

FERRIS STATE UNIVERSITY

Veterinary Support Services

OCCUPATIONAL HEALTH FOR ANIMAL PERSONNEL EDUCATION AND PREVENTION PACKET (REVISED 10/23/06)

The Public Health Service of the U.S. Department of Health and Human Services has directed research/teaching institutions to develop programs to promote the health and safety of employees who have substantial animal contact. The attached pages contain informational material about several specific conditions or practices with which animal workers should be familiar. ALL employees with animal contact are asked to read this material. Complete the back pages, detach them, and return them to the office of the University's Animal Care Facility. You should keep the rest of the material for future reference.

This needs to be done only one time during your employment at Ferris State University. If you have any questions, please feel free to contact Rick Marble, Animal Care Facility at 592-2246.

ADDITIONAL REFERENCES:

1. *Manual for Assistant Laboratory Animal Technician.* American Association for Laboratory Animal Science, 2000.
2. *Manual for Laboratory Animal Technician.* American Association for Laboratory Animal Science, 2000.
3. *Manual for Laboratory Animal Technologist.* American Association for Laboratory Animal Science, 2000.
4. Inglis, J. *Introduction to Laboratory Animal Science & Technology.* Pergamon Press Inc. Elmsford, New York: 1980.

Hazard Identification and Risk Assessment

The Animal Care Facility contacts Mr. Mike McKay, Health and Safety Coordinator to serve as the Universities Safety Coordinator. The Safety Coordinator is trained to recognize and assess dangers associated with biological, chemical and physical agents.

The animal care facility attempts to avoid a hazard rather than deal with the consequences of exposure. Safety measures are implemented in advance of a problem whenever possible. Reducing the risk to employees is the primary goal of the animal care facility occupational health and safety program. The animal care facility recognizes that it is impossible to eliminate all risks; however, all attempts are made to continually identify risks to employees.

The Safety Coordinator is to work closely with the manager of the animal care facility, whose experience in laboratory animal facilities can help identify risks directly associated with animals, and animal support equipment.

The Safety Coordinator performs routine random inspections of the animal care facility and support areas to identify any risk. The Safety Coordinator and Facility Manager also monitors employees, and receives employee feedback to identify risks. Any findings are reported to the Safety Officer, Facility Manager, and or Institutional Animal Care and Use Committee.

The Animal Care and Use Committee (IACUC) also inspects the facility at least every 6 months and reports any findings of risk to the Institutional Officer. The IACUC also reviews protocols and looks for risk that may be associated with a particular experiment. The IACUC works with the Safety Coordinator to reduce or eliminate these risks.

Risk Reduction and Risk Control through Work Practices and Equipment

After risks have been identified and assessed, the Facility Manager will work closely with the Safety Coordinator (and any other contractors) to reduce the risk through the development of Standard Operating Procedures and work practices.

The Standard Operating Procedures Manual outlines the work practices that all employees must follow. These procedures include personal hygiene procedures, the use of personal protective equipment (PPE), housekeeping procedures, and the use of support equipment that can reduce risk to employees.

Employee Education and Communication of Risk

Employee training begins with a general orientation after hiring. Additionally, all employees are informed of the animal care facility requirements and procedures. Employees with no animal experience are restricted until they are carefully instructed by an experienced co-worker before being allowed to work on their own. Employees are shown the location of important emergency equipment such as eye-wash stations, first aid kits, and MSDS information.

Periodically at staff meetings safety issues are addressed to reinforce proper safety procedures and to communicate any relevant health and safety information

Ferris State University also has an emergency action plan in case of emergencies such as tornadoes, flooding/water damage, power outages, fires, bomb threats, etc.

Employees are provided with a copy of a packet that describes the health risks of working in an animal facility. Additional information is also available if needed or requested.

Emergency contact numbers:

- For **Minor Medical** emergencies call the Birkam Health Center: 591-2614.
- For **Medical Emergencies** and/or **Hazardous Materials** situations call 911 (see FSU emergency and safety procedures guide)
- For the **FSU Chemical Safety Policy** go to the Ferris webpage, click on Faculty & Staff, go to Important Links, and then click on Business Policy Letters to retrieve information on the use and disposal of chemical on campus.

Emergency Contact information is posted on the bulletin boards in both the Pharmacy and Science animal care facilities.

Employee Health Monitoring and Employee Feedback

All employees working with animals are required to complete a Medical History Form for all animal technicians after they are hired. The Birkam Health Center will help you fill out this form. The employee may be required to be examined by a physician to assess and document any condition that may affect the employee's ability to perform tasks or special health risks an employee may have prior to starting their duties.

The employee is also required to complete an Employee Education Program Form. This is to be filled out as the employee becomes proficient in handling each species of animals. This will be filed in the animal care facility under the employees name file, in the manager's office.

For individuals listed in an IACUC Proposal Application, you should have received a copy of the "Occupational Health for Animal Workers Education and Prevention Verification" form from the Principal Investigator. This verification is to be completed and submitted to the Office of the Animal Care Facility Manager along with the IACUC Proposal Application that you are listed on.

NOTE: IACUC Approval **WILL NOT** be granted until an “Occupational Health for Animal Workers Education and Prevention Verification” for is received by the Animal Care Facility for everyone listed on the IACUC Proposal Application.

REPORTING INJURY OR ILLNESS

Any injury or hazardous exposure arising out of and in the course of employment must be reported at once to the immediate supervisor for instructions on procedures for obtaining medical treatment. Reporting all accidents to the supervisor is necessary and must be prompt and accurate in order to assure proper handling of all claims. In the event of serious injury, medical assistance should be sought immediately.

Every person working with animals should be aware of the potential danger of zoonotic disease. In addition to the danger of tetanus there are relatively rare diseases such as "cat scratch fever" and "rat bite fever" which are transmitted from animal to humans. Although an animal scratch or bite might not seem serious, its occurrence should be reported to one's supervisor so that proper measures may be taken.

The Employee Incident Report Form is located at:

<http://www.ferris.edu/htmls/administration/adminandfinance/Human/forms/homepage.htm>

PERSONAL HYGIENE

There are a number of personal hygiene issues that apply to all workers who are exposed to animals.

1. There shall be no eating, drinking or applying of cosmetics in areas where animals are housed or used.
2. No animals should be kept overnight except in the designated animal rooms. There will be exceptions to this only where specific permission has been obtained for the Manager of the Animal Care Facility for the retention of these animals.
3. Gloves shall be worn at all times for the handling of animals. All contaminated or infected substances should be handled in such a way as to minimize aerosols.
4. There are numerous special requirements for the handling of animals that are discussed during your training period.

5. All work surfaces must be decontaminated daily and after any spill of animal related materials.
6. Careful hand washing with soap should be done after handling of animals and prior to leaving the animal facility and/or laboratory for any reason.
7. Certain infections are transmitted from animals to humans primarily by the animal's feces or urine entering a human's body by mouth. Examples of these are *Salmonella*, and *Shigella*. It cannot be stressed enough that every precaution should be taken to avoid this mode of transmission by alertness and very careful personal hygiene.
8. Keep hands away from your mouth, eyes, nose and hair when handling animals.
9. Employees who suffer from respiratory infections or skin conditions should report them to their supervisor immediately.

Adapted from *Biosafety in Microbiological Laboratories*, U.S. Department of Health & Human Services, Center for Disease Control, National Institute of Health, 3rd Edition, May 1993, U.S. Govt. Printing Office.

PROTECTIVE CLOTHING AND EQUIPMENT

1. Appropriate clothing is to be worn by all persons involved in animal handling activities.
2. Outer garments worn in the animal rooms are not permitted outside of the animal facility
3. Laboratory coats or suitable clothing is to be worn over street clothes when working with animals. This will decrease the potential contamination of street clothing.
4. In areas where biohazards materials or chemical carcinogens are used in conjunction with animals, protective clothing and equipment is provided on a situation specific basis.

PHYSICAL AND CHEMICAL HAZARDS

1. **Animal Bites, Scratches, Kicks, and Related injuries:** Working with animals always involves the potential for injury by the animal.

Knowledge of the species and training in proper handling techniques are essential in preventing injury during handling of an animal. Animal bites, especially those by rodents that inflict tissue damage, are sometimes considered inconsequential by personnel who are unfamiliar with the host of diseases that can spread by this mechanism. Serious complications can result from wounds contaminated by the normal oral flora of the animal involved. Personnel should maintain current tetanus immunizations, seek prompt medical review of wounds, and initiate veterinary evaluation of the animal involved, if warranted. Rabies, hantavirus infection, cat-scratch fever, tularemia, and rat-bite fever are among some of the specific diseases that can be transmitted by animal bites. **If an injury does occur, prompt medical attention is necessary to prevent possible infection. This must be reported immediately to your supervisor.**

2. **Sharps:** Sharps are ubiquitous in animal facilities. Needles, scalpel blades, and other sharp are commonly used in animal facilities and laboratories. Puncture-resistant and leak proof containers for sharps are available at critical locations in the facility. Improper disposal of sharps may also expose animal care and custodial personnel to wounds, and potentially to infectious agents and hazardous chemicals. State regulations are specific in the requirements for proper disposal of sharps. Additional information regarding policies and procedures on the disposal of sharps may be obtained from the Safety Coordinator.

Basic Rules to Remember:

- Never recap needles after use – have a “sharps” container nearby.
 - Disposal of syringes, needles, and scalpels in a “sharps” container only
 - If you cut yourself, perform first-aid immediately. Report the incident to your supervisor promptly. If you can safely identify and isolate the source of your injury, do so.
3. **Pressure Vessels:** Gas cylinders, autoclaves, and high-pressure washing equipment are all dangers related to high pressure. Employees must keep gas cylinders chained to the wall (and/or cart) to prevent falling, and to be certain the pressure inside an autoclave has returned to room pressure prior to opening the door.
 4. **Housekeeping:** As simple as it sounds, proper storage of equipment, cleaning of floors, changing of filters, and disinfections of work surfaces are all critical factors in maintaining a safe work environment.
 5. **Ergonomic Hazards:** All personnel must be trained in the proper methods of lifting, pushing, and pulling heavy objects. Repetitive

movements, such as dumping and scraping cages, can also cause injury. Varying the tasks and the time spent in performing them can help to reduce repetitive motion injuries.

6. **Noise:** Machinery is the most likely cause of excessive noise, but vocal animals such as pigs and dogs can generate noise levels above the OSHA standards. Hearing protection must be provided for personnel working in areas where noise levels can be high.

7. **Chemicals:** The nature and quantity of hazardous chemicals (including toxic chemicals and carcinogens, as well as the mode and duration of exposure), determine the risk inherent in contacting the chemicals. Detergents, de-scalers, disinfectants, chemical preservatives, anesthetic gases, and pesticides are but a few of the potentially hazardous chemicals that may be encountered in a research facility. For a large number of substances vendors can provide Material Safety Data Sheets (MSDS), which give physical property data and toxicological information on the substance. For your information the MSDS's can be found on the wall by the work sheets in the Pharmacy animal facility or in the wash room in the Science facility. They are also available online at www.ferris.edu → Quick Links → MSDS Finder

8. **Hazards of Carbon Dioxide (CO₂) Exposure:** At very high levels, (30,000ppm and above) CO₂ can cause asphyxiation as it replaces oxygen in our blood. Other health effects at high levels include: headache, loss of judgment, dizziness, drowsiness, and rapid breathing. It is rare to experience this level of CO₂ in residential and office environments, however high levels may be found in some industrial settings. Occupants may experience health effects at much lower concentrations of CO₂. This association is likely to be attributed to other contaminants in the air that are allowed to build up as a result of insufficient ventilation. Source: Minnesota Department of Health, Indoor Air Program

Human Allergies to Animals

Allergies can be manifested in a number of ways, including allergic rhinitis (a condition characterized by runny nose and sneezing similar to hay fever), allergic conjunctivitis (irritation and tearing of the eyes), asthma, and contact urticaria (“hives”, a skin condition which is caused by contact with a substance to which an individual is allergic). In rare instances, a person who has become sensitized to an animal protein in the saliva of the animal can experience a generalized allergic reaction (anaphylaxis) when bitten by an animal. Anaphylactic reactions vary from mild to profound life-threatening reactions. Allergies to animals are particularly common in workers exposed to animals such as dogs, cats, rabbits, mice, rats, gerbils and guinea pigs.

Most of the reactions are of the allergic rhinitis and allergic conjunctivitis type, and less than half of those will actually be asthma. People who have a prior personal history or family history of asthma, hay fever, or eczema will be more likely to develop asthma after contact with animals, but these people do not seem any more likely to develop rhinitis and conjunctivitis than do people without such personal or family history. Because of this, it is necessary that *everyone* exercise certain precautions to prevent animal allergy.

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.

Certain procedures should be routinely followed in order to prevent the development of animal allergy. Animals should be housed, as well as manipulated and/or handled, in extremely well vented areas to prevent buildup of animal allergens. Workers should wear appropriate personal protective clothing to prevent direct exposure to the animals, animal urine, and animal dander. Frequent hand washing is important. In order to prevent the inhalation of contaminated materials, cages should be changed frequently, and masks should be worn during the changing of cages.

Despite adherence to preventive techniques, some individuals will develop allergies after contact with laboratory animals. Rarely will this be so severe that people are forced to change their line of work. More commonly, this can be controlled with the use of personal proactive equipment (PPE), while working with animals. The use of gloves, laboratory coats, masks, eyewear, and other types of protective clothing that are worn only in animal rooms is encouraged. Once a person develops allergic symptoms, disposable surgical masks are usually ineffective. Some commercial dust respirators can exclude up to 98% of mouse urinary allergens. High-efficiency respirators are most likely to be of value, but they are cumbersome, and often are not used appropriately.

Employees using effective respirators will need respiratory fit-testing. Certainly, any one with symptoms related to animal allergies should seek medical diagnosis and treatment.

Diseases and Conditions Associated With Animals

Working in an animal care facility also presents the risk of the contraction of certain diseases. Diseases that can be transmitted from animals to humans (or vice-versa) are called zoonotic diseases. Contraction can however, be readily avoided by knowing beforehand the method of transmission and taking the appropriate protective measures, which include personal hygiene, personal protective equipment (PPE), sterilization, and in some cases, immunizations. If you would like additional information on these conditions, please contact Animal Care at 591-2246.

TETANUS

Lockjaw

Tetanus is an acute, often fatal disease caused by the toxin of the bacterium *Clostridium tetani*. The bacterium usually enters the body in spore form, often through a puncture wound contamination with soil, street dust, or animal feces, or through lacerations, burns, and trivial or unnoticed wounds. The toxin acts on the central nervous system, and interferes with the release of neurotransmitters, which leads to unopposed muscle contraction and spasm. Symptoms usually occur after 8 days of the initial exposure.

The Public Health Service Advisory Committee on Immunization Practices recommends immunization against tetanus every 10 years. An immunization is also recommended if a particularly tetanus-prone injury occurs in an employee where more than five years has elapsed since the last immunization. Every employee should have an up-to-date tetanus immunization. If you need a tetanus immunization or have questions regarding this issue, please contact your supervisor or the Birkam Health Center (on campus) at 591-2614 for further information.

RAT BITE FEVER

Streptobacillary Fever

Haverhill Fever

Sodoku

Rat bite fever is an infectious disease caused by two different organisms, *Streptobacillus moniliformis* and *Spirillum minus*. It is transmitted through contact

of the urine, eye or nose secretions of an infected animal, usually as the name implies, a rat. In rat-bite fever due to *Streptobacillus moniliformis*, fever, chills, headache, and muscle pain usually occur within 10 days of exposure, followed within three days by a diffuse rash, primarily in the extremities. Sodoku, caused by *Spirillum minus*, can cause a skin rash characterized by red and purple plaques, and possibly an open sore at the site of the initial bite. Both forms of the disease can usually be successfully treated with antibiotics.

RINGWORM

Dermatomycoses

Many species of animals are susceptible to fungi that cause the condition known as ringworm. The skin lesion usually spreads in a circular manner from the original point of infection, giving rise to the term "ringworm". The complicating factor is that cats and rabbits may be asymptomatic carriers of the pathogen, which can cause the condition in humans.

In humans, the disease usually consists of small, scaly, semi-bald, grayish patches with broken, lusterless hairs, and itching. Transmission of the disease is by direct contact with an infected animal. Personal hygiene is the best method of prevention and one should obtain medical assistance if the lesions are noted.

Q Fever

Query fever

Abattoir fever

Balkan grippe

Q fever is caused by *Coxiella burnetii*, a bacterial organism that is highly resistant to physical and chemical agents used in disinfection. The most common source of infection in the United States is from sheep, although goats and cattle can carry the disease. The organism infects the placenta, which will cause abortion, and large numbers of the organism will be released with the placenta, amniotic fluid, and dead fetuses. The most common mode of infection in humans is inhalation of the aerosolized agent from the placenta and amniotic fluid of infected animals. The agent can be carried by dust or on shoes and clothing leading to potential infection of individuals not involved with the infected animals.

The incubation period is two to four weeks. The disease has a flu-like character with fever, chills, profuse sweating, anorexia, and muscle pain. A prominent symptom is a severe headache with intense pain behind the eyes. Sometimes vomiting and nausea is reported. The fever generally lasts between 9 and 14 days and is recurrent in some cases. It is important to note that the severity of this disease is highly variable and in many cases goes unnoticed by the affected

individual. In the chronic state, the infection can cause endocarditis, pneumonitis, pericarditis and/or hepatitis. Mortality is less than 1%. There have been reports of abortions caused in women who were infected during pregnancy. Treatment with antibiotics is usually effective.

AVIAN FLU

Bird Flu

Avian Influenza

Influenza A viruses can cause three distinct diseases in humans: **avian**, **pandemic** and **seasonal influenza**. **Avian influenza** in humans is rare and the most common route of infection is via direct or indirect contact with secretions (nasal, oral or fecal) from infected poultry. Transmission from human-to-human, if it exists, is extremely rare. However, avian influenza viruses have the potential to mutate or reassort and become pandemic viruses; those that can be readily transmitted between humans and those for which the population has little immunity. If these viruses spread throughout the world, the disease caused by them would be called **pandemic influenza** and the new viruses would be called pandemic influenza viruses. Previous pandemic influenza episodes have occurred in two or three waves of 6-8 week duration and spanned a 12-18 month period. After this period, the population will have built up immunity to the virus, either naturally or through vaccination. If the virus continues to circulate in the population and causes disease, it would become an influenza virus that causes **seasonal influenza** (more popularly called human influenza or the flu).

As of October 2006, the highly pathogenic avian influenza (HPAI) H5N1 virus has not been detected in North or South America and it is important to understand that a pandemic influenza virus has not yet emerged and when, and if, it will emerge is impossible to predict.

Signs of infection in birds include: lack of energy, appetite, and coordination; purple discoloration and/or swelling of various body parts, diarrhea, nasal discharge, coughing, sneezing, and sudden death.

Signs of infection in humans range from fever, cough, sore throat, and muscle aches; to diarrhea, eye infections, pneumonia, and severe respiratory diseases. The symptoms of avian flu may depend on what virus caused the infection but are often similar to those associated with human seasonal influenza.

If birds or other animals are suspected of being infected, immediately notify Federal or state animal health officials.

Source: Occupational Health and Safety Administration, "OSHA Guidance Update on Protecting Employees from Avian Flu Viruses"

**FERRIS STATE INVIERSITY
ANIMAL CARE FACILITY
EMPLOYEE EDUCATION PROGRAM**

I certify that I have received the following articles:

- _____ Employee Education and Communication of Risk
- _____ Employee Health Monitoring and Employee Feedback
- _____ Reporting Injury or Illness
- _____ Personal Hygiene
- _____ Protective Clothing and Equipment
- _____ Physical and Chemical Hazards
- _____ Human Allergies to Animals
- _____ Diseases and Conditions Associated with Animals

I have read and understood the appropriate articles.
(Federal policy requires that Ferris State University documents that this information has been provided to you.)

Employee	Signature	Date	
Name	Typed or Printed	S.S.	Number
Department	Phone		

NOTE: If you are a principal investigator please check here
If not, please name the investigator(s) for whom you work.

PLEASE DETACH THIS PAGE AND RETURN TO:
Rick Marble
Manager, Animal Care Facilities
Veterinary Support Services (FSU-VSS)
College of Pharmacy - Room 314-A
PHONE: 231-591-2246

REQUIREMENTS WITH RESPECT TO THE QUALIFICATIONS OF THESE PERSONNEL INVOLVED IN ANIMAL CARE, TREATMENT AND USE

9 CFR part 2. Subpart C. Section 2.32 of the Animal Welfare Act requires that all research technicians and other personnel involved in animal care, treatment, and use are qualified to perform their duties. This section further requires that training and instruction be made available, and that the qualifications of such personnel be reviewed with sufficient frequency to fulfill the Animal Care facility's responsibilities. Please indicated in which of the following areas you have received training:

1. Human methods of animal maintenance and care

a. The basic needs of each species of animals;

<input type="checkbox"/> Dog	<input type="checkbox"/> Cat
<input type="checkbox"/> Frog	<input type="checkbox"/> Turtle
<input type="checkbox"/> Rabbit	<input type="checkbox"/> Ferret
<input type="checkbox"/> Rat	<input type="checkbox"/> Mouse
<input type="checkbox"/> Birds	<input type="checkbox"/> Guinea Pig
<input type="checkbox"/> Pig	<input type="checkbox"/> Other

Training and/or qualifications came from:

_____ Reading a manual, text, or other reference

_____ Observing a colleague

_____ Formal class work

_____ Hands-on training

_____ An academic degree program

_____ Past experience

b. Proper handling and care for the various species of animals used by the facility;

Indicate the species for which you are trained:

<input type="checkbox"/> Dog	<input type="checkbox"/> Cat
<input type="checkbox"/> Frog	<input type="checkbox"/> Turtle
<input type="checkbox"/> Rabbit	<input type="checkbox"/> Ferret
<input type="checkbox"/> Rat	<input type="checkbox"/> Mouse
<input type="checkbox"/> Birds	<input type="checkbox"/> Guinea Pig
<input type="checkbox"/> Pig	<input type="checkbox"/> Other

Under other indicate which species: _____

Training and/or qualifications came from:

_____ Reading a manual, text, or other reference

_____ Hands-on training

_____ Observing a colleague

_____ Formal class work

_____ An academic degree program

_____ Past experience

c. Have been made aware of the Standard Operation Procedure Manual(s)

_____ YES

_____ NO

d. How to use the disinfectants - shown Material Data Sheets.

_____ YES

_____ NO

e. How to use cage washer detergent - shown Material Data Sheet.

_____ YES

_____ NO

f. How to use the Mobile CO₂ Inhalation Chamber – shown instruction sheet posted in the surgery room.

_____ YES

_____ NO

g. I have reviewed the deficiency procedure and the reporting procedures

_____ YES _____ NO

h. Animal alternative have been explained and I have been shown how to search sites regarding alternatives.

_____ YES _____ NO

i. Where the Right-To-Know information is located.

_____ YES _____ NO

j. Familiar with paperwork procedures.

_____ YES _____ NO

NAME (Printed): _____ DATE: _____

SIGNATURE: _____

SUPERVISOR'S SIGNATURE: _____

DATE: _____