radioactive materials allowed/safe areas.
- To prevent internal radioactive contamination:
 - Food items shall not be stored in areas designated for radioactive materials.
 - Working with radioactive materials is prohibited when open wounds are present on exposed surfaces of the body, unless wounds are properly dressed and protected.
 - Pipetting or any similar operation by mouth suction is prohibited.
- To prevent external radioactive contamination:
 - Shoes that cover the feet and toes, and pants that cover the legs, are required in the radiation laboratory.
 - Protective gloves and laboratory coats shall be worn when handling contaminated or potentially contaminated items. The use of protective goggles is required when working with non-sealed sources in laboratory.
 - Transporting radioactive materials will be conducted only at the direction of the laboratory PAU (currently Dr. Passmore). Radioactive material transported from the radiopharmacy to the laboratory (or from the laboratory to the radiopharmacy) must be carried in a transport carrier “pig” appropriate to the isotope energy and radiation type. Syringe shields and vial “pigs” will be used at all times when handling radiation sources unless otherwise directed by the PAU.
 - Disposable absorbent pads on table/bench surfaces and remote handling devices shall be utilized when possible.
 - Hands should be washed thoroughly after handling radioactive materials and especially before eating.
- Personnel monitoring dosimetry badges shall be worn in the radiation laboratory areas. Personal dosimetry shall be exchanged on a monthly basis, and acknowledged on the personal dosimetry report as reviewed and exchanged by your signature placed by your name found on the report itself.
- ALARA: Radiation exposure to student technologists is typically minimal. Students will adhere to the ALARA (As Low As Reasonably Achievable) concept and its relationship to laboratory/clinical procedures and conditions.
 - Student technologists will continuously apply the tenets of
 - Time (reduce exposure time),
 - Distance (the farther away from the radiation source the less the exposure), and
 - Shielding (use attenuating material to shield the body from the radiation energy) during their laboratory and clinical experiences.
- Waste Disposal

- Radioactive waste shall be disposed of only in the containers provided. Nonstandard containers are prohibited.
- Sharps shall be disposed of in sharps containers only. Radioactive sharps are to be stored in sharps containers designated as radioactive waste sharps containers. Non-radioactive sharps are to be stored in sharps containers designated as non-radioactive sharps containers.
- Stock shipments shall be handled and stored in specially designated locations. Shipments shall be recorded appropriately.
- Good housekeeping shall be maintained at all times.
- Spills should be preventable, but in the event of such an accident, follow the established emergency procedures:
 - For isotopes with half-lives greater than or equal to 14 hours...
 - If less than 1 mCi (37MBq) –
 - stop work, contain/isolate spill.
 - Notify laboratory PAU and other laboratory personnel and begin appropriate clean up/decontamination as directed.
 - Clean and survey spill area until background levels are achieved, document.
 - Shield area if necessary.
 - Notify RSO.
 - If greater than 1 mCi (37MBq) –
 - stop work, contain/isolate spill.
 - Notify laboratory PAU and other laboratory personnel and begin appropriate clean up/decontamination as directed.
 - Notify RSO and keep potentially contaminated personnel nearby for follow-up.
 - Keep uninvolved personnel out of contaminated area until cleanup is complete.
 - Survey cleanup until background levels are achieved. Quarantine and/or shield spill area if necessary.
 - Post area appropriately.
 - For isotopes with half-lives less than 14 hours
 - If less than 10 mCi (37MBq) –
 - stop work, contain/isolate spill.
 - Notify laboratory PAU and other laboratory personnel and begin appropriate clean up/decontamination as directed.
 - Clean and survey spill area until background levels are achieved, document.
 - Shield area if necessary.
 - Notify RSO.
 - If greater than 10 mCi (37MBq) –
 - stop work, contain/isolate spill.
 - Notify laboratory PAU and other laboratory personnel and begin appropriate clean up/decontamination as directed.
 - Notify RSO and keep potentially contaminated personnel nearby for follow-up.
 - Keep uninvolved personnel out of contaminated area until cleanup is complete.
 - Survey cleanup until background levels are achieved. Quarantine

- and/or shield spill area if necessary.
- Post area appropriately.
- Conduct radiation meter and wipe test surveys at the required frequency of weekly. If radioactive materials are used, then radiation meter and wipe test surveys are required at the end of the day. Monitor hands and clothing prior to leaving the laboratory. When measurements are abnormal, find the cause and take corrective action.

Additional information can be found at AU - Radiation Safety Manual

https://www.augusta.edu/services/ehs/radsafe/documents/au_rsm_12.08.20.pdf

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