

**Idaho State University
Animal Hazard Program
Occupational Health and Safety Instruction**

INTRODUCTION

Purpose

The purpose of this Occupational Health and Safety Instruction (OHSI) or guideline is to reduce the health risk of using animals in research and teaching to an acceptable level.

Background

Many different kinds of physical, environmental, or biological hazards are associated with the use of animals in teaching or research (See Appendix B, Table 1). Requirements for an occupational health program for personnel working with laboratory animals are found in *Biosafety in Microbiological and Biomedical Laboratories* published by the Centers for Disease Control and Prevention and the National Institutes for Health; Code for Federal Regulations, Title 10, Part 20 and Title 29, Part 1910; the *Public Health Service Policy on Humane Care and Use of Laboratory Animals* that codifies the *Guide for the Care and Use of Laboratory Animals (The Guide)* published by the National Research Council; and, *Occupational Health and Safety in the Care and Use of Research Animals* published by the National Academy of Sciences. A description of the occupational health program must be included in the Assurance of Compliance that is required by the National Institutes of Health. The Association for the Assessment and Accreditation of Laboratory Animal Care, International (AAALAC) conducts triennial inspections to assure compliance with all applicable occupational health and safety standards.

Under standards outlined in *The Guide*, the program components must include:

- Hazard Identification and Risk Assessment
- Personnel Training
- Personal Hygiene
- Facilities, Procedures, and Monitoring
- Personal Protection
- Medical Evaluation and Preventive Medicine

This OHIS, developed by the Animal Facility Occupational Health and Safety Committee, serves as the written policy of ISU Animal Care Facility for occupational risk reduction for those using or exposed to animals in research or teaching.

Who's Covered?

Personnel included are those involved in the direct care of animals and their living quarters, tissues, body fluids or wastes. This OHSI includes all University animal care staff, researchers and their technical staff, instructors and students involved with animal related laboratory and /or fieldwork. Minor participation from personnel involved in facilities management, security, custodial services, visitors, consultants and volunteers is also anticipated. These individuals will be subsequently referred to as "participants." The assessment of risk will be determined by frequency of contact, intensity of exposure, hazards associated with the animals being handled, hazardous properties of agents used in research, the susceptibility of individual employees, the hazard-control measures available,

and the occupational history of individual employees.

Program Exemption: For situations where non-ISU students or ISU undergraduate or graduate students will be involved in ISU supported programs, a request for variance from selected OHSI/medical criteria may be initiated. The participating Occupational Health Service Specialist (OHSS) will review requests.

A post-job offer, pre-placement health evaluation is a condition of employment for individuals who will have animal research or teaching involvement.

Explanation of Key Terms

Risk is a statement of probability that harm, injury, or disease will occur in the occupational setting. The degree of risk can, and does, vary with an assortment of factors.

Risk assessment is the evaluation of scientific information on the hazardous properties of an agent and on the extent of human exposure that yields a qualitative or quantitative statement of the probability and degree of risk or harm estimated for individuals or populations.

Hazard is a recognized risk. Once a risk is recognized and assessed, appropriate adjustments can be made to modify the underlying factors that contribute to the risk, or behaviors can be modified to reduce exposure to those risks. The risks can be abated through engineering controls, personal protective equipment, and by administrative control to include: modifying practices and procedures, pre-placement and periodic examinations, training, etc.

Safe is the state of being free from risk or when an acceptable level of risk has been achieved.

Animal Any live or dead, vertebrate animal used or intended for use in research, experimentation, testing, training, or related purposes. This definition shall extend to animals that are acquired for the purpose of collecting tissues or other parts. (The acquisition and transportation of certain invertebrates and parts of certain vertebrates are also subject to Federal regulation.)

Animal Hazard Program That portion of the ISU Animal Facility Occupational Health and Safety program, managed by the Occupational Health Service, specifically designed for all ISU personnel who work in animal facilities, researchers, students and other participants who have significant contact with research animals, or their tissues that have not been treated, to assure freedom from pathogens, as determined through a comprehensive review by the Institutional Animal Care and Use Committee (IACUC) –(Idaho State University Animal Welfare Committee) and the designated OHSS.

Animal Care Facility Any and all buildings, rooms, areas, enclosures, or vehicles, including satellite facilities, used for animals confinement, transport, maintenance, breeding, or experiments inclusive of surgical manipulation. A satellite facility is any containment outside of a core animal facility or centrally designated or managed area in which animals are housed for more than 24 hours. (per PHS Policy on Humane Care and Use of Laboratory Animals)

Animal Use Protocol The form completed by a Principle Investigator and submitted to the Animal Welfare Committee (IACUC) for review and approval prior to the acquisition of animals or initiation of the study.

The Guide The NRC Guide for the Care and Use of Laboratory Animals, which serves as the standard by which animal care and use programs are developed and assessed. The Guide is available from the Animal Facility Manager, Biology Building 65, Room 182.

Institutional Animal Care and Use Committee (IACUC) A committee appointed by the Institution that uses animals in its intramural research program. The committee oversees the Institution's animal program, facilities and procedures, including the key functions of reviewing and approving requests to use animals in research Animal Use Protocols.

Occupational Health and Safety Specialist (OHSS) The person serving as member of the IACUC who reviews all protocols submitted to the committee for potential occupational risk, manages health and safety aspects of the program, tracks program participation and keep appropriate program records. The OHSS makes appropriate recommendations on all protocols if needed.

Occupational Health Service The university or private medical or appropriate healthcare provider involved in the physical examination of participants.

PHS Policy Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals, revised as of September 1986, or subsequent editions.

Principal Investigator A scientist who is responsible for conducting animals study in compliance with this policy, *The Guide*, University policy, and the Animal Welfare Act; and who certifies acceptance of this responsibility by signing the Animal Use Protocol.

Refinement Refinements in animal research are those that alleviate or minimize the pain, distress or other adverse effects experienced by the animals involved, and/or enhance animal well being. Refinements may be applied at any stage in the use of the laboratory animal, from husbandry, and environment of the animals involved; the experimental design (e.g. group sizes are reduced); the techniques applied; the care of the animals before, during and after a procedure; the endpoints of the procedures; and the method of euthanasia.

HOW IT WORKS

Participants are organized by three categories that reflect the specific needs of the individuals based on real or potential occupational exposure to specific species of animals. The first category includes all individuals who have minor risks, limited exposure, or secondary exposure. The second category includes all individuals involved with an Animal Use Protocol. The third category includes all employees of the Animal Facility. These categories help determine the type and level of medical evaluation, treatment, and surveillance needed to help avoid exposures and possible resultant illness.

Identification of Participants:

- I. Information regarding the Animal Hazard Program must be given prior to the employee's or participant's exposure to animals, their viable tissues, body fluids or wastes.
- II. Laboratory supervisors are to be familiar with the ISU OHSI, will receive annual training on such, and will be asked to refer affected participants to the OHSS for proper referral .
- III. The IACUC and the OHSS will review processes and confirm program participation for all individuals/studies/classes with animal contact and will not allow protocol approval for any proposal or class syllabus without participant/information regarding risk associated with animal exposure.

General Facility and Participant Provisions:

- I. Facility Hygiene/housekeeping: There are a number of housekeeping issues that help to provide a safe workplace and research facility which apply to all participants exposed to animals.
 - A. Animal room doors will be kept closed at all times.
 - B. Animals housing facilities will be kept clean with appropriate bedding, etc. to reduce exposure to animals and animal products as much as possible.
 - C. Regular Inspections will be conducted as arranged by the Animal Welfare Committee according to the protocol in Appendix B
 - D. Hallways are to be swept and mopped daily.
- II. Personal Hygiene: There are a number of personal hygiene issues that apply to all workers who are exposed to animals.
 - A. Participants will strictly follow the ISU General Policy that was established by the IACUC.
 - B. There should be no eating, drinking, or applying of cosmetics in areas where animals are housed or used,
 - C. No smoking in the facility or building
 - D. Participants will launder their work uniforms in the laundry facility provided. A clean uniform is to be worn daily and should be removed before going home at the end of the day.
 - E. If specific work uniforms are not used, laboratory coats should be worn over street clothes when working with animals - this will minimize the contamination of street clothing. Laboratory coats should be left in the lab and not be worn when eating or in public eating areas.
 - F. Any casts, splints, etc., should be covered when working in the lab.
 - G. Careful hand washing should be done after handling of animals and prior to leaving the laboratory.
 - H. All work surfaces should be decontaminated daily and after any spill of animal-related material.
 - I. Certain infections are transmitted from animals to humans primarily by the animal's feces or urine contaminating one's hands that may contaminate objects put into the mouth. Examples of organisms utilizing this mode of transmission are species of Salmonella Shigella and Entamoeba. Every precaution should be taken to avoid this mode of transmission by alertness, careful hand washing, and personal hygiene. Additional health problems are encountered when these organisms are carried home and children/family members are exposed.

Occupational Health Program Overview: There are four essential components of the Occupational health Program; education and training, reporting illnesses and injuries, basic occupational health plan, and expanded occupational health plan. The University Employee Work Related Injury and "Return to Work Program" protocols should be followed to insured appropriate treatment and follow-up of injuries or illnesses. (Appendix E)

- I. Reporting Injuries/ Illnesses Related to Research Activities:

- A. Every participant working with animals should be aware of the potential dangers from animal exposures. Bites and scratches should be addressed as described in Appendix A. Although an animal scratch or bite might not seem serious, its occurrence should be reported to one's supervisor or instructor so that proper measures may be taken. In addition, participants shall promptly report **all** suspected work related injuries and illnesses. Report should be made to class instructor or supervisor who will direct the individual to the appropriate facility for care.
- B. When an injury or illness occurs and medical treatment is necessary, the Request for Examination and Treatment form must be completed by the supervisor, or available manager, and taken to the medical facility or preferred provider with the injured person. As soon as possible, but no later than the next business day, an Incident Report Form must be completed by the appropriate manager and submitted to the Lab Animal Supervisor, Biology Building, Room 182.
- C. Several of the agents responsible for viral, bacterial, and parasitic infections in laboratory animals are capable of infecting humans. Some of these agents are covered in this OHSI, some are not. Participants are counseled to report any gastrointestinal, eye, respiratory or skin illnesses that may resemble the signs or symptoms or infections in the animals for which they are caring.
- D. Injury and Illness Log: The Lab Animals Supervisor will maintain an Injury and Illness Log to include the following categories:
 - i. Name or participant.
 - ii. Date / time of injury or illness.
 - iii. Type of injury or illness.
 - iv. Date / time or participant's referral for medical treatment
 - v. Corrective action taken.

Basic Occupational Health Care (BOHP): All individuals participating in class research protocols involving animals or animal tissue, class exercises, or secondary exposure to animals, animal tissue or dander are included in the BOHP.

- I. Individuals Included in Research Protocols: The Principal Researcher/Investigator is responsible for the completion and submission of all protocols involving animals to the IACUC and for identifying for review potential hazards involved. The protocol will be reviewed by the IACUC and the OHSS who will make specific recommendations, if needed, to minimize and/or eliminate risks associated with activities in the protocol. Risk assessment will include physical risk, chemical hazards, and infectious hazards. The PI, in direct consultation with the OHSS, is responsible for implementing training to all individuals involved in the research project about the potential hazards and about the plan to minimize hazards.
- II. Undergraduate Students: Instructor of any class or laboratory using animals will submit an Animal Use Protocol which will identify risks associated with the specific activities in the class. Risk assessment will include physical risks, chemical hazards, and biohazards. The Instructor will identify a plan to minimize and/or eliminate risks associated with activities in

the class. The Instructor is responsible for training all TA'S and undergraduate students with a plan to reduce risks. The IACUC and the OHSS will review all protocols and reserves the option to require further training to ensure student safety. All individuals are given an Occupational Health Information Letter to identify individual risks based on past medical concerns and advised to consult with their personal health care provider or the OHSS for appropriate referral if needed.

- III. Custodial, Maintenance, and Other Persons Who Are Expected to Have No Direct Animal Contact: These individuals are given an Occupational Health Information Letter to identify risks based on past medical concerns and advised to consult with their personal health care provider.
- IV. Occupational Health Information Letter: This information letter includes a series of questions prepared by an OHSS. Participants are advised to consult with their personal physician or health care provider concerning personal medical history that could increase risk of a medical problem associated with animal exposure. If necessary, further consultation with OHSS is available. Personal response is voluntary, but participants must sign a copy of the letter to acknowledge receipt.

Expanded Occupational Health Screening (EOHP): The EOHP includes all individuals employed at the animal facility, researchers, and technical support staff.

I. Clinical Examinations MAY Include:

- A. Screening Physical Exam: Pre-employment, annual, and exit physicals may be required depending on the level of contact expected. These will be conducted by the preferred medical or other qualified healthcare practitioner. In addition to the physical examination, the preferred medical or qualified healthcare practitioner may also include skin and blood testing and immunizations, if required. The components of the physical examination will be determined by the preferred medical or qualified healthcare provider, based on the functional requirements of the position, the type of animal contact, and the individual's medical history.
- B. Recall Exams and Screening: Some circumstances may require periodic re-examination. Notices for participant recall will be sent by the preferred medical or qualified healthcare provider to the Lab Animal Supervisor and the participant's address on file at the preferred medical or qualified healthcare provider. The participant will be required to schedule an appointment with the preferred provider.
- C. Follow-up Exams: Participants evaluated for acute medical conditions (illnesses and injuries) will be arranged at the time of their initial care on an individual basis as clinically indicated.

II. Immunizations: Individuals included in the EOHP are required to have documentation of the following areas depending on consult with OHSS:

- A. Tetanus Prophylaxis: The Public Health Service Advisory Committee on Immunization Practices (ACIP) recommends immunization against tetanus every 10 years for everyone, it is also recommended if a particularly tetanus-prone injury occurs if an employee where more than five years has elapsed since the last immunization. Every employee should have up to date tetanus immunizations.
- B. Hepatitis A and B: Immunization for Hepatitis A and B is updated according to recommendation of the ACIP. Booster doses will be administered as needed.
- C. Measles and Rubella immunization or serologic proof of immunity may be

required.

- D. Rabies: Immunizations according to ACIP. Booster doses as recommended by OHSS.

I. Assessment of Physical Conditioning:

- A. Lifting: Prospective employees in animal facilities may be required to take and pass a physical movement exam during their pre-placement screening exam unless a reasonable accommodation can be made. This exam will consist of range of motion analysis and repeated lifting of 10 pounds above shoulder height and 50 pounds above belt height. The OHSS will include proper back and lifting training for new employees and on an on-going basis for existing employees.
- B. Hearing: Auditory testing will be conducted on employees at the discretion of the Personnel working in high noise areas (cage washer, dog, mink and pig care providers) will be required to have a base line and an annual auditory examination to assist with hearing conservation. Protective devices will be provided and worn as needed.
- C. Allergies: Allergy to animal hair and dander is common and therefore one of the more important occupational problems occurring in workers exposed to animals.
 - i. Allergies can be manifest in a number of ways, including:
 - a. Allergic rhinitis (characterized by runny nose and sneezing similar to hay fever)
 - b. Allergic conjunctivitis (irritation and tearing of the eyes)
 - c. Asthma
 - d. Atopic dermatitis (a skin condition which is caused by contact with a substance to which an individual is allergic).
 - ii. Allergy to animals is particularly common in workers exposed to animals such as cats, rabbits, mice, rats, gerbils and guinea pigs.
 - iii. There is still some controversy regarding exactly what substance causes the allergy in a certain individual. Previously it had been thought that most allergies were caused by dander and debris from the skin and fur of an animal. More recent studies seem to suggest that exposure to animal urine, saliva, and fecal matter may be equally or more important. Exposure to animal urine may occur either through direct urine contact with skin or more commonly by inhaling dust from the bottom of a cage that has been contaminated with urine or fecal material.
 - iv. Various studies show that 15 to 20% of workers exposed to animals will develop symptoms of allergy. This percentage may be even higher since some people are forced to leave their jobs because of the severity of the allergies that develop. Most of these reactions are of the allergic rhinitis and allergic conjunctivitis type. Less than half of these are asthma. People who have a prior personal history or family history of hay fever, or eczema will be more likely to develop asthma after contact with animals. These people do not seem any more likely to develop rhinitis and conjunctivitis than do those without such personal or family history. Everyone should exercise certain

precautions to attempt to prevent animal allergy. These attempts should not be focused only on people with an atopic or allergy history. Symptoms can develop anywhere from months to years after a person begins working with animals. A majority of the individuals who are going to develop symptoms will do so within the first year. It is extremely unusual to develop symptoms after more than two years of animal contact.

- v. Certain procedures should be routinely followed in order to prevent the development of animal allergy.
- vi. Animals should be worked with in well-ventilated areas to prevent build up of various particles in the air.
- vii. Workers may want to wear gloves to prevent direct exposure to the animals - this applies to animal wastes as well as to animal dander.
- viii. In order to prevent inhaling contaminated material, cages should be changed frequently and masks should be worn during the changing of cages.
- ix. Despite the best preventive techniques some individuals will develop an allergy after contact with laboratory animals. Rarely, this will be so severe that a person is forced to change his line of work. More commonly, this can be controlled with the increased use of masks while working with animals and possibly medication.
- x. Desensitization therapy (allergy shots) has been successful for some individuals.
- xi. Employees will be queried on allergy risk: Employees at risk for developing work related allergies include those with a history of pre-existing allergies, asthma, seasonal rhinitis or eczema.
- xii. Enrollees with suspected allergies will be encouraged to seek evaluation through the OHSS.
- xiii. Referral for allergy testing will be provided to employees at the discretion of the Occupational Health and Safety Specialist and with the employee's consent. Any such referral is conducted at the cost of the employee.
- xiv. Serum Storage: The OHSS will assess which program participants should submit a serum sample for storage at Bio Safety based on risk assessment. Storage and maintenance of sera will be the responsibility of the OHSS. Any specimen, once collected, is property of the Idaho State University and is for the sole purpose of institutional surveillance and not for individual health care.
- xv. Other requirements will be individually assessed by the OHSS.

Education: Occupational Health and Safety Instruction will be conducted in connection with Hazard Communication on entry into the program with periodic updates.

- I. Entry: Semester opportunities for new staff briefings will be provided by the OHS in association with the IACUC's on-going certification program. Topics presented as employee information will include, but are not limited to:
 - A. OSHI
 - B. Important zoonosis of animals

- C. Personal risk factors
 - D. Health hazard identification and reduction.
 - E. Procedures for acute injuries or development of illness symptoms
 - F. Obtaining access to the Occupational Health and Safety Specialist
 - G. Points of contact for additional information
 - H. Provision of informational hand-outs on topical matters
 - I. Unit Health and Safety inspection standards.
- II. Annual training: This will be required with continued participation longer than one year and will be offered with the entry training each semester. Occupational Health topics will include, but are not limited to:
- A. Updates on changes in the OSHI.
 - B. Updates on important zoonoses of the past 12 months.
 - C. Points of contact for additional information
 - D. A review of institutional policy on Occupational Health
 - E. Areas of noted increased health risk.
 - F. Provision of informational handouts on topical matters.
 - G. Unit Health and Safety inspection standards.
 - H. Appropriate ergonomic and safety issues
- III. Training will be under the auspices of IACUC. The IACUC and the OHSS will provide technical instruction and assistance.
- IV. Training may be provided in several formats to accommodate specific needs of participant. Options may include:
- A. Didactic, classroom seminars
 - B. Videotaped seminar
 - C. Internet version
- V. Documentation of completed training, successful participation is required for participation in animal handling activities.

Specific zoonotic considerations: Individual categories of animal contact may indicate specific screening and evaluation requirements

- I. Individuals working with domesticated small mammals and aquatic life forms (non-amphibian) will receive BOHP
- II. Large Animal and Wild Caught Category participants will receive BOHP plus attention to the following specific concerns:
 - A. Rabies: Rabies is a relatively rare and devastating viral disease that can result in severe neurological problems and death. Most cases of rabies occur in wild animals although any mammal can contract the disease. The disease is virtually unheard of in common laboratory animals. The exception to this is with dogs and cats. At the ISU random source research dogs and cats are quarantined for 14 days. Theoretically these animals could be infectious, and if any bite wounds occur or suspected behavior is observed, the animal is

euthanized and sent to the state lab for analysis for rabies. All bites of any type should be reported immediately to one's supervisor.

- i. Although rabies is not an endemic disease in Idaho, animals and animal tissue field-collected in Idaho should still be handled with care. Precautions should take into account that infected animals may shed the virus in the saliva before visible signs of illness appear, and that a bite is not required to contract rabies - contact with saliva may be sufficient and that rabies virus can remain viable in frozen tissues for an extended period.
- ii. There is a human vaccine that offers protection for those persons working with unvaccinated animals. Based on current ACIP recommendations, rabies pre-exposure prophylaxis with human diploid cell rabies vaccine (HDCV) is considered for the following individuals:
 - a. Those working directly with the rabies virus.
 - b. Those having contact with non-quarantined animals.
 - c. Those having exposure to potentially infected animal body organs or performing post mortem examinations on animals with history of poorly defined neurological disorders.
 - d. Wildlife mammalogists and students engaged in the handling and/or capture of susceptible species.
- iii. Post exposure prophylaxis requirements - see Appendix C
- iv. Participants may formally decline this prophylactic vaccine and still participate in other parts of the program.
- v. Serologic monitoring and booster doses:
 - a. Serologic monitoring will be performed one year after completion of the primary series to assess titer.
 - b. Additional serologic monitoring will be performed as determined necessary by the OHSS.
 - c. Booster dose is administered to participants with inadequate titer (Inadequate titer is defined by the Centers for Disease Control and Prevention as < 1:5 by the rapid fluorescent focus inhibition test.)

B. Q Fever: Q-fever is a disease caused by the microorganism *Coxiella burnetii* that can be acquired by exposure to placental membranes and fetuses from infected sheep or goats. There is an especially high concentration of these infected materials in animals at the time that the animals give birth, so particular care needs to be used in handling newborn animals, placental tissues and other products of birth. This would include the placenta, amniotic fluid, blood, or soiled bedding. In addition, individuals who handle young sheep or goats up to six months of age are at higher risk, as are individuals who participate in the routine care of sheep or goats such as the animal care workers. This infection is extremely contagious and has been reported to be spread by aerosol.

- i. Acute: In most individuals the disease manifests itself as an acute illness that could be mistaken for influenza. The person has high fevers up to 104 or 105 degrees Fahrenheit. These are accompanied by general malaise, significant muscle aches and pains, and very frequently by a cough. Up to

half of the individuals who develop this acute disease will have a pneumonia that can be seen on chest x-rays. A large number of people will also develop hepatitis. In most patients the disease is self-limited and will resolve on its own after ten days to two weeks. In older or ill individuals this acute illness may take one to two months to resolve. Even though it will resolve on its own, it is generally better to treat the disease with tetracycline because this does reduce the duration of fever. It is extremely important that, should an employee who works with sheep or goats develop an influenza type infection, that he/she mention to their physician the possibility of Q-fever. Q-fever is something that would not routinely be thought of and this diagnosis is often missed.

- ii. Chronic: A chronic infection with the Q-fever organism is rare, and occurs in less than 1% of infected individuals. It manifests as endocarditis, which is an infection on the valves of the heart and is often fatal. Individuals with congenital heart disease, prior valvular heart disease, or who have a chronic immune-compromised state should not work with infected animals at the time of animal parturition (birth process), and it is best that they not work with sheep and goats at all (determined on a case by case basis). Immuno-compromised individuals would include those with AIDS or a positive blood test for the AIDS virus (HIV), or immune-compromised because of medications or certain chronic diseases.
- iii. In order to limit the spread of Q-fever there are a number of procedures that should be followed:
 - a. When possible, specific pathogen-free sheep and goats should be used. Sheep or goat laboratories and their animal care housing areas should be strictly off limits to anyone who does not have a specific need to be there. Dedicated clothing and shoes or boots should be worn. Gloves (preferably forearm length) should always be used in handling the placentas and newborns of these animals. It is important that animals be transported carefully to avoid infecting others besides laboratory personnel. Potentially contaminated surfaces should be decontaminated with dilute solutions of chlorine bleach or dilute solutions of Lysol as these organisms are quite resistant to destruction and many ordinary methods of disinfecting will not be adequate. It is extremely important that laboratory doors be kept closed when experiments are in progress. Employees working with potentially infected tissue need to wear protective clothing that is not worn outside the area.
- iv. There is no effective vaccine to protect humans from Q-fever. Serum tests may be done to see if one has been exposed to Q-fever.
 - a. Employees at risk of exposure to Q Fever include those who:
 - i. High Risk
 - a. Have direct contact with the organism *Coxiella burnetii* in a research capacity.
 - b. Handle or use products of pregnancy or parturition (placenta, amniotic fluid, blood or soiled bedding) from sheep or goats.
 - ii. Low Risk

- a. Caring for sheep or goats.
 - b. Experimenting with sheep or goats or their products.
- a. At the time of the enrollment exam, employees are assessed for their likelihood of developing chronic sequelae should they acquire Q Fever. Those employees with valvular or congenital heart defects, or those who are receiving immunosuppressant drugs, or splenectomized are advised of the potential risks involved and medical clearance for employment will be determined by the OHS on a case by case basis.
- C. Vaccinia
 - i. Vaccinia vaccine is only recommended for laboratory workers who directly work with or handle animals contaminated or infected with Vaccinia, recombinant vaccinia viruses, or other ortho-poxviruses that infect humans (e.g. monkey pox, cowpox).
 - ii. Laboratory workers who work with viral cultures or contaminated animals should always observe appropriate biosafety guidelines and adhere to published infection control procedures.
 - iii. According to available data on the persistence of neutralizing antibodies following vaccination, persons with this exposure should be revaccinated every 10 years.
 - iv. The protocol and precautions for administration of the vaccine should be followed as listed in MR< Dec. 13/1991 / 40(rr12; 1-10, AVaccinia (smallpox) vaccine recommendations of the Immunization Practices advisory committee" (ACIP).
 - v. Some allergy related contraindications to vaccination exist and should be followed as described in the documents identified above.
- D. Toxoplasmosis:
 - i. Toxoplasmosis is a disease that is caused by an organism called *Toxoplasma gondii*. Usually this disease is quite mild and may be mistaken for a simple cold or viral infection. Swollen lymph nodes are common. In addition, it is common to have a mild fever, tiredness and mild headaches. Rarely, a more serious illness can occur that involves the lungs, heart, brain or liver.
 - ii. People acquire this disease by eating meat that is raw or has not been cooked properly or by contact with feces of an infected cat - 1% of cats shed the toxoplasma oocyst in their feces. There are two situations in which toxoplasmosis can be extremely serious. A person whose immune system is not working properly can contract a very severe form of the disease, which would include those with HIV or a positive blood test for the HIV virus, people on medications that suppress their immune systems, and people who have some other serious illness that affects their immune system in the same way. In addition, an infection with toxoplasma can severely damage an unborn child, which can occur if the mother is infected during pregnancy. Miscarriages, stillbirths and congenital defects can occur.
 - iii. The disease is more serious if passed on to the fetus early in pregnancy, though it is more common for the illness to be acquired later in pregnancy.

- iv. Certain simple precautions will prevent a person from acquiring toxoplasmosis. Obviously, meat should be thoroughly cooked before it is eaten, therefore preventing this form of transmission. Cats acquire the toxoplasma organism by eating raw meat or wild animals that have been infected with the organism. The cat then excretes an egg form in its feces. These do not become infective for approximately two days but after this they can persist for quite some time in the soil. Because of this, it is important that cats be fed only commercial cat food or well-cooked meat. In addition, the litter box of a cat should be changed daily. When a woman is pregnant, she should avoid any contact with cat litter and should avoid any close contact with any cats that have been allowed to roam outdoors.
- v. Pregnant women should be cautioned about working with cats in the laboratory setting. Pregnant animal technicians who have been assigned to cat husbandry duties should be reassigned to other jobs during pregnancy unless titers are sufficient (see 1. below). Pregnant women who are exposed to cats in other ways would be best to avoid this exposure. There is no vaccine to protect humans.
 - a. Toxoplasmosis antibody titers are required on any female employee of childbearing capacity who is occupationally exposed to cats or their feces. A negative IgM test and an IgG antibody of 6-200 IU/ML indicates immunity is present.
 - b. Females of childbearing capacity who lack immunity and plan to work with cats are informed of their susceptibility and provided additional educational information on toxoplasmosis. Her supervisor will be advised (if requested by the employee) to consider arranging a temporary job reassignment while a susceptible employee is pregnant. When this is not possible, consultation with the OHS will be encouraged to identify alternative methods of employee protection.

III. Personnel performing trapping and field operations for rodents must be in compliance with *Precautions for Risk Reduction of Hantavirus Infection for Trapping and Field Operations* published by the Department of Risk Management and Safety.

IV. Participants working with bats are required to have rabies vaccine as described in above.

V. For those personnel working with birds, exposure to Psittacosis, an acute generalized disease caused by the chlamydial agent, *Chlamydia psittaci*, must be considered. The individual may present with variable clinical symptoms such as fever, headache, rash, myalgia, chills, and upper or lower respiratory tract disease. Although usually mild or moderate in character, human disease can be severe, especially in untreated elderly persons. The principle reservoirs are parakeets, parrots, and lovebirds; less commonly poultry, pigeons, canaries and sea birds. The mode of transmission is inhalation of the organism from desiccated droppings, secretions and dust from feathers of infected birds.

Appendix A:
Procedure for Care of Bites, Scratches, Cuts, Abrasions, etc.

- 1) Control bleeding by applying direct pressure with a sterile gauze or bandage.
- 2) Disinfect the wound by washing with copious quantities of soap and water. (Povidone-iodine or chlorhexidine surgical soap is recommended).
- 3) Secure medical attention.
 - a) Weekdays between 8 a.m. and 5 p.m.: Report to the Supervisor on duty and ask to see the Occupational Health Service.
 - b) After-hours and on weekends, go to a local Medical Center Emergency Room.
 - c) The physician will evaluate the injury and may decide to culture the wound for B-virus (*Herpesvirus simiae*) or collect blood for a baseline titer against B-virus and/or use prescription drugs for preventative therapy.
 - d) The physician directing the care of the patient will contact the OHSS for instructions regarding the need for cultures or serology from the monkey inflicting the injury upon the patient.
- 4) Following a bite or scratch, the exposed person is to be instructed to report immediately any skin lesions or neurological symptoms (such as itching, pain, or numbness) near the site of the wound or any other unusual illness. It is the responsibility of the supervisor, when no illness is reported, to determine the clinical status of the handler at weekly intervals for 1 month after the exposure. Symptoms suggestive of B virus infection should be reported immediately to the medical consultant. When the possibility of B virus illness is seriously entertained, appropriate diagnostic studies should be performed and specific antiviral therapy should be instituted. The physician may wish to consult the Viral Exanthems and Herpesvirus Branch, Division of Viral Diseases, CDC (Dr. Gary Holmes, 404-329-1338) and for laboratory assistance, the Southwest Foundation for Biomedical Research (Dr. Julia Hilliard, 512-674-1410).
- 5) Tetanus note: Any wound may potentially serve as a source from which tetanus may result. All wounds must be evaluated by trained health care personnel to assess contamination and possible likelihood of infection, as well as to provide proper treatment. Tetanus boosters are required every 10 years. If a wound occurs, persons who have previously received a full primary series of tetanus immunizations may not require a booster if less than 5 years has elapsed since the last immunization. This is dependent, however, upon severity of the wound, degree of contamination, and circumstances surrounding the injury. It is strongly recommended that all wounds be seen and treated despite the person's status of tetanus immunization.

Appendix B: **Procedures for Regular Inspections of the Workplace**

Introduction. To achieve the University's goal to provide and maintain the highest standard of health, safety and welfare for its staff, and in accordance with this OHSI, systems must be in place to identify hazards in the workplace in order to allocate appropriate resources and implement effective control strategies. The University recognizes that regular health and safety inspections are effective mechanisms for identifying workplace hazards.

The OHSI requires each research team to:

- Inspect the work area for hazards on a frequent and systematic basis,
- Document and evaluate the findings,
- Analyze and monitor work practices, procedures and systems of work to identify hazards which may otherwise be overlooked; and
- Develop and implement a priority action plan for hazard control.

These inspection reports will provide a monitoring system for managers of units.

The Occupational Health Service is available for advice and assistance, but is not charged with the responsibility to accompany inspection parties.

The following guidelines have been developed to assist Units in the inspection process and may be adapted to suit individual areas. In addition, the University's regular seminars for supervisors and staff will include a segment on inspection procedures.

Risk Management and/or Health and Safety Representatives may be invited to participate in the inspection, consulted when determining priority for action and when implementing control strategies. Interested employees should also be invited to participate.

Inspection Program Definition. Regular health and safety inspections are effective tools in the hazard identification process. Together with accident investigation, these inspections form the main thrust in good occupational health and safety management. Not only do they provide an opportunity to identify the sources of potential hazards, but can be used to monitor occupational health and safety policies and procedures and determine how effectively these are translated into the workplace.

The inspection process allows a full examination and report on the status of occupational health and safety performance in a work area.

Essentially, it allows one to:

1. Identify hazardous conditions and apply hazard control measures.
2. Monitor behavior trends.
3. Monitor and evaluate health and safety standards.
4. Improve health and safety standards.
5. Measure performance.
6. Check new facilities, equipment, processes, etc.
7. Collect date for meetings, support of initiatives, etc.
8. Maintain interest in health and safety.
9. Display supervisory commitment to health and safety.

Inspection Procedures

Who conducts the inspection?

The inspection team should comprise:

1. Manager of the unit.
2. A designated occupational health professional
3. Employee representative.
4. Member of the IACUC.

When to inspect?

A joint inspection of the type described should be done at least on a yearly basis, depending on the area. However, the manager or supervisor should monitor the workplace on a daily basis (i.e., housekeeping, observation of behavior trends) and more formally on a weekly - biweekly routine, checking such things as environmental conditions, etc. Any identified hazardous situations should be closely monitored at all times, particularly while awaiting the implementation of effective control measures.

Vary the time of inspection to assure it is capturing the workplace as it really is (i.e., unprepared).

How to inspect?

The Inspection Process:

Using the Animal Facility Health and Safety Inspection Form, the inspection team should inspect all workplaces within the facility or unit including office, storage and maintenance areas. Previous Inspection Reports should be viewed prior to inspection.

The inspection party should use the inspection checklist to consider:

1. Workplace Design (i.e., the physical workplace)
 - a. Ensure meets relevant legislative requirements ensure correct storage facilities.
 - b. Ensure there are correct storage facilities.
 - c. Assure ease of manual handling (a floor plan is helpful in preparing and recording findings).
 - d. Assure proper operation of chemical fume hoods and biological safety cabinets.
2. Work Practices
 - a. Policy and procedures.
 - b. Safe work procedures (written and accessible).
 - c. Information available to workers relating to hazards.
 - d. Accident or injury data and reporting mechanisms.
 - e. Maintenance reports.
 - f. Training provided.
 - g. Personal hygiene.
 - h. Good housekeeping.
 - i. Proper waste disposal.
 - j. Proper handling, transportation, and restraint of animals.
 - k. Provision and use of personal protective equipment.
3. Environment: e.g., noise, lighting, ventilation, thermal conditions.
4. Assure meets Standards, Codes of Practice, etc.
5. Behavior: determine the effectiveness of systems in place identify the need for training and education programs

The inspection party should ask themselves:

What is wrong?

Why is it wrong?

What if...such and such happened?

Recording Observations:

Observations made during the inspection must be recorded on the Animal Facility Health and Safety Inspection Report. This ensures that issues raised are not forgotten, provides a valuable reference source for spot inspection and periodic checks by supervisors, and establishes records for the Occupational Health Service.

Review:

1. The inspection team should immediately analyze the report and develop an action plan according to agreed priorities.
2. A summarized report of the findings should be prepared by the supervisor, highlighting any solutions that are beyond the authority or resource of that person, and forwarded to the OHSS.

Follow up:

1. The information obtained from regular inspections should be reviewed carefully, not only to identify where immediate corrective action is needed, but also to identify trends as part of overall monitoring of the inspection program's effectiveness.
2. Analysis of inspection records over a period of time, for example:
 - a. Highlights the need for training in certain areas,
 - b. Provides insight as to why accidents are occurring in particular areas,
 - c. Establishes priorities for corrective action,
 - d. Assists in improving or establishing healthy safe work practices,
 - e. Indicates areas, equipment, etc. which may require more detailed hazard analysis.
3. Remember, inspections are only successful in accident prevention if deficiencies receive prompt corrective action.
4. Copies of all Inspection Reports should be forwarded to the Department Chair, Risk Management, and the Manager of the Unit with proposed action plans.
5. Noncompliance with the Animal Hazard Program may result in disciplinary action to the individual and/or suspension of the research protocol and notification of the federal granting agency.

Table 1. Examples Of Selected Hazards In Animal Facilities

| Potential Risk of | Due to | Examples |
|--------------------------|-------------------------------------|---|
| Back Injury | Lifting Pushing Twisting Falling | Feed, bags, cage, racks, restraining large animals, slip on wet floor |

| | | |
|------------------|--------------------------|--|
| Hearing Loss | Noise | cage wash areas, dog runs |
| Electrical Shock | Faulty electrical wiring | water on floor, ungrounded equipment |
| Puncture Wound | Bite or scratch | unrestrained animal |
| Needle stick | Injecting or bleeding | improper sharps disposal |
| Exposure | Allergens | animal hair, dander, serum, animal proteins |
| | Biohazards | human pathogens, zoonotic agents, latent or introduced |
| | Chemicals | hazardous materials on test, cleaning or decontaminating materials, acids for cage washers |
| | Radiation | research isotopes. X-ray equipment |

TABLE 2. Rabies

| | Nature of risk | Typical populations * | Pre-exposure regimen |
|------------|---|---|---|
| Continuous | Virus present continuously, often in high concentrations. Aerosol, mucus membrane, bite, or non-bite exposure possible. Specific exposures may go unrecognized. | Rabies research lab workers. & Persons whose activities bring them into frequent contact with rabies virus or potentially rabid animals such as: cats, dogs, skunks, bats, raccoons, and foxes. Persons frequenting bat caves/enclosures. | Primary pre-exposure immunization course. Serology every 6 months. Booster if titer falls below acceptable level. |

| | | | |
|------------|--|--|--|
| Frequent | Exposure usually episodic with source recognized, but exposure may also be unrecognized. Aerosol, mucous membrane, bite, or non-bite exposure. | Diagnostic lab workers &, spelunkers, veterinarians, and persons visiting foreign areas of enzootic rabies for more than 30 days. Also persons whose activities may potentially bring them into contact with rabid animals or work in rabies epizootic areas ¹ Examples: wildlife, ecology, mammalogy, biology, veterinary science, animal science, and other related fields. University Animal Care employees. | Primary pre-exposure immunization course. Serology or booster immunization every 2 years** |
| Infrequent | Exposure nearly always episodic with source recognized. Mucus membrane, bite, or non-bite exposure. | Those working in areas of low rabies enzooticity. Persons not intending to contact wild animals or stray animals, those observing only. | Primary pre-exposure immunization course. No routine booster immunization or serology. |
| Rare | Exposure always episodic, mucous membrane or bite with source recognized. | U.S. population at large, students at large | No pre-exposure immunization necessary. |

* Examples listed are not considered all-inclusive for each category and judgment of relative risk and extra monitoring of immunization status of laboratory workers is the responsibility of the principle investigator.

** Individuals with exposure to bats, skunks, raccoons, and foxes are at higher risk. Boost if titer falls below 1:5.

Category of risk is determined by which category of animal contact an individual has been assigned to and review of the animal protocol you have submitted to IACUC.

Anyone having exposure, or suspected exposure, to a rabies positive animal or tissues; or contact from a suspect animal that cannot be tested, or quarantined, for rabies, will undergo post-exposure prophylaxis therapy.

It is the responsibility of instructors/professors/supervisors to monitor the risk of students, student teachers, and lab workers and obtain the appropriate immunizations for them BEFORE exposure occurs. If there is any question as to whether someone should be immunized, contact Occupational Health Service.

TABLE 3.Rabies Post-Exposure Prophylaxies Guide

| | <u>Animal Species</u> | <u>Condition of Animal at Time of Attack</u> | <u>Treatment of Exposed Person*</u> |
|----------|--|---|---|
| Domestic | Dog, cat | Healthy and available for 10 days of observation Rabid or suspected rabid Unknown (escaped) | None, unless animal develops rabies** RIGI *** and HDCV or RVA Consult public health officials; if treatment is indicated, give RIGI and HDCV or RVA |
| Wild | Skunk, bat, fox, coyote, raccoon, bobcat, other carnivores, woodchucks | Regard as rabid unless geographic area is known to be rabies free or animal is proved negative by laboratory tests**** | RIGI and HDCV or RVA |
| Other | Livestock, rodents, lagomorphs (rabbits and hares) | Consider individually; locally and state public health officials should be consulted about the need for rabies prophylaxis; bites of squirrels, hamsters, guinea pigs, gerbils, chipmunks, rats, mice, other rodents, rabbits, and hares almost never call for anti-rabies prophylaxis. | |

* Rabies Note: All bites and wounds should immediately be thoroughly cleansed with soap and water. If anti-rabies treatment is indicated, both rabies immune globulin (RIG) and human diploid cell rabies vaccine (HDCV) or rabies vaccine absorbed (RVA) should be given as soon as possible, regardless of the interval from exposure. Local reactions to vaccines are common and do not contraindicate continuing treatment. Discontinue vaccine, if fluorescent antibody tests of the animal are negative.

** During the usual holding period of 10 days, begin treatment with RIG and HDCV or RVA at first sign of rabies in a dog or cat that has bitten someone. The symptomatic animal should be killed immediately and tested.

*** Do not use more than the recommended dosage.

****The animal should be killed and tested as soon as possible. Holding for observation is not recommended.

APPENDIX C

Blood and Body Fluid Reporting

PROTOCOL FOR STUDENTS WHO ARE EXPOSED TO BLOOD OR BODY FLUIDS WHILE ENROLLED AT IDAHO STATE UNIVERSITY

Purpose

The purpose of this policy is to delineate a clear mechanism by which all ISU students can receive immediate evaluation, testing, initiation of necessary prophylaxis, and follow-up for exposures to blood and body fluids. This includes any exposure to blood/body fluids that may occur in such locations as residence halls, classrooms, and health care settings.

These recommendations were not developed to address sexual exposures. Certain sexual exposures may warrant individual consideration of this protocol.

Policy

Idaho State University Occupational Health Service will provide initial screening, evaluation, testing, and initiation of necessary prophylaxis, follow-up, and referral when indicated for students who have had an exposure to blood or body fluids. In this process, Occupational Health Service will rely on the student's supervisor for information on the source; will consult with other caregivers when the student chooses or is located off-campus; and will consult with the Division of Infectious Diseases (Internal Medicine) as needed and for annual program review.

Definition

Possible blood borne pathogen exposure: Any student having exposure to blood or other body fluid should check with Occupational Health Service. Possible exposure to a blood borne pathogen will include: needle stick, any sharps injury, exposure to an individual's blood or other body fluids to non-intact skin, to eye, nose, mouth, or through a human bite that breaks the skin.

Procedure

Student will:

- Immediately wash/irrigate area thoroughly.
- Identify source (patient).
- Inform supervisor or other responsible person in unit/agency.
- Telephone Occupational Health Service (OHS) Nurse Manager or Physician - for screening and advice. If OHS is closed, telephone and ask to speak to the ETC (Emergency Treatment Center) Triage Nurse/Staff Physician.
- Report to Occupational Health Service or other provider off-campus as advised by OHS Nurse Manager.
- Fill out Blood and Body Fluid Exposure Report, and, if applicable, Agency's Incident Report, State of Idaho Employers Work Injury report (if forms not available at site, may be faxed by OHS).
- Complete Follow-up

- Send completed forms and completed treatment records back to OHS within one week.
- Accept responsibility for follow-up needs of incident.

Occupational Health Service will:

- See student on priority basis.
- Initiate additional wound care as needed.
- Provide care and treatment whenever necessary according to policy *Protocol for Prevention of Infection with Bloodborne Pathogens Through Standard Precautions, Immunization and Evaluation and Treatment of Exposed Hospital Staff Members.*
- Make appointments for all follow-up visits prior to the student leaving the clinic.
- Complete and file forms as indicated.
- Provide student with education regarding need for follow-up visits for testing, how to avoid future exposures, symptoms of possible infection, safer sex practices.
- Review program yearly with Division of Infectious Diseases.

Occupational Health Service Nurse Manager or Physician/ETC will:

- Evaluate incident to determine level of risk and referral level need. If source person is known HIV positive, or at high risk for HIV positive, refer student for immediate evaluation and follow-up (must be done within 3 hours).
- Communicate with student and supervisor regarding immediate care, referral and follow-up needs.
- Fax essential form(s) to student if student is off-campus or does not have forms.

Student's Supervisor/Attending M.D./Preceptor will:

- Provide release time for student as necessary.
- Investigate source person.
- Communicate information on source person to student and Occupational Health Service.

If off-campus, identify local treatment center to provide initial work-up and follow-up care following Occupational Health Service protocol.

If seen at ETC, ETC will:

- Follow the same protocol for immediate evaluation and care as used by Occupational Health Service.
- Access student immunization history.
- Send report to NCII, OHS, in the morning of the next OHS clinic day.
- Transfer the student to Occupational Health Service for follow-up care.

APPENDIX F

ISU Policies and Procedures

The ISU Policies and Procedures (ISUPP) Web site is the official repository for all University policies and procedures.

<http://www.isu.edu/policy/>

Forms are found on the ISU Human Resources website.

<http://www.isu.edu/humanr/>