

Research Safety and Training Manual (Safety Plan)

*VA Hospital, Madison, WI (607)
Research Service (151)*

Acronyms

ABSL	animal biosafety level
AO	Administrative Officer for Research
ARC	Animal Research Committee
ARF	Animal Research Facility
BMBL	Biosafety in Microbiological and Biomedical Laboratories
BSL	biosafety level
CDC	Centers for Disease Control
GEMS	Green Environmental Management System
HAZMAT	Hazardous Materials
MSDS	Material Safety Data Sheets
NIH	National Institutes of Health
PPE	Personal protective equipment
R&D	Research and Development
RARC	Research Animal Resources Center (UW)
UW OBS	University of Wis. Office of Biological Safety
WOC	without compensation employee

Modified from Research & Development Service VA Medical Center, Sioux Falls, SD) prepared by David A. Maddox, Ph.D., Coordinator/R&D with assistance of Karen Munger, Ph.D., Research Safety Coordinator. Special thanks to Steve Breese, Gerene Denning, and Sandi Rowe (Research Service, Iowa City VA) for permission to use their manual as a template for portions of this manual.

Contents

Contents	2,3
Tables	4

I.	EMERGENCY PLAN	
A.	The Research Disaster Plan	6
B.	Emergency Preparedness and Incident Response Plan	6
	1. Contact information	
	Table 1- Emergency Phone Numbers	6
	Table 2- Emergency Contact Numbers for ARF Disasters/Utility Failure	7
	Table 3- Members of the Subcommittee on Research Safety	8
	2. Fire/Explosion	9
	3. Tornado Procedure	9
	4. Personal Injury or Serious Illness	10
	a) Severe Injury or Illness	10
	b) Chemical Burns	10
	c) Thermal Burns	11
	d) Acute Inhalation	11
	e) Animal Bites	11
	5. Biological Spills	11
	6. Chemical Spills	12
	7. Radioactivity Spills	13
	8. Police	13
	9. Animal Evacuation	13
	10. Utility Failure Plan	14
	a) Utility Failure in the Animal Research Facility	14
	b) Electrical Failure	14
	c) Steam Failure	15
	d) Communication Equipment Failure	15
	e) Water Failure	15
	f) Heating/Ventilation/Air Conditioning (HVAC) Failure	15
	g) VA Police support	15
II.	RESEARCH SAFETY PROGRAM	16
A.	Subcommittee on Research Safety	16
B.	Principal Investigator	17
III.	GENERAL LAB SAFETY	
A.	Working in the Laboratory	18
	1. Non-emergency Injuries	
	2. Housekeeping & Apparel	
B.	Security Plan	19
C.	Centrifuges	20
D.	Refrigerators	20

E.	Glassware & Needles	21
1.	Glassware	
2.	Needles	21
F.	Mouth Pipetting	21
G.	Emergency Showers	21
H.	Ultraviolet Light	22
I.	Biological safety cabinets, fume hoods, and laminar flow hoods	22
IV.	CHEMICALS	22
V.	GAS CYLINDERS	22
A.	Handling	22
B.	Identification & Protection	22
C.	Liquid Nitrogen	23
VI.	BIOSAFETY PLAN (Biosafety Manual)	
A.	Universal Precautions	25
B.	Using Toxic/Hazardous Substances/infectious agents/recombinant DNA	27
C.	Shipping Biological Materials	28
VII.	LABORATORY TRAINING	30
VIII.	TRAINING FOR USE OF ANIMALS IN RESEARCH	33
IX.	TRAINING FOR NON-RESEARCH PERSONNEL	35

Tables

Table 1	Emergency Phone Numbers	5
Table 2	Emergency Contact Numbers for Utility Failure in the ARF	6
Table 3	Subcommittee on Research Safety	7
Table 4	SUMMARY OF RECOMMENDED BIOSAFETY LEVELS	24
Table 5	SUMMARY OF RECOMMENDED BIOSAFETY LEVELS FOR ACTIVITIES IN WHICH EXPERIMENTALLY OR NATURALLY INFECTED VERTEBRATE ANIMALS ARE USED	25

Table 2- Emergency Contact Numbers for ARF Disasters/Utility Failure

Name	Title	email	Phone	Alternate phone
Robin Faust	ARF Supervisor	Robin.Faust@va.gov	256-1901 ext. 17875	After hours, contact VA operator at 256-1901
Dr. Robert Taylor	ARF Veterinary Consultant	Rtaylor at matcmadison.edu	246-6078	After hours, contact VA operator at 256-1901
Marvin Rupp	Administrative Officer for Research	Marvin.rupp@va.gov	280-7222	contact VA operator @ 256-1901
Beverly Birdsall	Coordinator for R&D	BEVERLY.BIRDSALL at va.gov	(608) 256- 1901 ext 17007	contact VA operator @ 256-1901

Table 3: Research & Development Service Subcommittee on Research Safety

Name	Membership Role	Title	email	Phone	Alternate phone
David Andes, MD	Chair/Scientist UW-M IBC Liaison	Associate Professor	dra at medicine.wisc.edu	263-1545	
Robin Faust	ARF Supervisor	ARF Supervisor	Robin.Faust at va.gov	256-1901 Ext. 17875	Contact VA operator @ 256-1901
Jamie Swanlund	Scientific	Research Biologist	Jamie.Swanlund at va.gov	Ext. 11405	Contact VA operator 256-1901
Tami L Tishler	Chemical Hygiene Officer	GEMS	Tami.Tishler at va.gov	256-1901 Ext 17427	256-1901 Ext 17386
Diane Meranda	EOC Liaison	Radiation Safety Officer	Diane.Meranda at va.gov	280-7014	VA operator @ 256-1901
Randy Wolff, PhD	Research Safety Officer IACUC Liaison	Committee Coordinator	vhamadsrscoordinator@va.gov	256-1901 Ext 17802	Ext 17007 or contact VA operator
Rob Striker, MD	IRB Liaison R&D Liaison	Assistant Professor	Rtstriker at wisc.edu	263- 2994	263-1545
Todd Endres	Alternate For T.T. and D.M.	Facility Safety Officer	Todd.endres2 at va.gov	256-1901	608-308-3461
John Hudson	non-voting	Compliance Officer	John.Hudson3 at va.gov	256-1901 contact VA operator	
Marvin Rupp	Non-voting	AO - Research	Marvin.rupp at va.gov	280-7222	VA operator @ 256-1901

2. Fire/Explosion

(See also Hospital memo 001S-2 SAFETY AND FIRE PROTECTION PLAN)

FIRE PLAN

R-A-C-E

1. **Rescue:** Remove patients/visitors from room/area of the fire as quickly as possible. Close door behind you.
2. **Alarm:**
 - a. Initiate alarm by activating nearest pull station.
 - b. Call switchboard at extension 911 and give your name and the fire location.
 - c. When alarm sounds, the Madison Fire Department responds automatically.
3. **Confine:**
 - a. After evacuating the patient/visitor, close room doors.
 - b. Close all corridor doors in patient areas. Corridor doors provide 20 minutes of fire/smoke resistance when latched.
 - c. Smoke and fire barrier doors close automatically when the fire alarm system is activated. Check to make sure they have closed: if not, close them. DO NOT store items in front of these doors that would prevent them from closing.
4. **Evacuate/Extinguish:**
 - a. The first route of evacuation is horizontal, past the smoke or fire doors to a smoke free area.
 - b. In a fully engaged fire, vertical evacuation, including the building. May be required if ordered by the Director, Safety Manager, or Madison Fire Department.
 - c. Use fire extinguishers only on small fires AFTER steps 1-3 have been completed.
 - d. To use extinguishers: Break seal and pull the pin and aim at the base of the fire from 6-10 feet. Squeeze lever until fire is out.

3. Tornado Procedure

During severe weather, tornadoes can occur quickly. Listen for the following overhead announcements or radio announcements:

1. Tornado Watch – Conditions are favorable for a tornado.
 - Return to your work area.
 - Review your tornado procedures.
 - Prepare to move patients to safety.
2. Tornado Warning – Funnel cloud sighted locally.
 - Take immediate action to protect patients, visitors, and staff.

*** DURING A TORNADO WARNING ***

1. The Call Center initiates the plan after warning from the weather radio or sirens. The overhead announcement and Lynx Pop-Up message is:

“Tornado Warning – Take Action Immediately”
2. Move ambulatory patients into the corridor and close the doors. All patients should be on the same side of the hallway to maintain access.
3. Protect non-ambulatory patients in their rooms by closing blinds and privacy curtains, and covering the patients with blankets.
4. Staff and visitors should take cover in corridors or away from windows.

5. Areas without windows are not affected.
6. Wait for the Call Center to announce “*All Clear.*”

NOTE: Elevators may be used...

4. Personal Injury or Serious Illness

(See also Hospital memo 001S-2 SAFETY AND FIRE PROTECTION PLAN)

PATIENT(S): Patient injuries should be treated by the Emergency Dept physician. Assist patient in getting treatment. Within two days, track incident by completing Form 10-2633 and contact the Patient Safety Officer at 17742.

VISITOR(S): Go to Emergency Dept for immediate evaluation and treatment if necessary. VA employee should assist visitor to Emergency Dept, and report the incident to the Safety Manager at 17386.

a. Severe Injury or Illness

Injuries that involve broken bones, excessive bleeding, unconsciousness, extensive burns, or serious illness suggesting heart attack, stroke, shock, et cetera, should be reported by dialing the emergency telephone number 911. Be sure to provide the location of the person in need of assistance to the emergency personnel. If possible, send someone to meet and direct the response team to the location. If serious bleeding occurs, use direct pressure on the wound with a gauze pad, towel, et cetera, until medical assistance arrives. Do NOT apply tourniquets.

b. Chemical Burns

If a chemical burn occurs to the eye or skin, get the person to a Safety Shower or Eye Wash as quickly as possible and flush with large amounts of cool water to rinse away the chemical. If the chemical penetrates the clothing, promptly remove the clothing and flush the skin with water. Call Employee Health Nurse (x17271) or call the Emergency Department (608-280-7066, 24 hr triage line) and/or transport the victim to Emergency Department in the main hospital. It is best to have someone call ahead to alert the Emergency Department that you are coming. Bring along the MSDS or any other available information available about the chemical.

In order to have the MSDS available during an emergency, make sure a short cut to one of the MSDS databases is available on your Desktop. Having paper copies of MSDSs on hand has the benefit of not requiring electricity or internet connection at the time of the accident.

For VA networked computers: <http://vaww.ceosh.med.va.gov/ceosh/MSDS.shtml>

For UW networked computers: <http://hazard.com/msds/index.php>

c. Thermal Burns

Thermal burns such as those caused by hot plates or flames should be immersed in ice-cold water or an ice pack placed over the burned area, but AVOID the use of ointments. Continue to cool the burn and Call Employee Health Nurse (x17271) or call the Emergency Department (608-280-7066, 24 hr triage line) and/or transport the victim to Emergency Department in the main hospital. It is best to have someone call ahead to alert the Emergency Department that you are coming.

d. Acute Inhalation

Inhalation of gas, fumes, dust, et cetera can cause severe illness, unconsciousness, or even death. Some examples are chlorine, hydrogen sulfide, carbon monoxide, hydrogen cyanide, and hydrochloric acid. Gases such as nitrogen and carbon dioxide (from dry ice) are not corrosive or toxic but are injurious due to the lack of oxygen. First aid in all such circumstances requires the quick removal of the victim from the affected area. If the victim is breathing, Call Employee Health Nurse (x17271) or call the Emergency Department (608-280-7066, 24 hr triage line) and/or transport the victim to Emergency Department in the main hospital. It is best to have someone call ahead to alert the Emergency Department that you are coming. If the victim has stopped breathing, call 911 (Code Blue) and begin CPR until help arrives.

e. Animal Bites

The possibility of animal bites is a legitimate concern for those labs working with rats and rabbits. In the event of a bite, flush the wound with soap and water and report to Employee Health, call Employee Health Nurse (x17271) or call the Emergency Department (608-280-7066, 24 hr triage line) for treatment and consultation. The event must be reported to the person's employer. Rodent bites do **not** pose a rabies threat, but this type of wound can be severe, with the potential for infection and sepsis. Bitten employees should report to Employee Health for treatment of the wound and a prophylactic tetanus shot if it has been more than 5 years since their last DPT immunization.

5. Sample Protocols for Containing Biohazardous Spills

<http://fpm-www3.fpm.wisc.edu/biosafety/EmergencyResponse/SpillProtocols/tabid/66/Default.aspx>

The following sample protocols are provided to facilitate emergency planning and should be modified to cover the potentially biohazardous materials used in each laboratory. These instructions should be displayed in the laboratory and periodically reviewed with personnel. [Download PDF copy](#)

BIOHAZARDOUS SPILLS - OUTSIDE Containment (Biological Safety Cabinet)

- Alert co-workers and leave lab area immediately.
- Close door, post lab with "**Do Not Enter**" sign.
- Remove and put contaminated garments into a container for autoclaving.
- Wash hands/face with soap/antimicrobial agent.
- Notify PI/supervisor.
- Wait at least 30 minutes before re-entry (to allow aerosols to dissipate).
- Wear PPE upon re-entry (disposable gown, mask/eye protection, double gloves, etc.).
- Cover spill with disinfectant soaked paper towels.

- Carefully pour an appropriate disinfectant solution (1:10 dilution of household bleach) around spill, taking care not to create aerosols while pouring.
Let stand for at least 20 minutes.
- Transfer all contaminated materials into an autoclave bag.
- Wash and mop entire area with appropriate disinfectant.
- Remove & discard PPE. Autoclave.
- Shower or wash hands with soap/antimicrobial agent.
- Report incident to the BSO (Biological Safety Officer), Occupational Health and the PI (if not already contacted).

BIOHAZARDOUS SPILLS - INSIDE Containment (Biological Safety Cabinet)

- Immediately stop all work, but leave BSC blower fan on during clean-up.
- Wear PPE (gloves, lab coat, eye protection).
- Cover spill with disinfectant soaked paper towels and pour an appropriate disinfectant solution around spill.
- Using paper towels and appropriate disinfectant detergent, wipe down walls, work surfaces and equipment.
- Flood work surface and drain pan (Type II BSC) with disinfectant. Let stand for at least 20 minutes.
- Wipe up all excess disinfectant.
- Autoclave all contaminated materials.
- Report incident to the PI (if not already contacted).

6. Chemical Spills

- Report non-hazardous spills and accidental exposures to Environmental Support Service at 13422 and the Industrial Hygienist at 17749.
- Report large hazardous spills to the Madison Fire Department HAZMAT Team at 9-911. (>5 gallons)

POLICY: The hospital will safely manage chemical use from point of purchase to final disposal.

RIGHT TO KNOW: Every employee has the right to know the health hazards associated with any chemicals he/she works with.

SUPERVISORS:

1. Make Material Safety Data Sheets (MSDS) for each chemical in your area available to your employees upon request. Contact [IT](#) if a MSDS online icon is not located on your Desktop.
2. Label all containers containing hazardous chemicals.
3. Train employees in the safe handling of chemicals.
4. Provide appropriate personal protective equipment.

EMPLOYEES:

1. Consult MSDS to determine hazards of chemicals in use.
2. Follow all safety instructions and use of protective equipment.
3. Follow service spill plan for cleanup of minor chemical spill.
4. Report all spills as noted above, in absence of supervisor.

DISPOSAL: Questions regarding disposal of hazardous materials and waste should be directed to the GEMS Coordinator at 608-256-1901 ext 17427.

7. Radioactivity Spills

- From Hospital Memorandum No. 001S-09-13 “In case of a spill or other accident, alert nearby personnel to call the RSO. Confine spill, block off and mark area, decontaminate, and monitor before moving temporary sign or barricade. The location of the nearest Radiation Material Spill Kit should be listed on the emergency information sheet posted on the door of every laboratory authorized to use radiation.”
- Report radioactivity spills and accidental exposures to the Radiation Safety Officer at x17014, (or the Safety Manager at x17386) and Environmental Support Service at x17045

8. Police

Hospital police officers should be notified in an emergency situation because they have radios, keys, and quick access to emergency aid. For all Emergencies dial 911. For non-emergencies dial ext.17270 .

8. Animal Evacuation

In the case of an immediate life-threatening disaster, call in an alarm (911), evacuate people, wait outside for the Fire Department (in case of fire) or seek shelter as appropriate. Do not evacuate animals.

If there is not an immediate threat to human life, but the situation poses a potential threat (e.g., approaching toxic fumes, fire in the main hospital, possibility of smoke/other damage spreading to the Animal Research Facility (ARF), or in the event of utility failure) seek authorization from the individual in charge- ARF Supervisor, Research AO, Fire Chief, Coordinator/R&D, - to evacuate the animals as follows:

- a. to appropriate housing in labs, and if necessary outbuildings (downstairs Building 2, Laundry), with notification to ARF Supervisor at this time, and/or
- b. to other Animal Care facilities- call ARF Supervisor extension 17875 (or if the ARF Supervisor is not available the Research Office (extension 17007) make the necessary arrangements at this time (after hours, See Table 2 above for contact information).

If the situation poses no threat to human life, remain with relocated animals; otherwise, be advised by the ARF Supervisor. Following the disaster, as specified by the ARF Supervisor or his/her designated representative, return animals to the ARF, have the animals remain at the location to which they were moved, or move them to a new location; and continue care.

9. Utility Failure Plan

If a utility failure occurs during normal administrative working hours (Mon-Friday, 8:00 AM - 4:30 PM), notify the Research Office (17007). Research Office personnel will notify Engineering Service if necessary. Utility failure at any other time should be reported to the Engineering Service (17042 or 11811). Please contact Principal Investigator on Lab Emergency Information Data sheet as identified outside lab door.

If the utility failure creates a hazardous situation, immediate action to secure the area will be taken by the individuals in the area prior to contacting the Research Office. Upon notifying the Research Office, the individual will report the nature and extent of the hazardous situation. The Research Office will relay this information to the Research Safety Officer (see Table 3) and Engineering Service.

a. Utility Failure in the Animal Research Facility

In the event of a utility failure in the Animal Research Facility (ARF), the ARF Supervisor, the Administrative Officer for Research, and the Coordinator for R&D should be immediately notified (see Table 2). These individuals will determine if emergency procedures need to be implemented to assure the safety and well being of animals. Such emergency actions may consist of arranging for water delivery, temporary heating and lighting, or relocation of animals if a prolonged loss of heating/ventilation/air-conditioning (HVAC) should occur. Emergency contact numbers in the event of a utility failure in the ARF (in addition to contacting Engineering Service) are listed at the beginning of this document in Table 2. When the lost utility returns to normal functioning, personnel will check all affected equipment to assure proper operation. Problems will be reported immediately to the ARF Supervisor (17875), who will notify Engineering Service if necessary.

Other specific areas of utility failure requiring special attention are as follows:

b. Electrical Failure

Fume hoods/biohazard hoods will not be used during an electrical outage. If there are hazardous materials in use at the time of the electrical failure, action will be taken to contain the hazardous substances or organisms to prevent potential exposure to any personnel in the area. Biohazardous materials can be secured simply by closing/sealing any bottle or vessel containing them. Close the sash on all chemical and biological hoods. In the case of volatile chemical fumes, it may be necessary to evacuate the room. Do not leave doors to exterior corridors open as this will spread the fumes to the rest of the building. Secure the area and call the Research Safety Officer or the Research Office for assistance.

Freezers will hold temperature for several hours if not opened. If it is determined that the outage will be prolonged, the contents may have to be relocated, or dry ice may have to be obtained to preserve critical perishable items in the freezers. Wherever possible freezers and refrigerators should be plugged into the red outlets. These outlets are operated off emergency power in the event of a utility failure. Contact Engineering at 17042 for necessary extension cords.

Incubators will hold temperatures for only short periods of time. Items may have to be relocated to other areas where emergency power is available if the utility failure will be prolonged. Whenever possible incubators should be plugged into the red outlets. These outlets are operated off emergency power in the event of a utility failure.

Note that a power failure may be associated with another emergency, such as a fire, where safe egress is essential and corridors may be unlighted.

c. Steam Failure

Generally, the loss of steam will not create problems for Research Service personnel except that autoclaves will be unavailable. If there is a possibility of water pipes freezing and breaking when outside temperatures are at or below freezing, Engineering Service or the Boiler Plant will be called to provide temporary heat.

d. Communication Equipment Failure

The loss of telephone service would not adversely affect research operations in the short term (less than 24-48 hours).

e. Water Failure

A water failure is hazardous when a water-cooled condenser is being used to condense a flammable vapor as in a distillation or reflux operation. If the water supply fails, the heater on this device must be immediately turned off. Recognize that in a water failure, the eyewash fountains are not functional.

f. Heating/Ventilation/Air Conditioning (HVAC) Failure

The loss of HVAC is critical if it occurs within the ARF (Building 12). Refer to part 'a' above. All other areas of Research Service will not suffer during short-term losses of HVAC, but prolonged high or low air temperature may adversely affect experiments and equipment. If a utility failure occurs during normal administrative working hours (Mon-Fri, 8:00 AM- 4:30 PM), notify the Research Office (17007). Research Office personnel will notify Engineering Service if necessary. Utility failure at any other time should be reported to the Engineering Service (direct dial 17042 or 11811) and Research and Development Principal Investigators or other contacts who are listed on the emergency contact sheets posted by each lab.

g. VA Police support

Police may be called to provide keys, walkie-talkie radios, and knowledge about obtaining help in emergencies: officers can be contacted by phone (17270) or for emergencies only at (911).

II. RESEARCH SAFETY PROGRAM

A. Subcommittee on Research Safety

The VA HOSPITAL and the Research Service have an obligation to provide a safe and healthy work environment. The Subcommittee on Research Safety functions within the Research Service to provide oversight of the research safety program. The committee meeting time can be obtained from the Subcommittee on Research Safety Coordinator (See Table 3). The purposes of the committee are outlined below. When the committee sends out new safety information memos, each lab should file the memos in their copy of this safety manual for ready reference. The names of the current members of the committee are listed in the Table 3 at the beginning of this document - contact the appropriate representative if you have any questions about safety issues, in the laboratory or elsewhere.

The committee's responsibilities are as follows:

- To review all research projects with respect to safety issues through examination of the investigator's Research Protocol Safety Survey and report findings to the Research and Development Committee.

The William S. Middleton Memorial Veterans Hospital Subcommittee on Research Safety has a Memorandum of Understanding with the UW Madison to use their Office of Biological Safety for approval of studies using recombinant DNA.

- With the assistance of the Environment of Care Committee, Research Safety Officer, Radiation Safety Officer, and/or Industrial Hygienist to inspect every research laboratory for compliance with safety standards and practices. Reports and recommendations will be made to the Administrative Officer for Research.
- To provide education, motivation, and training for safety. Specific examples include this safety manual, memos, meetings, inspections, books, audio-visual programs, and individual consultations.
- To distribute information about specific hazards as it is received from VA Central Office, e.g., manufacturers, journals, and organizations.
- To insure that information in MSDS files for hazardous chemicals in use is accurate and available to lab personnel and that all lab personnel have been trained in the use of MSDS files for their research.
- To insure the means for proper disposal of hazardous wastes (radioactive, chemical, biological) are provided.
- To insure that laboratory accidents are reported to the Administrative Officer for Research (see Table 3) or the Research Safety Officer (see Table 3) are investigated.
- To maintain a supply of materials for spill cleanup.

- Expenditures for safety will be recommended by the committee to the Research Office for approval. The committee will provide for these safety goals within the limits of time, space, equipment, and money.
- The committee serves as a liaison between employees of the Research Service and the following: the Hospital Director, the Facility Safety Officer, Research Safety Officer, the Radiation Safety Officer, and the Environment of Care Committee.
- A member of the committee serves on the Radiation Safety Committee. The Radiation Safety Officer has primary responsibility for radiation protection and the committee will cooperate with the Radiation Protection program.
- The committee will meet at least quarterly and provide minutes to the Research and Development Committee and make them accessible to employees if requested.

B. Principal Investigator

Principal Investigator responsibilities are as follows:

- Maintain the Emergency Information Sheets posted outside each lab entrance.
- Post Laboratory Rules at each lab entrance
- Maintain a chemical inventory and provide the corresponding Material Safety Data Sheets
- Properly dispose of hazardous wastes

III. GENERAL LAB SAFETY

A. Working in the Laboratory

1. Non-emergency Injuries

Know the location of your nearest first aid kit or service.

EMPLOYEE(S)

1. Report any injury to your supervisor.
2. Call Employee Health Nurse (x17271)
3. Light duty reassignment may be proposed to aid in keeping you at work, or to hasten your return to work.
4. Complete electronic form CA-1/CA-2, as appropriate within 5 working days.

SUPERVISOR(S)

1. Investigate accident to determine cause.
2. Take corrective action to eliminate the hazard(s).
3. Complete electronic form 2162 using ASISTS-GUI program within two working days.
4. Assess employee training if appropriate.
5. Complete electronic form CA-1/CA-2 as appropriate, and submit to Human Resources within 5 working days.

2. Housekeeping & Apparel

Work areas should be kept clean and free from obstruction. Hallways shall not be used as storage areas. Access to exits, emergency equipment (e.g., shower, eyewash, fire extinguishers) shall never be blocked. Do not store items within 18 inches of a sprinkler. All compressed gas cylinders must be anchored. Clutter should be minimized.

Laboratory areas must be kept safe for Non-research Personnel (contractors, engineering, housekeeping and maintenance). Cleanup should follow the completion of any operation or at the end of each day. Waste materials shall be deposited in the appropriate receptacles. Equipment and chemicals will be stored properly, and unlabeled containers will not be permitted. Spilled chemicals will be cleaned up immediately and disposed of properly. Spill kits are located in the halls of each research wing.

Food must not be stored in laboratory refrigerators or other areas of potential biological or chemical hazard. Food containers shall not be used as storage vessels for laboratory

materials. Eating, drinking, applying makeup, brushing teeth or inserting contact lenses in the labs is prohibited. Such activities are confined to outside laboratory rooms to avoid contamination. There shall be no smoking anywhere in the building.

Appropriate eye protection (safety glasses, goggles, or face shields) should be used at all times during laboratory work that presents a potential for splashing of hazardous materials.

Standard laboratory coats or gowns shall be worn when working in laboratory areas; loose, skimpy, or torn clothes shall not be worn in the labs (avoid for example, saris, dangling neckties, shorts, halter tops). Shoes shall cover the entire foot; sandals and open-toed shoes do not afford proper foot protection and are not allowed. Hair should not be worn in a style that might impair vision, or come in contact with work surfaces, or moving equipment. To avoid contaminating others, do not wear contaminated gloves or lab coats in the conference rooms or restrooms.

Avoid answering the phone with gloves on.

No Latex gloves are allowed in the Hospital.

Minimize the use of extension cords.

Inform the Research Safety Officer of any hazards in your work area.

B. Security Plan

Report suspicious persons or activities to VA Police (x17270 or 911). Some examples of things you would want to report would include: burned-out lighting; strangers photographing your facility; and broken windows or locks.

In addition to each laboratory having a locking door, access to research wings is controlled by security doors with access by key card. Do not block open these security doors. Report any malfunctioning security doors to Engineering (17042 or 11811). Keep security doors closed and locked at all times. Do not share ID cards or security codes with others, regardless of the circumstances or the apparent trustworthiness of non-employees.

Anyone that you do not know or has no known business purpose should not be allowed access to the non-public areas of the workplace. If there is someone who would like access to a research wing but does not have a key card that allows them access, refer them to the research office (C-3127, ext 17007). Rules for visitors should be followed at all times. These rules not only protect you; they also protect visitors from workplace hazards.

If you see someone on-site you do not recognize who does not have proper identification or an escort, politely ask him or her if you can be of assistance. Ascertain the identity of the persons if they are not displaying badges visibly. Do not be afraid to ask visitors to provide identification—it is required.

If needed, either escort that person back to the employee responsible for their visit, request they display their identification, or ask them to leave the premises and escort them off-site.

If necessary, seek assistance from security (x17270 or 911) or a coworker. If the person appears threatening, do not approach them—contact security instead.

All doors to labs and offices must be locked after working hours or when not occupied by authorized employees. Remember to take appropriate precautions when working late. For example,

be sure to let someone know where you are, lock the door to the work area if you're alone, and work near a phone. Always be careful to assess possible hazards of working alone in certain laboratory situations. Such situations include work with highly toxic substances, high-pressure or high-vacuum systems, cryogenics, high-energy electrical systems, flammable liquids, or work in confined areas with difficult egress. Inform a colleague, friend, VA Police, or relative when working alone in the Laboratory, especially during off hours or Holidays.

See also section VI *Principles of Laboratory Biosecurity* of **Biosafety in Microbiological and Biomedical Laboratories**

http://www.cdc.gov/od/ohs/biosfty/bmbl5/BMBL_5th_Edition.pdf

and

Appendix E *LABORATORY SECURITY AND EMERGENCY RESPONSE FOR MICROBIOLOGICAL AND BIOMEDICAL LABORATORIES*
of VHA HANDBOOK 1200.08

C. Centrifuges

If a tabletop model is used, make certain it is securely anchored. Locate the centrifuge where vibration will not cause bottles or equipment to fall off shelves.

Always close the lid when operating the centrifuge. If excessive noise or vibration occurs, the instrument must be turned off immediately because the rotor is not balanced, the shaft is bent, or the bearings are worn, presenting considerable hazard when high speeds are reached. Swinging buckets must be symmetrically arranged and correctly supported. Maximum rotor speed must not be exceeded.

Always take proper precautions when centrifuging radioactive or infectious materials to avoid contaminating the room with aerosolized particles. A flammable material must not be centrifuged without positive exhaust ventilation.

D. Refrigerators

Do not store flammables in a non-explosion-proof refrigerator. Refrigerators generally are not suitable for flammable liquids (unless they specifically are designed and labeled as explosion-proof). Volatile liquids can condense on the refrigerator coils.

Do not store sodium azide solutions in a refrigerator. Sodium azide solution, even with sodium hydroxide present, has an appreciable vapor pressure of hydrazoic acid over its surface. Such solutions must not be stored in refrigerators with exposed copper parts, since in the presence of azide and moisture, copper is capable of forming copper azides, which are sensitive explosives.

Do not store concentrated acids in a refrigerator. Certain acids (hydrochloric, acetic acid), even when stored in a "closed" container, give off corrosive fumes that can damage refrigerator coils, switches, and other electrical devices in the vicinity.

E. Glassware & Needles

1. Glassware (Extracted from pp.25-26 of Prudent Practices for Handling Hazardous Chemicals in Laboratories, by the Committee on Hazardous Substances in the Laboratory, National Research Council; National Academy Press, Washington D.C., 1981.)

Careful handling and storage procedures should be followed to avoid injury from broken glass. Damaged items should be discarded in designated “broken glass” containers. Adequate hand and eye protection will be used when working with glass. Hand protection is especially important with inserting glass tubing into rubber stoppers or corks or when placing rubber tubing on glass hose connections. The use of plastic or metal connectors should

be considered. A vacuum-jacketed glass apparatus should be handled with extreme care to prevent implosions. Equipment such as Dewar flasks must be taped or shielded. Only glassware designed for vacuum work will be used for that purpose, and proper instruction should be provided in the use of glass equipment designed for specialized tasks that can represent unusual risks for the first-time user. For example, separator funnels containing volatile solvents can develop considerable pressure during use. Hand protection will be used when picking up broken glass. Broken glass is to be placed in designated sharps (red hard plastic) containers for disposal.

2. Needles

All needles/contaminated syringes should be placed in the red or white “Sharps” containers that should be found in every lab. Do **not** use any alternate type of container for this purpose. Contact housekeeping (ext. 13422) for replacement or additional sharps containers, which come in a variety of sizes. Full containers should be sealed. Do not remove needles from syringes when disposing.

When in use, the Sharps container should be placed in a safe location adjacent to the workspace and the protective cover should **never** be removed. Routine inspections will determine whether or not these rules are being followed.

ALL RADIOACTIVE SHARPS MUST BE DISPOSED OF IN APPROPRIATELY MARKED RADIOACTIVE WASTE SHARPS CONTAINERS.

F. Mouth Pipetting

Do not mouth pipette. There are many commercial devices which enable individuals to avoid this procedure. Various oversight bodies specifically prohibit mouth pipetting of any material.

G. Emergency Showers

Emergency safety showers are provided in the hallways for emergencies in which water is needed for flushing away chemicals, or extinguishing burning clothing. Laboratory personnel shall NOT obstruct the space below the shower, e.g., with furniture, cabinets, refrigerators. The Research Safety Officer tests these emergency showers on a regular basis. Please cooperate with the testing of the showers. Notify Engineering (17042 or 11811) if there is a shower

Draft September, 2010

problem.

H. Ultraviolet Light

UV radiation is used in chemical synthesis and analysis, medical diagnosis and treatment, sterilization, electrostatic processes, as well as in fluorescent lamps, instrument panel lights, tissue culture rooms, and biosafety cabinets. Continued exposure to UV radiation accelerates aging and may cause skin cancer, cataracts, conjunctivitis, and other conditions. Protective clothing, gloves and face shields or glasses (rated for UV wavelengths) should be worn when there is danger of exposure to UV radiation.

I. Biological safety cabinets, fume hoods, and laminar flow hoods

Hoods are to be certified annually (semi annually for airborne pathogens).

Hoods are not to be used for general storage. Do not obstruct vents/ductwork.

Biological Safety Level 2 (BSL-2) work that may generate aerosols done outside a Biological Safety Cabinet (BSC) requires using a N-95 mask (respirator). If you are required to wear a N-95 mask/respirator, contact employee health for medical evaluation/fit testing (17271).

IV. CHEMICALS

Guidelines for safe use of chemicals can be found in the Chemical Hygiene Plan,.
Laboratory chemical inventories must be updated annually and submitted to the Research Safety Officer and Green Environmental Management Systems (GEMS) Manager.
[REF: EPA, OSHA, Joint Commission, AWE, GEMS]

V. Gas Cylinders

A. Handling

1. Identification & Protection

Cylinder contents must be properly identified by label - do not rely on color codes for identification, and do not destroy identification tags or labels. Cylinders must be protected. Do not accept any cylinder without a protective valve cap. Ascertain that the cap is screwed on

securely before attempting to move any cylinder. Use a proper cylinder cart to safely transport a cylinder over any distance. Leave the cap in place until ready for use, and remember to replace the cap securely when the cylinder contents have been depleted. Segregate empty cylinders from full cylinders and mark them appropriately- ***never run a cylinder completely empty; this may lead to "suck-back" contamination that can result in an explosive mixture!***

Make sure that all cylinders are stabilized: chain or secure them in some way (e.g., commercially available cylinder supports, a cylinder rack) to keep them from falling accidentally. Provide a definitely assigned storage location, preferably in a fire-resistant, dry and well-ventilated area away from sources of ignition or heat. Never drop cylinders or permit them to strike each other violently. No part of a cylinder should be subjected to a temperature higher than 125°F. Gas cylinders should be ordered on an as needed basis because storage space is very limited.

B. Liquid Nitrogen

HOSPITAL MEMORANDUM

No. 001S-08-20

July 24, 2008

Res 07/24/11

- I. PURPOSE: To provide a resource and procedure to use and store liquid nitrogen in a safe manner.
- II. BACKGROUND: The temperature of liquid nitrogen is: -196°C (-321°F). Direct skin or eye contact with liquid nitrogen can immediately result in severe damage similar to burns. Users of liquid nitrogen should be familiar with the characteristics of compressed gases and be knowledgeable about available protective equipment and appropriate safety parameters for handling and utilizing this product.
- III. POLICY: Laboratory management personnel will assure that appropriate protective equipment is available for all employees utilizing liquid nitrogen. Personnel should always adhere to the safety parameters when working with liquid nitrogen.
- IV. RESPONSIBILITIES:
 - A. Supervisors will:
 1. Ensure that prior to use, employees receives proper instruction for safely handling liquid nitrogen.
 2. Ensure that safe laboratory procedures are followed.
 - B. Employees will:
 1. Adhere to safe laboratory practices.
 2. Locate Material Safety Data Sheets (MSDS) and use these documents as a training guide.
 - C. Safety Advisor will:

1. Assist supervisors and employees.
2. Provide training as necessary.
3. Ensure MSDS are readily accessible for reference.

V. PERSONAL PROTECTIVE EQUIPMENT (PPE):

- A. Safety glasses with wrap-around sides or goggles.
- B. Face shield.
- C. Non-absorbent gloves approved for cryogenic use (leather may be acceptable) should be used when transferring large quantities.
- D. Infection control gloves (nitrile) may be adequate when performing bench top experimental procedures using small volumes (<100 ml) of liquid nitrogen.
- E. Full length lab coat with long sleeves.
- F. Shoes must be fully protective: no sandals, no open toes, no openings over dorsum of foot. Canvas footwear is not recommended.

VI. SAFE HANDLING PROCEDURES:

- A. Secure liquid nitrogen cylinders to prevent tipping at all times. Some larger tanks are self-supporting. Approved hand trucks are acceptable.
- B. Leave valve safety covers in place until ready to attach pressure regulators.
- C. Containers of liquid nitrogen must be clearly identified for contents.
- D. Relocate cylinders on chain-equipped hand trucks or carts. Do not roll or drag cylinders.
- E. Employees should not attempt to free stuck or frozen cylinder valves, should not attempt to repair cylinders or cylinder valves, and should not force incorrect attachments onto a cylinder.
- F. Use only approved containers for storing liquid nitrogen. Fill slowly to prevent thermal shock and consequent shattering. Glass-lined household thermos bottles are not appropriate and may implode violently upon contact with liquid nitrogen. Do not put liquid nitrogen into glass, which is prone to shatter.
- G. Do not handle without PPE any container or object that has been in contact with liquid nitrogen until sufficient time has passed to allow those items to return to room temperature.

- H. Liquid nitrogen looks like drinking water, but do not underestimate the potential hazards.
- VII. VENTILATION: Liquid nitrogen should be stored and/or used in well ventilated locations to prevent excessive buildup of nitrogen gas which may cause asphyxiation by displacement of atmospheric oxygen. Most walk-in coolers are unvented and as such are not appropriate storage or work areas for large volumes of liquid nitrogen. When spilled, liquid nitrogen volatilizes rapidly forming an oxygen-deficient cloud.
- VIII. CRYOTUBE EXPLOSIONS: Always wear PPE when thawing cryotubes, particularly older tubes. Some tubes have reportedly taken in liquid nitrogen during long-term storage which expands rapidly during thawing, causing an explosion. Placing tubes behind a protective barrier is recommended while thawing.
- IX. DISPOSAL: Dispose of used liquid nitrogen cautiously since it may be oxygen-enriched. Small quantities can be allowed to volatilize slowly in a well-vented room away from flames. The container must be appropriately identified.
- X. RELATED WEB SITES:
<http://www.google.com/search?hl=en&lr=&safe=active&q=liquid+nitrogen+safety&btn>
<http://www.jach.hawaii.edu/safety/chap5.htm>
<http://www.jach.hawaii.edu/safety/chap5.htm>

VI. Biosafety Plan (Biosafety Manual)

A. Universal Precautions

Universal Precautions have been mandated by the Veterans Affairs Medical Center, Center for Disease Control, and the Occupational Safety and Health Administration (OSHA) for all health care workers. The concept stresses that *all* patients should be assumed to be potentially infectious for Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV), as well as other pathogens. Some research laboratories at our facility deal with human cell lines, blood, tissue, or other human components. Universal precautions therefore apply. Universal precautions **must** be followed when lab workers work with human blood and other body fluids (amniotic fluid, pericardial fluid, peritoneal fluid, pleural fluid, synovial fluid, cerebrospinal fluid, semen, and vaginal secretions) **or** any body fluid visibly contaminated with blood.

Although HIV and HBV transmission has not been documented from exposure to other body fluids (feces, nasal secretions, sputum, sweat, tears, urine, and vomitus), “universal precautions” should still be used when handling these fluids. This includes:

- Hand washing following the care of any patient or handling of any body fluid is the most effective method of preventing transmission of infectious agents.
- Gloves must be worn for all procedures that entail contact with body tissues and the body fluids listed above. Hand washing following the removal of gloves is extremely important.
- Gowns must be worn to prevent soiling of clothing and skin when contact with body fluids covered under universal precautions is likely.
- Masks must be worn when indicated to prevent possible splashing of body fluids into the

nose or mouth.

- Protective eyewear or face shields must be worn in all situations where the splashing of blood or body fluids to the eyes or mucous membranes is anticipated, such as all operative and invasive procedures.
- Use of safety needles on all syringes.
- All needles and sharps must be disposed of in an appropriate sharps container immediately after use. Do not recap needles.
- Laboratory specimens from every patient must be handled as if capable of transmitting infection. Specimens must be collected in containers that will remain leak-proof in the transport system. The outside of the specimen containers must be clean and the specimens must be placed in sealable plastic bags prior to transport. Requisitions must be attached by tape or paper clip to the outside of the bag.
- If a health-care worker sustains a needle stick or significant mucous membrane exposure to body fluids, he/she must report to Employee Health (17271) as soon as possible. If the exposure source is known, then the patient will be requested (with informed consent) to submit blood for HIV and HBV testing.

See also Hospital Memorandum 001S-10 **BLOODBORNE PATHOGENS EXPOSURE CONTROL PLAN**

Table 4: SUMMARY OF RECOMMENDED BIOSAFETY LEVELS FOR INFECTIOUS AGENTS

BSL	AGENTS	PRACTICES	PRIMARY BARRIERS AND SAFETY EQUIPMENT	FACILITIES (SECONDARY BARRIERS)
1	Not known to consistently cause diseases in healthy adults	Standard Microbiological Practices	None required	Laboratory bench and sink required
2	<ul style="list-style-type: none"> • Agents associated with human disease • Routes of transmission include percutaneous injury, ingestion, mucous membrane exposure 	BSL-1 practice plus: <ul style="list-style-type: none"> • Limited access • Biohazard warning signs • “Sharps” precautions • Biosafety manual defining any needed waste decontamination or medical surveillance policies 	Primary barriers: <ul style="list-style-type: none"> • Class I or II BSCs or other physical containment devices used for all manipulations of agents that cause splashes or aerosols of infectious materials PPEs ¹ : <ul style="list-style-type: none"> • Laboratory coats; gloves; face protection as needed 	BSL-1 plus: <ul style="list-style-type: none"> • Autoclave available
3	<ul style="list-style-type: none"> • Indigenous or exotic agents with potential for aerosol transmission • Disease may have serious or lethal consequences 	BSL-2 practice plus: <ul style="list-style-type: none"> • Controlled access • Decontamination of all waste • Decontamination of laboratory clothing before laundering • Baseline serum 	Primary barriers: <ul style="list-style-type: none"> • Class I or II BSCs or other physical containment devices used for all open manipulation of agents PPEs: <ul style="list-style-type: none"> • Protective laboratory clothing; gloves; respiratory protection as needed 	BSL-2 plus: <ul style="list-style-type: none"> • Physical separation from access corridors • Self-closing, double-door access • Exhaust air not recirculated • Negative airflow into laboratory
4	<ul style="list-style-type: none"> • Dangerous/exotic agents which pose high risk of life-threatening disease • Aerosol-transmitted laboratory infections have occurred; or related agents with unknown risk of transmission 	BSL-3 practices plus: <ul style="list-style-type: none"> • Clothing change before entering • Shower on exit • All material decontaminated on exit from facility 	Primary barriers: <ul style="list-style-type: none"> • All procedures conducted in Class III BSCs or Class I or II BSCs in combination with full-body, air-supplied, positive pressure personnel suit 	BSL-3 plus: <ul style="list-style-type: none"> • Separate building or isolated zone • Dedicated supply and exhaust, vacuum, and decontamination systems • Other requirements outlined in the text

¹ PPE – Personal Protective Equipment
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Table 5 SUMMARY OF RECOMMENDED BIOSAFETY LEVELS FOR ACTIVITIES

ABSL	AGENTS	PRACTICES	PRIMARY BARRIERS AND SAFETY EQUIPMENT	FACILITIES (SECONDARY BARRIERS)
1	Not known to consistently cause diseases in healthy adults	Standard animal care and management practices, including appropriate medical surveillance programs	As required for normal care of each species	Standard animal facility: <ul style="list-style-type: none"> No recirculation of exhaust air Directional air flow recommended Hand washing sink is available
2	<ul style="list-style-type: none"> Associated with human disease Hazard: percutaneous exposure, ingestion, mucous membrane exposure. 	ABSL-1 practice plus: <ul style="list-style-type: none"> Limited access Biohazard warning signs “Sharps” precautions Biosafety manual Decontamination of all infectious wastes and of animal cages prior to washing 	ABSL-1 equipment plus primary barriers: <ul style="list-style-type: none"> Containment equipment appropriate for animal species PPEs ¹ : <ul style="list-style-type: none"> Laboratory coats, gloves, face and respiratory protection as needed 	ABSL-1 plus: <ul style="list-style-type: none"> Autoclave available Hand washing sink available Mechanical cage washer recommended
3	<ul style="list-style-type: none"> Indigenous or exotic agents with potential for aerosol transmission Disease may have serious health effects 	ABSL-2 practice plus: <ul style="list-style-type: none"> Controlled access Decontamination of clothing before laundering Cages decontaminated before bedding removed Disinfectant foot bath as needed 	ABSL-2 equipment plus: <ul style="list-style-type: none"> Containment equipment for housing animals and cage dumping activities Class I, II or III BSCs available for manipulative procedures (inoculation, necropsy) that may create infectious aerosols. PPEs: <ul style="list-style-type: none"> Appropriate respiratory Protection 	ABSL-2 facility plus: <ul style="list-style-type: none"> Physical separation from access corridors Self-closing, double-door access Sealed penetrations Sealed windows Autoclave available in facility
4	<ul style="list-style-type: none"> Dangerous/exotic agents that pose high risk of life threatening disease Aerosol transmission, or related agents with unknown risk of transmission 	ABSL-3 practices plus: <ul style="list-style-type: none"> Entrance through change room where personal clothing is removed and laboratory clothing is put on; shower on exiting All wastes are decontaminated before removal from the facility 	ABSL-3 equipment plus: <ul style="list-style-type: none"> Maximum containment equipment (i.e., Class III BSC or partial containment equipment in combination with full body, air-supplied positive-pressure personnel suit) used for all procedures and activities 	ABSL-3 facility plus: <ul style="list-style-type: none"> Separate building or isolated zone Dedicated supply and exhaust, vacuum and decontamination systems Other requirements outlined in the text

IN WHICH EXPERIMENTALLY OR NATURALLY INFECTED VERTEBRATE ANIMALS ARE USED

¹ PPE – Personal Protective Equipment

Table taken from Biosafety in Microbiological and Biomedical Laboratories; 5th Edition, Pub.2007,

***B. USING Toxic/Hazardous Substances/
INFECTIOUS AGENTS/recombinant DNA***

Important Materials:

The following documents which can be found via the internet provide further instruction:

1. Biosafety in Microbiological and Biomedical Laboratories. CDC and NIH. **Complete 5th Edition of BMBL (All Sections)** (or most recent revision).
<http://www.cdc.gov/od/ohs/biosfty/bmb15/bmb15toc.htm>
2. NIH Guidelines for Research Involving Recombinant DNA Molecules,
http://oba.od.nih.gov/rdna/nih_guidelines_oba.html
3. CDC, Title 42 Code of Federal Regulations (CFR) 73, Possession, Use, and Transfer of Select Agents and Toxins.
- 4.
5. UW Office of Biological Safety (UW OBS) homepage:

www2.fpm.wisc.edu/biosafety/index.htm

Currently our facility has no Biosafety Level 3 (BSL3) laboratory and hence this type of research is not permissible. Similarly, no research involving select agents or toxins has been approved. Research using BSL-3 or select agents or toxins would require additional oversight. BSL-2 work requires BSL-2 warning signs be posted. BSL-2 waste shall be placed in orange bags to be autoclaved (in a plastic tray to contain spills) by the person who generated the waste. After autoclaving, the orange bags can be placed inside red bag waste containers for disposal.

VA Biosafety Committee

All PIs planning on using the above agents in their studies MUST submit two protocol forms (UW OBS and VA Supplement forms) to the VA Biosafety Committee and receive approval before any studies can begin.

UW Office of Biological Safety

PIs who plan to use Recombinant DNA in their studies MUST also obtain approval from the UW OBS. PIs should contact UW OBS (608-263-2037) and cc The Subcommittee on Research Safety Coordinator (vhamadrscoordinator@va.gov) when the OBS form is submitted to the UW OBS Office.

Protocol Forms

To facilitate reviews, the VA uses the UW OBS form (plus supplements for questions unique to the VA). The UW OBS form can be downloaded from the UW OBS website. To obtain the VA Supplemental forms, PIs should e-mail the Subcommittee on Research Safety Coordinator (vhamadrscoordinator@va.gov)

R&D Committee

After all other relevant Committees' requirements have been met; final approval is given by the R&D Committee. To learn more, telephone the R&D committee coordinator, Bev Birdsall at 280-7007 or e-mail her at Beverly.Birdsall@med.va.gov.

C. Shipping Biological Materials

All biological materials must be packaged according to a triple packaging system.

The three components of a triple packaging system are:

1. Primary receptacle
2. Leak-proof secondary container
3. Rigid outer container

The **primary receptacle** holds the biological material and must be leak-proof, watertight. It is packed in the secondary container in such a way that, under normal conditions of transport, they will not break, be punctured, or leak their contents into the secondary container. If the primary receptacle is fragile, it must be individually wrapped or separated to prevent contact between multiple primary receptacles.

The **secondary container** is a durable, watertight, leak-proof container that encloses and protects the primary receptacle(s). Several cushioned primary receptacles may be placed in one secondary container. If the primary receptacle contains any liquid, the secondary container must contain enough **absorbent material** to absorb all of the fluid from the primary receptacle(s) in case of breakage.

The **outer container** is a rigid and durable container with one side that is at least 10 cm x 10 cm (or 4 inches by 4 inches) that houses the secondary container. The outer package should be properly marked and labeled. It should be able to withstand outside influences such as physical

damage while in transit. An **itemized list** of package contents must be included between the outer and secondary container.

See <http://www.drs.illinois.edu/bss/programareas/transport/index.aspx> for a flow chart on labeling and training for shipping.

See <https://www.infekta.com/home> for packaging supplies

See <https://fpm-www3.fpm.wisc.edu/EHSTraining/Default.aspx> (Biosafety 205 and 206) for training.

VII. Laboratory Training

1. General safety training and competence in hazardous procedures

At minimum, the employee must complete the following

- a. [Biosafety 101: Building Biosafety into Your Research](https://learnuw.wisc.edu/) (https://learnuw.wisc.edu/)
- b. [Biosafety 104: Building Biosafety into Your Research - Safe Use of Sharps](https://learnuw.wisc.edu/) (https://learnuw.wisc.edu/)
- c. [Biosafety 201: NIH Guidelines](https://learnuw.wisc.edu/) (https://learnuw.wisc.edu/)
- d.
- e. UW Chemical Worker [Training slides](http://www2.fpm.wisc.edu/chemsafety/docs/Chemical%20SafetyJRW%20May%202005.pdf) at <http://www2.fpm.wisc.edu/chemsafety/docs/Chemical%20SafetyJRW%20May%202005.pdf>
- f. Hazard Communication
<https://fpm-www3.fpm.wisc.edu/EHSTraining/Default.aspx>

For each Verification quiz (“a”, “b”, and “c”) from learnuw, go to “submissions”, then open the “attempt” save the corresponding web page (which shows your score) as either HTML or pdf. Email these three web pages and a statement confirming that you have viewed the , Chemical Worker Training , and Hazard Communication Training to vhamadrscoordinator@va.gov

- g. Read the VA/UW biosafety protocol(s) (provided by the PI) that govern the activities of the lab
- h. Review the table of contents of this manual (VA Research Safety Manual). The Research Safety Manual is a guide to the policies and procedures governing safety in research at the VA Hospital
(http://www.madison.va.gov/ResearchService/Madison_VA_Research_Service.asp).

2. Mandatory VA training

- a. *VA Information Security Awareness and Rules of Behavior* (a.k.a VA Information Security Awareness FY09) (LMS/EES)
- b. *Information Security 201 for Research & Development Personnel (LMS/EES)*:
- c. *Privacy (LMS/EES)*
- d. *No Fear (LMS/EES)*
- e. *Prevention of Sexual Harassment (LMS/EES)*

3. In addition to General Laboratory Safety Training, Task Specific Safety Training may be required.

As appropriate, other individual laboratory specific hazards as identified by the Principal Investigator/employee. The form “Scope of Research Work and Authorization for Access to Research Lab Areas in the WM. S. Middleton Memorial Veterans Hospital” must be completed. Personal protective equipment (PPE) and training appropriate to the hazard assessment must be maintained in each laboratory

- (a) *Emergency Management*: The Emergency Management Course describes the responsibilities of healthcare staff in the mitigation of, preparedness for, response to and recovery following a disaster. It also prepares staff in all aspects preparing for and managing a wide range of emergencies.
- (b) *Hazard Communication*: The purpose of this tutorial is to increase the knowledge of students about hazardous chemicals in the workplace; to reduce the number and the severity of accidents, injuries, and illnesses resulting from chemicals in the workplace; and to provide a rationale for the protective measures that are required when exposed to hazardous chemicals
- (c) *Chemical Hygiene Plan*
- (d) *Life (Fire) Safety*:
- (e) Chemical specific training, e.g., formaldehyde [REF: Joint Commission, OSHA)
- (f) Biohazard Specific training
- (g) **Biosecurity Training Presentation** at <http://www.research.va.gov/programs/biosafety/default.cfm#>
- (h) UW on-line presentation of "Working Safely with Chemicals"
- (i) VA BSL-2 training (which references the UW-Madison's Basic Biosafety training on-line pdf document)
- (j) Lab safety (including spill kit use) and Physical Hazards see **Occupational Safety and Health** <https://pegasus.rarc.wisc.edu/training/course/ocsafety> and “Occupational Health and Safety Program” Research Service WSMMVH, Madison, WI
- (k) Green Environmental Management System (GEMS) (including good choices during purchasing) (see power point from industrial hygienist)
- (l) Radiation Safety training

- (m) Animal training
- (n) Bloodborne Pathogens - What Healthcare Workers Need to Know
- (o) Controlled Substances, (VHA Handbook 1108.1),

4. Annual training

- (a) General safety training and competence in hazardous procedures
- (b) Mandatory VA training
- (c) Task Specific Safety Training

As appropriate, other individual laboratory specific hazards as identified by the Principal Investigator/employee. The form "Scope of Research Work and Authorization for Access to Research Lab Areas in the WM. S. Middleton Memorial Veterans Hospital" must be completed. Personal protective equipment (PPE) and training appropriate to the hazard assessment must be maintained in each laboratory

VIII. Training for use of Animals in Research

A. Approvals

Animal Research Committee

All PIs planning on using animals in their studies MUST, by federal law, submit a VA Animal and Biosafety protocols (ACORP and OBS) to the Wm. S. Middleton VA's Animal Research Committee (ARC) and receive approval from that Committee before any animal studies can begin.

Protocol Form

The ACORP can be obtained by e-mailing the ARC Coordinator at arccoordinator@va.gov
The OBS protocol can be obtained from the Subcommittee on Research Safety Coordinator (vhamadrscoordinator@va.gov).

Renewal of Protocols

ACORP Protocols are renewed annually and are sent a protocol renewal form which will include questions that the PI must answer. These questions include

- Whether the protocol is active and if animal subjects are being used and whether or not animal studies have been conducted in accordance with approved protocol.
- Exceptions to “The Guide” (if they exist) and what studies or research have been done to eliminate these exceptions.
- Personnel listed on protocol. Investigator must update list and all personnel are required to complete annual training. If training is not complete, protocol will not be renewed.

Every 3 years, protocols must be resubmitted and a progress report must be included.

Split Studies for PIs with Dual Appointments (VA/UW)

In some cases, PIs split their studies between the VA and the UW, housing animals in one location and receiving funding through the other. In this situation, PIs should refer to ARC Policy #17. ACORP will be dual reviewed by both VA ARC and UW IACUC in the following situations:

- Housing outside the ARF
- Housing at VA ARF, but funding through non-VA based grant or pharmaceutical company (e.g., NIH grant, departmental funds)
- Any UW approved protocol will be reviewed by the VA ARC if any part of the animal protocol involves procedures in any room within the William S. Middleton VA Hospital.

Examples include but are not limited to:

- Dosing animals in a VA lab then returning to the UW
- Bringing animals to VA for euthanasia and tissue collection

R&D Committee

After all other relevant Committees (the above committees are subcommittees of the R&D committees) requirements have been met, final approval is given by the R&D Committee. To learn more, telephone Bev Birdsall at 280-7007 or e-mail her at

Beverly.Birdsall@med.va.gov.

B. Training required by the IACUC for using animals:

There are two or three if you will be performing surgeries, prerequisite to working with animals. Online Certification and Biomethodology classes for the species you are working with, (and Animal Surgery). All three courses are provided by the UW RARC.

If you are not certified, go to the RARC web page (www.rarc.wisc.edu) and click on "Training." In the left column, click on "Online Certification" and choose "New Animal User". Follow the instructions provided and you will be on your way to becoming certified to work with research animals.

C. Read VHA Handbook 1200.8, Safety of Personnel Engaged in Research; Handbook 1200.7 Use of Animals in Research including the appendix of that Handbook 1200.7 entitled "OCCUPATIONAL HEALTH AND SAFETY FOR RESEARCH PERSONNEL WITH ANIMAL CONTACT", and the brochure Occupational Health and Safety for Personnel with Laboratory Animal Contact.

C. The following regulations, guidelines, and documents are cited in Handbook 1200.7. In all cases, the most current version of each document replaces any outdated ones. The full text of these references can be obtained from the internet web site established at:

<http://www.rarc.wisc.edu/guide/rules.html> and
<http://www.rarc.wisc.edu/guide/vetcare.html>.

- a. Animal Welfare Act, Public Law 89-544 as amended; codified at 7 U.S.C. 213 1-2159.
- b. USDA Animal Welfare Act Regulations and Standards, 9 CFR Parts 1, 2, 3, and 4.
- c. The Health Research Extension Act of 1985, Public Law 99-158, as amended, "Animals in Research," codified at 42 U.S.C. Section 289d.
- d. PHS Policy on Humane Care and Use of Laboratory Animals. NIH, Office of the Director. Revised September, 1986, and reprinted October, 2000.
- e. Guide for the Care and Use of Laboratory Animals. National Research Council, 1996 (or most recent edition).
- f. Report of the AVMA Panel on Euthanasia. Journal of the American Veterinary Medical Association, Volume 218(5): 671-696, 2001.
- g. AAALAC, International. "Rules of Accreditation," <http://www.aaalac.org> revised January 2001.

IX. Madison VA HOSPITAL Research Facility Information for Non-Research Personnel

SUPERVISORS

Make Material Safety Data Sheets (MSDS) for each chemical in your area available to your employees upon request. Reference:

For VA networked computers: <http://vaww.ceosh.med.va.gov/ceosh/MSDS.shtml>

For UW networked computers: <http://hazard.com/msds/index.php>

DISPOSAL

Questions regarding disposal of hazardous materials and waste should be directed to the Industrial Hygienist at 1-7427 or Research Safety Officer 256-1901 Ext 1-7802

Animals:

- **Do not enter animal rooms without a research escort unless it is an emergency or for authorized work (e.g., HVAC, electrical repairs).**
- **Lab coats must be worn in animal rooms if animals are present**
- **Notify ARF Supervisor x17875 before working in animal rooms or near animal room if work activity will affect the room (noise, dust, temperature changes).**

Emergency Equipment:

- Emergency Eye wash stations are located in the halls in the research wings
- Emergency Shower stations are located in the halls in the research wings
- Automated external defibrillator (AED) is located in the main hall in the ARF

Contact Information:

Position	Name	Work Phone	Alternate contact
Research Safety Officer	Randy Wolff, PhD	256-1901 Ext 1-7802	contact VA operator @ 256-1901
Industrial Hygienist	Tami L Tishler	256-1901 Ext 17427	256-1901 Ext 17749
Facility Safety Officer	Todd Endres	608-256-1901	608-308-3461
Coordinator, R&D	Bev Birdsall	280-7007	Beverly.Birdsall@med.va.gov

I have read the above items and will comply with these safety requirements.

Print Name

Organization

Signature

Date