Guidelines for Occupational Health and Safety in the Care and Use of Vertebrate Animals

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PREFACE

The NDSU Institutional Animal Care and Use Committee (IACUC), in cooperation with NDSU's University Police and Safety Office, has developed these *Guidelines for Occupational Health and Safety in the Care and Use of Animals* aimed at making certain that the health and safety of faculty, staff, and students whose activities involve the use of animals is maintained and addressed appropriately. The *Guidelines* detail the program for occupational health and safety in regards to animal use on our campus. They are modeled after the guidelines set forth in the *Guide for the Care and Use of Laboratory Animals* (Institute of Laboratory Animal Resources, National Research Council, 1996) and the *Occupational Health and Safety in the Care and Use of Research Animals* guidebook (Institute of Laboratory Animal Resources, National Research Council, 1997).

The program is administrated under NDSU's Safety and Risk Management Program (both Workers Compensation and University Police and Safety Office) with assistance from the IACUC Office (Office of Sponsored Programs Administration and the Office of the Vice President for Research, Creative Activities and Technology Transfer).

Questions about the Occupational Health and Safety program can be directed to the University Police and Safety Office (231-7759, Animal Nutrition and Physiology Center South Building), Workers Compensation (231-9587,), the IACUC Attending Veterinarian (231-7521,) or the IACUC Office (231-8114, 1735 NDSU Research Park Drive).

Additional copies of the NDSU *Guidelines for Occupational Health and Safety in the Care and Use of Animals* are available from the University Police and Safety Office, IACUC Office and on both departmental Web sites at http://www.ndsu.nodak.edu/research/compliance/iacuc/ and http://facilities-mgmt.ndsu.nodak.edu/oseh/LossControl.htm.

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Occupational Health and Safety in the Care and Use of Animals

POLICY STATEMENT

As stated by the President of North Dakota State University, the university is committed to providing a safe and healthy work environment for all of its students and employees.

Exposure to or work with vertebrate animals, in particular, is not risk free. Therefore, people who come into contact with vertebrate animals must be made aware of the potential hazards associated with such contact. Principal investigators and supervisors are responsible for the safety and education of the personnel they supervise regarding work with animals, whether those individuals are paid employees, volunteers, or students. Personnel being properly informed, presented with good examples, and working safely greatly reduce the potential risks involved in working with animals. Safety must not be sacrificed for any reason, be it production, time limitations, or financial costs.

The success of the occupational health and safety program as related to animals is dependent upon active participation from and cooperation of administrators, faculty, staff, and students. Participation in the program is required for all people who are at potential risk – including even those who may have only minimal (or no) contact with animals. This includes animal researchers, caretakers, technicians, students, volunteers, and veterinarians; and also facility maintenance engineers, custodians, secretaries, housekeepers, security, and other staff working in animal areas.

By working together within this program for occupational health and safety, we will help to make certain a safe, professional, and productive environment of animal care and use for personnel and animals alike.

Sincerely,

John Adams
Vice President for Business and Finance

Philip Boudjouk
Vice President for Research,
Creative Activities and Technology Transfer,
Institutional Official

SECTION I: OUTLINE OF THE NDSU ANIMAL CARE & USE OCCUPATIONAL HEALTH AND SAFETY PROGRAM

Part A: Federal Requirements and Guidelines Governing Animal-Related Occupational Health and Safety (OHS)

The *Guide for the Care and Use of Laboratory Animals* (the *Guide*) states, "An occupational health and safety program must be part of the overall animal care and use program" at an institution.[1]

The Public Health Service (PHS) *Policy on Humane Care and Use of Laboratory Animals* requires PHS-Assured institutions to provide training (IV.C.1.f.) and a health program for personnel who work or have frequent contact with animals (IV.A.1.f.). NDSU is an Assured institution (Assurance number A3244-01) and is required to follow all PHS policies and guidelines. The PHS Policy requires IACUC to use the *Guide for the Care and Use of Laboratory Animals* as the basis for their programs and activities.

USDA regulations state that the IACUC will provide training and instruction to make certain the qualifications of personnel (9 CFR, Subchapter A, §2.32, (b)). The *Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching* (the *Ag Guide*) states, "An occupational health and safety program must be established for individuals who work with agricultural animals."[2]

The NIH *Guidelines for Research Involving Recombinant DNA Molecules* (2000) require institutions that receive NIH support for recombinant-DNA research to establish and maintain a health surveillance program for personnel engaged in animal research involving viable recombinant-DNA-containing microorganisms that require Biosafety Level 3 or greater containment in the laboratory. Specific occupational health-care services are recommended in *Biosafety in Microbiological and Biomedical Laboratories* (CDC-NIH 1993) for employees engaged in research programs that involve experimentally or naturally infected vertebrate animals.

Part B: Program Goals & Responsibilities

The overall goal of an occupational health and safety program is to prevent occupational injury and illness.[3]

At NDSU, the University Police and Safety Office, the IACUC and individual investigators and supervisors will:

1.) provide students and employees with appropriate guidelines for occupational health and safety in the care and use of animals that outline general health and safety issues associated with working with vertebrate animals;[4]

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1 The *Guide for the Care and Use of Laboratory Animals* (Institute of Laboratory Animal Resources, National Research Council, 1996), pg. 14.

2 The *Guide for the Care and Use of Agricultural Animal in Agricultural Research and Teaching* (Federation of Animal Science Societies, January 1999), pg. 5.

3 *Occupational Health and Safety in the Care and Use of Research Animals* (Institute of Laboratory Animal Resources, National Research Council, 1997), pg. 11.

4 The NDSU IACUC *Guidelines for Occupational Health and Safety in the Care and Use of Vertebrate Animals* are available upon request from the IACUC and University Safety Offices and are also posted on the IACUC Web site

2.) provide students and employees with the required occupational health and safety training program;
3.) provide students and employees with a hazard and risk assessment; and
4.) provide students and employees with any necessary medical evaluations, vaccinations, or immunizations (e.g., tetanus, rabies, etc.) at the cost to the department

Part C: Effective Occupational Health and Safety Programs[5]: An Interactive Approach

An institution that uses animals in research is responsible for five main activities:

- **Animal care and use.**
- **Research.**
- **Environmental health and safety.**
- **Occupational health.**
- **Administration and management.**

Interactions among these activities are important for maintenance of an effective occupational health and safety program. The central focus of the health and safety issues discussed in this document is the care and use of **animals in research**, which includes the established animal care and use program and the institutional procedures for review and monitoring of animal use. It involves mainly a program manager, who is usually a veterinarian; the animal-care staff; and the institutional animal care and use committee.

Research involving animal use is conducted by investigators and technicians in research laboratories and in the animal facility. Scientists' research objectives are directly supported by the animal care and use program.

The **environmental health and safety** activity provides technical services that assist the institution in carrying out its responsibilities associated with health and safety; it involves people who have expertise in chemical safety, biological safety, physical safety, industrial hygiene, health physics, radiation safety, engineering, environmental health, fire safety, and toxicology. Included in this activity are programs to collect, transport, and dispose of hazardous waste; manage responses to emergencies; monitor regulatory compliance; and provide training support and technical assistance. **Occupational health** involves primarily health-care professionals, including physicians, occupational health nurses, and specialists required to assess potential health risks and manage the care of employees who have acquired an occupational injury or illness. This has been established through the NDSU Designated Medical Provider Program.

The **administrative and management** activities include involvement of the senior official and program managers and other human-resources, financial, risk-management, and property-management personnel.

(http://www.ndsu.nodak.edu/research/compliance/iacuc/).

5 This section is taken from *Occupational Health and Safety in the Care and Use of Research Animals*, pg. 18.

An Interactive Occupational Health and Safety Program at NDSU

Administration: The animal occupational health and safety program is administrated under NDSU's Safety and Risk Management Program and the IACUC Office (Office of Sponsored Programs Administration and the Office of the Vice President for Research, Creative Activities and Technology Transfer).

NDSU's employee safety policy and program is part of the required North Dakota Workforce Safety and Insurance (WSI) and Office of Management of Budget (OMB) Risk Management Program.

As noted in the previous section, many different campus offices and entities work together to create an encompassing and effective program of occupational health and safety in the care and use of animals. Many offices, committees, and people interact as part of the overall animal occupational health and safety program at NDSU.

These offices, committees, and personnel, and their functions, include:

The IACUC Office
- Processes IACUC protocols and records
- Helps to coordinate the OHS program and communication between different offices and individuals
- Serves as a contact place and information center for Principal Investigators (PIs), personnel, and various collaborating offices about the IACUC and the animal OHS program
- Maintains a copy of emergency contact list for animal facilities
- Maintains documentation of personnel training for proper use and care of animals in paper and database files

The IACUC
- Helps to identify potential medical risks, animal housing facilities' designs, physical hazards, etc., during protocol review
- Refers investigators to other committees (Institutional Biosafety Committee, Radiation Safety, etc.)
- Suggests appropriate training sessions for investigators and their personnel
- Involves the University Police and Safety Office or a representative of the UP&SO as an executive member of the IACUC

The Attending Veterinarian
- Aids PIs in the formulation of their research projects, helping to identify potential risks and hazards
- Suggests alternatives to dangerous procedures, where possible
- Refers PIs to other committees for protocol review
- Alerts PIs to training requirements
- Maintains a copy of emergency contact list for animal facilities

The Office of Sponsored Programs Administration/Office of the Vice President for Research, Creative Activities, and Technology Transfer:

- Sponsors and administers the IACUC, the IRB, the IBC,
- Supports the IACUC Office & programs (financially, administratively, and organizationally)

The University Police and Safety Office

- Administers training programs in Lab Safety, Chemical Safety, and Radiation Safety. Occupational health and safety training is also a part of the training programs offered by Safety & Risk Management
- Helps coordinate plans and procedures for safety emergencies and concerns
- Helps to identify potential work place hazards during protocol review (e.g., working with chemicals or radiation, fire exits and extinguishers, etc.)
- Assists in providing information to personnel in obtaining appropriate personal protective equipment (PPE) (e.g., respirators)
- Performs ergonomic assessments for operations and tasks that involve repetitive lifting and movement
- Evaluates performance of fume hoods, bio-safety cabinets, safety showers, eye wash stations, chemical storage; fire alarms and drills; sprinkler systems; and other equipment.
- Will make available and assist in information exchange (between investigators, potential employees, employees) before, during, after hiring process
- Conducts Baseline and Supervisor Safety Training in cooperation with University Safety, which is required for all NDSU employees
- Coordinates workers compensation claims and acts as a liaison between medical providers, injured employees, and their supervisors

Campus Police

- Work with IACUC Office and UP&SO on emergency procedures
- Maintain a copy of emergency contact list for animal facilities
- Respond to emergency situations

Designated Health Care Providers

- Provides evaluation of health assessments at the department's expense
- Provide medical exams and immunizations to high-risk and other designated personnel
- Help to identify further risks for personnel based on medical history or conditions (e.g., pregnant women, pre-existing allergies)

The designated medical providers (DMP) for NDSU occupational health and safety concerns are[6]:

- *For employees:* MeritCare Occupational Health Center – 3828 12th Ave North, Fargo; 234-4700 or DMP list provided by UP&SO
- *For students who are not employees:* NDSU Student Health Service – Wellness Center; 231-7331

UP&SO and Facilities Management

- Disposes of hazardous waste for researchers
- Repairs and maintains facility equipment and machinery

6 NOTE: NDSU uses Designated Medical Providers (MeritCare Occupational Health) for workers compensation claims, and recommends that post-offer/pre-hire exams or testing be conducted only at the MeritCare Occupational Health Center or DMP list provided by UP&SO.

Individual Campus Departments

- **Cover the cost** of certain medical/evaluation exams, immunizations, and vaccinations[7]
- Pay for equipment purchases and/or repairs
- Purchase personal protective equipment and enforce it's use (PPE)
- Maintain documentation of health records that is easily accessed by any requesting agency

Principal Investigators

- Design protocols involving animals
- Work with the Attending Vet, IACUC, IRB, IBC, and UP&SO to identify potential problems and risks to personnel
- Identify potential hazards and risks for all personnel he/she supervises, based on the type of work they will be doing (e.g., allergies; kicks, bites, scratches; zoonoses; infectious agents)
- **Pay for certain medical costs like exams and immunizations** (through direct costs written into grants) that are associated with particular procedures, projects, or persons[8]

Staff, Students

- Responsible for personal hygiene and safety
- Comply with recommended and required rules and guidelines for occupational health and safety in animal care and use
- Attend and participate in training programs (occupational health and safety and otherwise)
- **Pay for certain medical costs like exams, immunizations, vaccinations[9]**

Part D: Principal Elements of an Animal Care & Use OHS Program

The following elements and examples are essential components of an effective animal-use occupational health and safety program: [10]

Personnel Training (See Section II.D. of these *Guidelines* for further information on training and education.)

Examples:

- Training in specific SOP's is the sole responsibility of the Department, PI and Supervisor.
- Training provides personnel with clear definitions and descriptions of their duties and the hazards associated with those duties (such as zoonoses, chemical hazards, physical hazards like radiation and allergies, handling waste materials)
- Training provides personnel with information about levels of risk associated with working with animals and personal health conditions (**e.g., special precautions to avoid hazards for pregnant women or persons with chronic diseases**)
- Make certain that personnel are proficient in implementing safety precautions
- Departments are responsible for maintaining the training records

7 For specific cost coverage information or questions, contact your supervisor.
8 For specific cost coverage information or questions, contact your supervisor.
9 For specific cost coverage information or questions, contact your supervisor.
10 *Occupational Health and Safety in the Care and Use of Research Animals*, pgs. 106-122; and the *Guide for the Care and Use of Laboratory Animals*, pgs. 14-19.

Hazard Identification and Risk Assessment (Appendix C, D, E, and F)
Examples:

- Identifies hazardous biological, chemical, or physical agents
- Identifies potential hazards that are inherent to animal work, such as animal bites, chemical cleaning agents, allergens, or zoonoses
- Assesses extent and level of participation in occupational health and safety training program on the hazards posed by the animals and materials used; the exposure intensity, duration, or frequency; the susceptibility of the personnel; and the history of occupational illness or injury in the particular workplace.

Personal Hygiene
Examples:

- Set high standards for personnel cleanliness and hygiene
- Require suitable clothing, gloves, masks, head covers, coats, coveralls, shoe covers, etc.
- Require hand-washing and changing clothes where necessary
- Prohibit eating, drinking, tobacco and cosmetics use in animal or research rooms

Facilities, Procedures, and Monitoring
Examples:

- Maintain cleanliness of facilities and supplies
- Consider ergonomics
- Inspect, maintain, and repair equipment
- Dispose of contaminated bedding properly

Animal Experimentation involving Hazards
Examples:

- Maintain written policies governing experimentation with hazardous biological, chemical, physical agents (University Police and Safety Office, IBC, etc.)
- Use recommended practices and procedures, safety equipment, and facility requirements for working with hazardous biological agents and materials
- Use special facilities and safety equipment
- Dispose of hazardous or contaminated waste properly

Personal Protection
Examples:

- Obtain proper clothing, shoes, shoe covers, gloves, arm protectors, masks, face shields, hearing protection, respirators, etc. from your supervisors

Medical Evaluation and Preventive Medicine for Personnel
Examples:

- Conduct medical evaluations for high risk and other designated personnel
- Recommend immunizations, vaccinations, and serum collections for particular individuals
- Inform personnel how to report accidents, injuries, illnesses, and property damage

Each of these elements, and how they are a part of NDSU's program, is described in further detail in Section II.

SECTION II: HAZARDS AND RISKS

Part A: Defining Hazard and Risk

What is a hazard?

A hazard is the inherent danger involved in working with a particular animal, material, equipment, process, procedure or system.

What is risk?

Risk is a measure of the likelihood of a consequence from working with a certain hazard.

What are the hazards involved in working with animals and animal projects?

There are many hazards involved in working with animals. These hazards range from minor to very serious, and can include things like allergies, bites, zoonotic diseases, working with hazardous chemicals or radiation, and handling contaminated waste. Information follows in this document that describes many of the potential hazards individually.

What are the risks involved in working with animals?

The risks involved with animal work, range from low to high potential of injury or illness from the identified hazards.

What can be done to avoid hazards and reduce risk?

The primary way to avoid problems in work with animals is to know what the hazards are and what precautions to take in order to avoid them.

Part B: Animal Workplace Hazards & Risks

1. Types of Hazards

The following chart outlines some categories and types of hazards that may be present in work with animals.

Table 1.[11] Example Types of Hazards that May be Present During Work on Animal Protocols.

Types	Examples
Physical Hazards	Bites, sprains, scratches, sharps, lasers, machinery, slips, falls
Chemical Hazards	Burns, skin irritations, inhalation, ingestion
Zoonoses	Human diseases acquired from animals
Allergens	Allergies to rodents, cats, dogs (urine, contaminated litter, dander, hair)
Ergonomics	Heavy lifting, repetitive motion, body mechanics, posture
Infectious Agents	Bacteria, fungi, parasites, protozoa, rickettsia, viruses, blood-borne pathogens

11 Adapted from *Lab Animal*, p. 25, Volume 26, No. 6, June 1997.

2. Animal-related Hazards & Risks

Summary

Table 2. Model animal risk assessment summary for risk ranks of animal-related activities for immunocompetent adult humans. Risk ranks are based on both the likelihood of an incident and the seriousness of the possible abnormal condition. Risk levels for experimental agents are not included in the chart, and use of experimental hazardous agents requires review and approval of the appropriate safety committee.[12]

Risk of	Bite wound (a)	Scratch wound (a)	Microbial flora exposure (b)	Allergy development
Chick embryo	1	1	2	1
Fish	1	1	2	1
Reptiles	3	1	2	1
Amphibians	1	2	2	1
Mouse	2	2	1	3
Rat	3	2	1	3
Hamster	3	2	1	2
Guinea Pig	2	2	1	3
Rabbit	2	3	1	3
Cat	3	3	3	3
Dog	3	2	2	2
Sheep, Goat	1	2	3	2
Pig	2	1	3	2
Wild mammals & birds	4 (if handled)	4 (if handled)	3	2
Cattle	1	1	3	2
Bison	1	1	3	2
Horse	1	1	1	1

Key: 1 = No known risk
2 = Minor risk
3 = Moderate risk
4 = Significant risk
5 = High risk

[a] = Potential microbial contamination and physical trauma are both included. Tetanus prophylaxis is required for all staff members.

[b] = Risk of inhalant, ocular, or oral exposure to microbial or parasitic agents from animals acquired through institutionally approved vendors.

Zoonoses. Diseases communicable from animals to humans are called zoonoses. In many cases the animals show little, if any, sign of illness. A bacterium in the normal flora of a healthy animal may cause a serious disorder in a person exposed to it. While the animals have developed "resistance" to these microorganisms, humans with no previous exposure to the agent lack this protective immunity. Therefore, one should always be aware of possible consequences when working with each type of animal and then take precautions to minimize the risk of infection (see the zoonoses chart in Appendix A of these *Guidelines*).

12 From *Lab Animal*, p. 31, Volume 30, No.4, April 2001.

Zoonoses can be acquired through various routes of infection, including contact with animal products, the animal itself, or a byproduct of the animal. The routes of infection include ingestion, inhalation, penetration of broken or unbroken skin, wound penetration; and contact with the mucous membranes of the eyes, nose, and mouth via the following:

- Animal bites and scratches;
- Contact with animal tissues and cultures, body fluids, and excreta;
- Inanimate objects that are contaminated by the animal or animal contact; and
- Exposure to aerosols produced as a result of activities such as cleaning cages.

Individuals whose work involves exposure to or handling of animals and animal tissues, body fluids, and cell cultures should be aware of the possibility of the illnesses that may be transmitted by contact with animals. In the zoonoses training module, at-risk individuals are informed of laboratory-acquired zoonoses, causative microorganisms, animals most commonly in contact with humans, appropriate animal handling procedures, personal hygiene, and protective equipment specific to the animal type and use.

All known human exposure to a zoonotic disease is considered an incident and must be immediately reported by the individual to their supervisor or principal investigator for appropriate medical treatment and investigation. An NDSU Employee and Supervisor Incident/Accident Report must also be filed immediately or within 24 hours to the UP&SO. (Appendix B).

If a zoonotic disease is suspected in an animal, the principal investigator or supervisor and the NDSU Attending Veterinarian shall be notified immediately for appropriate action.

Allergens. Approximately 20% of people who work with animals have animal allergies. Animal allergies may be present before an individual begins formal work with animals, or the allergy may develop during the course of the individual's work with animals. Animal hair, fur, skin, dander, urine, saliva, scratches, etc., can cause or aggravate allergies to animals.

Physical Hazards. Physical hazards associated with animal contact can include animal bites, scratches, and kicks; noise; waste; and physical methods of euthanasia. Further information follows regarding physical hazards and ways to minimize the risk of injury from physical hazards.

Infectious Agents. Animal contact can bring personnel into contact with infectious agents, either from the animal itself or from agents introduced for the research project. Further information follows regarding infectious agents and ways to minimize the risk of exposure to them. Refer to Appendix C, D, E and F.

3. Non-Animal Risks

Table 3. Possible Risks and Hazards Present During Work on Animal Protocols.

Item	Examples	Potential Risk
Latex	Gloves, masks	Allergies
Freund's complete adjuvant		Can cause sensitization to TB
Steam/hot water	Used extensively for sanitation and sterilization	Can cause severe thermal burns
Chemicals	Detergents, acidic de-scaling agents, alcohol, cleaning products, flammables	Can cause chemical burns or toxicity
Pharmaceuticals	Anesthetics, antibiotics, analgesics, tranquilizing agents, test drugs	Can be toxic
Heavy items	Lifting feed bags, caging, animals	Can cause lifting injuries
Wet floors	Mopping floors and cleaning labs or animal housing facilities	Slipping and falling
Carcinogens, mutagens, teratogens, and other hazardous test substances	Cancer-causing agents, spills	Agents can cause genetic mutation; disruption of normal cellular development in an embryo or fetus
Biological toxins	Poisons and venoms	Agents capable of causing illness and/or death
Ultraviolet (UV) light	Germicidal lamps, outdoor work	Can damage eyes and skin
Sharps	Needles, scalpels, broken glass	May produce physical damage
Infectious agents	*E. coli*, *Salmonella*, parasites, Hanta virus, rabies	Risk of infection and illness
Husbandry	Cleaning bedding, cages	Exposure to contaminated bedding, waste
Flammable materials	Chemicals, bedding, paper towels and gowns	Burns, property damage
Pressure vessels	Compressed-gas cylinders, high-pressure washing equipment	Risk of explosion and personal injury
Lasers	Lasers	Eye damage due to viewing; burns
Electricity	Electrical hazards are present wherever electric current is present; absence of plate on wall socket; frayed or exposed wires	Electric shocks, burns
Ionizing radiation	Using radioisotopes in research animals, X rays, gamma rays	Exposure to radiation
Noise	Working in a loud environment with machinery and animal noise	Hearing damage, loss of concentration, distraction
Machinery	Excessive noise; dangerous equipment	Hearing damage; injury
Ergonomic hazards	Heavy and repeated lifting (of cages, large animals), pinch points	Risk of injury

4. Risk Factors to Individual Personnel

Table 4. Examples of Risk Factors to Individual Personnel.

Personnel type	Risk(s)	Caused by
Women of childbearing age	Threat to fetus	Exposure to cat feces (toxoplasmosis), sheep and goats (Q fever)
Individuals with chronic or pre-existing conditions (e.g., asthma, allergies, serious disease of liver, kidney, or spleen; immune system deficiencies; steroid, radiation, or chemotherapy patients; heart valve disease)	Worsening of pre-existing condition; further illness or complications	Exposure to animal skin, dander, fur, urine, etc.; exposure to Q fever or other zoonotic agents

Part C: Levels of Risk and Participation in the OHS Program

1. Risk Self-Assessment Questions

PI's, Supervisors and employees must consider the hazards and risks involved with each task or project conducted in their lab or facility.

PI's, Supervisors and those they supervise should discuss the potential hazards and risks associated with the animal work tasks that will be performed. **Supervisors must complete a Hazard and Risk Assessment** for each position they supervise (the Hazard and Risk Assessment form is attached as Appendix C of this document). This Hazard and Risk Assessment addresses broad issues and questions like:

1) What are the potential work-related animal, non-animal, and individual hazards and risks involved with the work you will be performing or supervising?
2) What preventive measures or actions are available (e.g., training courses, medical examinations, immunizations or vaccinations, personal protective equipment, avoiding contact with certain species) that could reduce, avoid, or eliminate identified hazards and risks?

Upon completion of the form, a copy must be given to the individual for review. They will be able to use this form to complete their Health Assessment Form (Appendix E) and provide a copy to the Medical Provider if they wish to proceed with the medical evaluation.

Health Assessments/Examinations:

As part of the hazard and risk assessment, employees should carefully consider the information provided in these *Guidelines* as they complete the **Health Assessment for Persons Involved in Animal Projects Form** (Appendix E). The answers to these questions are intended to provide the Medical Provider with information on the health hazards, demands and risks involved with the work that will be performed. A Designated Medical Provider will complete an evaluation using the Health Assessment Form as a medical reference baseline. Please read through the form in its entirety before completing it. Included on the form is an option to decline participation in the Occupational Health Assessment and medical evaluation. If an individual wishes to decline participation, they must sign, date and return it to their Supervisor for record retention.

If an individual chooses to participate in the Occupational Health Assessment, the completed form must be submitted to Meritcare Occupational Health in Fargo (address is on the form). Once the Medical Provider has completed the evaluation of the Health Assessment (Appendix E), employees

will be notified as to whether or not a physical evaluation is recommended. Cost of the evaluation, exams, vaccinations, immunizations, or other recommended medical procedures will be paid on a case-by-case basis, but is the responsibility of the department/facility/student.

Employees and students, please consider the questions (Appendix E) of this document. If you answer yes to any of the questions, NDSU highly recommends that you participate in the medical evaluation process. All NDSU sites in North Dakota will submit the evaluation to Meritcare Occupational Health in Fargo for review. If a medical consultation is recommended following the evaluation, that exam may take place at your Designated Medical Provider location.

Bring a copy of the Health Assessment Form (Appendix E), (Appendix D) Hepatitis B Form, and (Appendix F) Health Assessment to Supervisors to the DMP office visit for the healthcare provider to complete. After the medical exam, the health care provider will provide a copy of Appendix F to be returned to the Supervisor/NDSU to indicate:

1.) No existing health condition has been identified that could alter the employee's exposure-risk profile. ***OR***

2.) A health condition exists that affects the employee's exposure-risk profile but the risk can be minimized (and will provide example precautions or preventive measures – e.g., vaccinations; wearing gloves, masks, etc.; avoiding contact with certain species – that would minimize or eliminate the hazards and risks). ***OR***

3.) A health condition exists that affects the employee's exposure-risk profile that cannot be eliminated or minimized.

Upon completion of the Hepatitis B Vaccination Series, the DMP will provide a copy of the form (Appendix D) to be returned to the Supervisor/Department for retention in the individual personal medical file.

All medical records are confidential. They will be maintained by the Designated Medical Provider and the Department and will be shared only with the patient. As noted previously, the individual may be asked to authorize the release of limited information from the healthcare provider to the supervisor regarding any necessary precautions or restrictions necessitated by any physical limitations or conditions which could affect personal health or the health of the animals. These could include current conditions and possible future conditions.

If a health condition exists or there is a change in one's health that could alter the individual's exposure-risk profile, the individual will inform their supervisor of the medical provider's recommendations for eliminating the risk.

2. Levels of Risk & Participation

Table 5. Occupational Health Program Participation Requirements Based on Risk Rank of Animal-Related Activity.[13]

	Basic IACUC OHS Training Module	Review of information packet with supervisor	Training in animal handling & protective measures	Medical evaluation & surveillance recommended[14]	Immunizations or Vaccinations Recommended[10]
Level 1 (no known risk)	Yes	Yes	Yes	No	No
Level 2 (minor risk)	Yes	Yes	Yes	No	TBD*
Level 3 (moderate risk)	Yes	Yes	Yes	TBD*	Yes
Level 4 (significant risk)	Yes	Yes	Yes	Yes	Yes
Level 5 (high risk)	Yes	Yes	Yes	Yes	Yes

* TBD = to be determined by the individual, and/or a healthcare provider.

Part D: Avoiding Hazards & Risks: Prevention & Control Strategies

1. Exposure Control & Prevention

Table 6.[15] Exposure Control Methods.

Hazard or Risk Types	Prevention Strategy Examples[16]
Engineering Controls	Practice product substitution; use barriers; allow for adequate filtration and ventilation; maintain proper temperature and humidity controls; regularly check fire extinguishers, alarms, sprinklers
Work Practice Controls	Alter animal handling and transport to reduce exposure; pay attention to personal hygiene, housekeeping, and waste management practices; be informed of and practice Safe (or Standard) Operating Procedures (SOPs)
Personal Protective Equipment (PPE)	Wear gloves, uniforms, gowns, aprons, hard hats, safety glasses, steel-toed boots, respirators, etc.
Training & Education *(also see below)*	Participate in university and departmental specific training program; follow SOPs (Mandatory Baseline Safety Training and Supervisor Safety Training).
Equipment Maintenance & Operation	Follow SOPs; be trained in the proper use of equipment and machinery; regularly check machine performance (report any problems or needed repairs to supervisor immediately)
Animal Source	Purchase animals from reputable vendors; avoid contact with wild animals or animals of unknown origin; take necessary precautions (PPE, proper animal

13 Chart adapted from *Lab Animal*, p. 34, Vol. 30, No. 4, April 2001.
14 The cost of medical exams and vaccinations/immunizations are to be paid by principal investigators (from direct costs written into grants), departments, or individual personnel. Students may be accountable for certain medical costs (e.g., the cost of a tetanus shot) if such treatment is required for a course involving animals (i.e., students pay for a shot just as they would for a textbook).
15 Adapted from *Lab Animal*, pg. 26, Vol. 26, No. 6, June 1997.
16 Includes some, but not all, strategies for avoiding, reducing, or eliminating exposure to hazards and risks.

	handling instruction) when it's necessary to work with high-risk species
Animal Housing, Caging, Bedding	Follow SOPs; wear gloves, protective clothing, use proper posture and body mechanics (lifting, pushing, pulling, etc.).
Hazardous Material Use	Follow SOPs; attend university training in lab and chemical safety
Waste Disposal	Follow university policies and procedures for hazardous waste removal (allow UP&SO to dispose of the waste properly)
Animal Transportation	Do not transport animals through common, non-animal corridors or facilities (may expose non-animal personnel); use proper techniques and transport devices
Emergency Procedures	Know the contact people for each facility; be sure emergency phone numbers are posted in animal facilities; be familiar with standard emergency procedures like evacuation routes and emergency exits, what to do in the event of a chemical spill, which medical providers to go to in medical emergencies, and how to report injuries to the University Police and Safety Office, Claims Management Specialist.
Zoonoses	Obtain appropriate immunizations or vaccinations; wear gloves and protective clothing when handling species with zoonotic disease potential; participate in medical consultations and surveillance; avoid high-risk animals and situations
Animal Handling	Learn proper handling techniques; wear protective gloves, clothing, respirators, etc.
Good Housekeeping	Maintain a clean and organized work area that is free from clutter
Personal Hygiene & Safety *(also see below)*	Wash hands; wear PPE, as necessary
Women of Childbearing Age	Avoid all exposure to possible toxoplasmosis infection and/or do not have contact with cat feces; Avoid contact with hazardous chemicals – especially during the first trimester; wear PPE
Medical Assessments & Immunizations/Vaccinations	Receive the recommended immunizations to prevent disease transmission; Learn strategies (such as wearing a mask) that would reduce or eliminate exposure to health-altering situations (like allergies)

Information on Education & Training

The extent of a person's personal involvement in the program will be determined by the assessment of the potential risks to the individual's position at the University.

Departments, Supervisors and Principal investigators will be responsible for providing training for the students and employees working under their supervision. The training will be specific to the species and procedures to be used.

Departments will be responsible for maintaining the documentation of the Departmental Specific Training. Training requirements use a fiscal year calendar and documentation must consist of the following information: date of training, topics covered, name of the person providing the training, and the participants acknowledgement of attendance. Records should be maintained for *five years,* unless otherwise specified. The University Police and Safety Office will manage the documentation of the mandatory University safety training.

NDSU's Police and Safety Office provides training and/or training resources that outline general health and safety issues at NDSU associated with working with vertebrate animals. The IACUC serves as a primary resource, and assists principal investigators and supervisors in assuring proper animal care and use training of those they supervise.

The IACUC has developed and organized a collection of training modules to cover the spectrum of animal activities undertaken by NDSU faculty, staff, and students in regards to animal use. Some of these modules are developed and in-place, while others are continually being developed and added to the program. The training and education programs in animal care and use occupational health and safety, utilize the programs and resources of the University Police and Safety Office, and the IACUC Office/Office of Sponsored Programs Administration/Office of the Vice President for Research, Creative Activities and Technology Transfer.

NDSU TRAINING PROGRAM

The key element to a successful accident prevention program, and in any occupational safety and health program is effective job orientation and safety and health training. NDSU's Risk Management Program will address the basic safety training and continuing education of the job elements, on-the-job safety, general health, and the prevention of injury and illness. The program shall include an employee orientation process in which all employees learn the general safety rules, safe operating procedures, ergonomic hazards, and claims management procedures.

The program will, at a minimum, require orientation and initial training for new, transferred and reassigned employees to different positions, along with periodic regular training on at least an **annual** basis for all employees. Required training will consist of documented training on the following subjects.

- Incident/Injury Reporting Procedures
- Claims Management
- Basic Principles of Ergonomics
- Substance Abuse Policy
- Safe Operating Procedures (**Mandatory All NDSU Employees – Annual Baseline Training**)
    - Bloodborne Pathogens
    - Hazard Communications
    - Fire and Disaster Plan
    - Electrical Safety
    - Housekeeping
    - Slips, Trips and Falls
    - Material Handling
    - Personal Protective Equipment
    - Computer Security
    - HIPAA

- Asbestos Awareness
- ***Department Specific Safe Operating Procedures***
    - Mandatory Upon Hire (examples of **specific department training**)
        - Lab and Chemical Safety Training (initial & refresher every 2 yrs)
        - Radiation Safety Training (initial & refresher every 5 yrs.)
        - Hazardous Waste& Biohazards
        - Bloodborne Pathogens (advanced)
        - X-ray (initial) & Laser
        - Pesticide Application
        - Forklift/Heavy Equipment
        - Lockout-Tagout
        - Confined Space
        - Occupation Health and Safety with Animals
        - Animal Species/Common Name, Animal Welfare and the NDSU IACUC
        - CPR/First Aid/AED
        - Asbestos (initial)
        - Other

Additional training will be conducted as follows:

- For employees changing positions or beginning a new position for which training has not been previously received.
- Whenever new substances, processes, procedures or equipment are added or changed that may present a new or previously unrecognized hazard.
- Whenever an incident/accident investigation recognizes a training need.

List of Current NDSU IACUC Training Modules

Required training programs:

- "Animal Care & Use at NDSU"
- "Occupational Health & Safety in the Care & Use of Vertebrate Animals"

All courses listed are available online as a self enrolled blackboard session. You may contact the director of the IACUC for further information. Future access through the IACUC website will be made available.

Training programs that may be required by supervisors for particular work with animals:

- "Biology & Husbandry of the Rabbit"
- "Biology & Husbandry of the Guinea Pig"
- "Biology & Husbandry of the Hamster"
- "Biology & Husbandry of the Mouse"
- "Biology & Husbandry of the Rat"
- "Animal Environment, Housing, and Management"
- "Biology & Husbandry of the Gerbil"
- "Surgery Module"
- "Swine as a Research Animal"
- "Euthanasia Module"
- "Zoonoses Module"
- "Beef Cattle Husbandry"

- "Bison management"
- "Dairy Cattle Husbandry"
- "Horse Husbandry"
- "Sheep management"
- "Johnes Disease"
- "Aseptic Techniques"

Additional list of NDSU-wide Education & Training Courses or Safe Operating Procedures (Administered by the University Police and Safety Office/Safety and Risk Management Program.)

- Radiation Safety Short Course (Department/Individuals pay for this course.)
- Lab Safety Course (Chemical safety & lab practices.) (Provided at no cost to departments.)
- Blood-borne Pathogens Course
- Baseline Safety Training (Free of charge and **required** for all University employees. Covers topics like ergonomics, hazard communication, fire, incident/injury reporting.)
- Personal Hygiene (SOP)
- Housekeeping (SOP)
- Electrical Safety (SOP)
- Lab Equipment (SOP)
- Hand & Power Tools (SOP)
- Hazard Communications (SOP)
- Respiratory Protection (SOP)
- Blood-borne Pathogens (SOP)
- Livestock Slaughtering (SOP)
- Fall Protection (SOP)
- Farm Equipment Operation and Maintenance (SOP)
- Compressed Gas (SOP)
- Fire Reporting and Evacuation (SOP)
- Personal Protective Equipment (SOP)
- General Safety Rules (SOP)
- Laser Safety (SOP)
- Cryogen Safety (SOP)
- Extreme Weather (SOP)
- Police/Security (SOP)
- Ergonomics (SOP)
- Zoonoses
- **Other (please see UP&SO Website)**

Further Information on Personal Hygiene: General Laboratory Safety Protocol

The following basic lab safety protocols must be adhered to.

- Make certain that all laboratory personnel, including service and custodial staff and visitors, understand the chemical and biological dangers associated with the lab or facility.
- Affix biohazard signs on doors outside laboratories where biohazardous material is handled or stored (available from the University Police and Safety Office). The protocol to be followed in case of a spill of the biohazardous materials should be posted in a visible location in the laboratory or facility.
- **Restrict laboratory or facility access and keep doors locked when unattended**.
- Keep the facility clean and free of clutter. Make certain that emergency safety devices (fire extinguishers, eye washes, etc.) are easily accessible and in working order.
- Make certain that all personnel, students, and visitors wear protective clothing such as lab coats, gloves and safety glasses. Remove lab coats or gowns before leaving the laboratory or facility.
- Do not eat, drink, smoke, store food and food utensils, apply cosmetics or lip balm, or insert or remove contact lenses while in the facility or laboratory.
- Restrain long hair. Avoid wearing loose clothing or jewelry, shorts, open-toed shoes or sandals.
- Carry out procedures so as to minimize risks of splashes, spills, and generation of aerosols.
- Pipetting by mouth is not allowed.
- Use hypodermic needles only when absolutely necessary. Do not bend, break, shear or recap used needles. Use the appropriate sharps containers.
- Use a two-person team to inoculate animals when appropriate.
- Wash hands after handling infectious material and before leaving the laboratory.
- Decontaminate all contaminated materials before disposal or reuse.
- Decontaminate laboratory surfaces following any spill of biohazardous materials and at the end of each workday.
- Report all spills, accidents, and incidents immediately (as required by the NDSU Safety and Risk Management Program).

2. Health Precautions: Health Assessments and Exams, Immunizations and Vaccinations, Medical Surveillance

The cost of health assessments, vaccinations, immunizations, or other recommended medical procedures will be paid for on a case-by-case basis – either by investigators, departments, or individuals (see Section II.C.1. of these *Guidelines* for further information).

Immunizations & Vaccinations: Vaccinations are recommended if research is to be conducted on infectious diseases for which effective vaccines are available.

1.) *Tetanus immunization:* Boosters are suggested every 10 years. The history of immunization will be determined at the time of the initial assessment. Additional immunizations will be administered as needed.

2.) *Rabies immunization:* Pre-exposure immunizations with follow-up antibody titers every two years; repeat immunizations are required as follows if personnel:

   a. Work directly with the rabies virus;

b. Have direct contact with animals quarantined for rabies surveillance;
c. Are exposed to animals or animal parts with potential of containing infections rabies virus; and/or
d. Are responsible for the control of wild animals on campus.

3.) *Other:* Based on the health and hazard assessment the consulting physician will collaborate with the principal investigator, the supervisor, and or the Attending Veterinarian and UP&SO to advise of or determine the need for other or additional immunizations (such as tuberculosis or hepatitis).

Serum Banking: Serum banking serves as a reference sample if zoonoses transmission is suspected. Post-offer/pre-hire serum collection is advisable only in **specific circumstances** as determined by the consulting physician.

Allergies: Allergies should be identified and documented post-offer/pre-hire (Appendix E). Individuals with *pre-existing* allergic tendencies will be encouraged to seek help from their private physician.

Special Precautions for Women of Childbearing Age: Serological samples may be taken on all women handling *high-risk species* prior to beginning work to avoid confusion about the significance of various positive antibody tests in case of subsequent pregnancy. Female caretakers, especially those known to be pregnant, should not be exposed to possible toxoplasmosis infection and/or should not have contact with cat feces. Working with hazardous agents or toxic chemicals during pregnancy is also strongly discouraged. Personal protective equipment (PPE) should be worn at all times and additional precautions observed for pregnant women, as outlined by the principal investigator, supervisor, or physician prior to the start of work with animals.

3. Emergency Procedures & Reporting Incidents, Injuries, or Illnesses

Emergencies
Dial 911 in the event of fires, medical emergencies, or other serious threats. University police may also be contacted at 231-8998 for non-emergencies. Follow the procedures outlined by your department in the event of emergencies.

If the emergency or problem involves the animals, refer to the emergency contact placards posted in the animal facility for the names and phone numbers of the appropriate contact person(s) for that facility (see Appendix H). The NDSU Attending Veterinarian can also be contacted in the event of animal emergencies (231-7521).

Reporting Work Place Incidents, Injuries, Illnesses, or Near Misses
If you are injured and seek medical care or have been exposed to an illness during your work with animals, the following procedures must be followed (from the NDSU Workers Compensation Safety and Risk Management Program Employee Reference, January 2005; (see UP&SO Website).

To promote a safe work environment, all work related incidents, employee work related injuries, and work related near misses will be *reported immediately by the employee to their immediate supervisor or next person in charge at the time of injury*. If the immediate supervisor or other

department supervisory or administrative personnel are unavailable, the employee will call the NDSU Police (231-8998) or the UP&SO (231-7759) to report incidents involving employee work related injury and/or property damage. Near miss incidents will be reported to the department supervisory personnel as soon as those personnel are available or to the next person in the chain of command.

1. For **incidents involving employee work related injury, with or without medical treatment or property damage**, the following procedures apply.

   A. For all employee work related injuries, the employee's supervisor will be notified immediately and necessary medical care will be provided.

   B. Within 24 hours of the injury, the employee will complete the **NDSU EMPLOYEE'S INCIDENT REPORT*** and give it to their immediate supervisor or next person in charge. The supervisor will forward this report, along with the completed **SUPERVISOR'S INVESTIGATION REPORT**, to the UP&SO, Attn: Claims Specialist. Within 24 hours of receipt of the reports, the Claims Specialist will route the reports according to any routing instructions.

   C. Immediately after obtaining medical care, the employee will contact the UP&SO, Claims Specialist, for the Workforce Safety and Insurance **WORKER'S CLAIM FOR INJURY** forms and assistance in completing these forms.

   D. Within 24 hours of notification of the employee's medical care, the Workers Comp Claims Specialist will submit the completed Workforce Safety & Insurance, **EMPLOYER'S REPORT OF INJURY**. The **NDSU EMPLOYEE'S INCIDENT REPORT** and the **SUPERVISOR'S INVESTIGATION REPORT** will be maintained by the UP&SO.

2. For **incidents involving property damage only**, the following procedures apply.

   A. Within 24 hours of the incident, the employee will complete the **NDSU EMPLOYEE'S INCIDENT REPORT** and give it to their immediate supervisor. The supervisor will forward this report, along with the completed **NDSU SUPERVISOR'S INVESTIGATION REPORT**, to the University Police and Safety Office, Attn: Loss Control Specialist.

   B. Within 24 hours of receipt of the reports, the Loss Control Specialist will route the reports according to any routing instructions.

3. For a **Near Miss,** an incident that did not result in employee injury and/or property damage but had the potential for either, the following procedures apply.

   A. Within 24 hours of the incident/potential hazard, the employee will file a NEAR MISS REPORT with their immediate supervisor. The supervisor will assess the near miss incident and make certain corrective action to prevent recurrence.

   B. The **NEAR MISS REPORT** is filed with the Loss Control Specialist at the UP&SO.

4. Within this section of the program, there may be incidents involving the public, including students that may result in a future liability claim against North Dakota State University. Therefore, in sections 1 and 2, subsections B, there are routing procedures identified which would provide the necessary information to the appropriate personnel within the University for those incidents. Other incidents that are not work related, but involve the public, including students, and may result in a future liability claim, are covered under other University operating procedures separate from this program.

* NDSU's policy requires an employee, who is injured on the job, to notify the employer of the injury within 24 hours. This notification may be in oral or written form and must be given to the employee's immediate supervisor or another authorized individual. Workforce Safety and Insurance may take the failure to report into consideration when determining compensation of the claim. All of the above-mentioned forms are available at your department, at the University Police and Safety Office (231-7759, 1801 15th Ave N), and on the UP&SO web site.

All animal-related concerns, problems, or incidents should also be reported to the NDSU Police and Safety Office. A report must also be filed when a known human exposure to a zoonotic disease occurs. The UP&SO will work with animal facilities personnel to prevent similar problems from occurring in the future by implementing new SOPs, policies, procedures, hazard prevention methods, etc. Contact the UP&SO Office, with incident reports, suggestions, or questions.

4. Animal Care after Human Injury

Special procedures may be required to identify the risk of human exposure to diseases for a particular animal. All samples, animals, or equipment involved in a human injury shall be preserved and have special identification to aid in further testing and/or procedures. The principal investigator or supervisor and the NDSU Attending Veterinarian should be notified immediately for appropriate care of the animal, investigation of the incident, and corrective action. If the animal is used for teaching or research, medical information and care required shall be relayed to all participants.

SECTION III: PROGRAM PROCESS

Step 1: Identify personnel required to participate in the Occupational Health Program. This is done primarily through supervisors and the facility managers.

Step 2: The supervisor or principal investigator for each project or work area completes a **Risk Assessment (App C)** for each person working with animals in his or her lab or facility.

Step 3: Personnel, who work with animals, will be provided the opportunity to undergo a medical evaluation by a designated medical provider.

- ☐ They must read the **Health Assessment for Persons Involved in Animal Projects (App E)**
- ☐ Determine if they wish to decline participation in the health evaluation, examination, vaccinations, etc. If they wish to decline, they must sign and date and return to their supervisor. The record will be maintained in their medical file.
- ☐ If they wish to participate, they must complete the **Health Assessment for Persons Involved in Animal Projects** form and mail to the Designated Medical Provider for review.
- ☐ Participate in the medical examination *if recommended* by the DMP.
- ☐ Individual must return the Supervisor's Report (App F) to their supervisor/PI
- ☐ Return the Hepatitis B Form (App D) to your supervisor when the series of shots have been completed. This will be maintained in the individual's medical file.
- ☐ Supervisor, PI, or Departments will maintain a copy of the hazard assessment, medical record and Hepatitis B report in the individual's personal medical file (**Appendix C, D, E, & F**).

Step 4: Individuals are to be re-evaluated annually for health risks and re-trained on hazards and risks as determined by the supervisor, principal investigator, UP&SO, IACUC, etc. These training records must be maintained by the individual supervisor, PI or department.

All personnel involved in work with animals must complete the basic Occupational Health and Safety training module for both general workplace and for working with animals. Designated personnel then go on to additional, specific training modules (e.g., specific species handling & husbandry; or radiation safety training).

SECTION IV: PROGRAM EVALUATION

The program for occupational health and safety in the care and use of vertebrate animals is evaluated annually through the mechanism of the IACUC Semiannual Program Review. Documentation of this self-evaluated Semiannual Program Review (which becomes part of the Semiannual Report to the Institutional Official) is maintained in the IACUC Office. The IACUC Director and IACUC members conduct the Semiannual Program Review.

This review, based on the Sample Semiannual Program and Facility Review Checklist from the PHS-Office of Laboratory Animal Welfare (OLAW) Web site (http://grants.nih.gov/grants/olaw/sampledoc/index.htm), asks the IACUC and NDSU to consider, evaluate, and make certain that the following elements are part of an institutional animal care and use occupational health and safety program.

The evaluation asks whether the program:

- Is established and implemented;
- Covers all personnel who work with animals;
- Is based on hazard identification & risk assessment;
- Includes personnel training with information on topics like zoonoses, hazards, health precautions, etc.;
- Includes personal hygiene procedures (e.g., work clothing, eating/drinking/smoking policies);
- Has procedures for use, storage, and disposal of hazardous biological, chemical, and physical agents;
- Includes specific procedures for personnel protection (e.g., shower/change facilities, injury protection);
- Involves post-offer/pre-hire evaluation including health history;
- Offers immunizations as appropriate (e.g. rabies, tetanus) and tests zoonoses surveillance as appropriate (e.g., Q-fever, tularemia, Hanta virus, plague);
- Includes procedures for reporting and treating injuries, including bites, etc.

After the evaluation has been conducted, any deficiencies, problems, or suggestions for improvement regarding the animal care and use occupational health and safety program are brought to the attention of the IACUC and the Institutional Official for discussion and action.

APPENDIX A

SELECTED ZOONOSES
Diseases Spread from Animals to Humans

CALL 231-7521 (NDSU Attending Veterinarian), 231-8307 (NDSU Veterinary Diagnostic Lab), or 231-8114 (Institutional Biosafety Committee) TO ASK QUESTIONS OR REPORT SUSPECTED CASES.

Animal	Disease & Microorganism	Transmission	Human Symptoms & Diagnosis
Bacterial			
Farm animals	Anthrax *Bacillus anthracis*	Contact, inhalation, ingestion	Skin ulcer, septicemia, gastrointestinal disease
Cattle, birds, humans, swine, sheep, goats, rabbits, cats, dogs, ferrets	Tuberculosis *Mycobacterium* spp.	Aerosols	Primarily pneumonia but can affect many organ systems
Deer, dogs, horses, mice w/ ticks	Lyme disease *Borrelia burgdorferi*	Tick bites	Dermatitis, joint and muscle pain
Horses	*Rhodococcus* pneumonia *Rhodococcus equi*	Horse manure, soil	Pneumonia
Wild and domestic rodents with fleas, cats, dogs, coyotes, rabbits, goats	Plague *Yersinia pestis*	Fleas from named animals, ingestion, contact	Pneumonia, septicemia, gastrointestinal disease
Cats	Cat Scratch Disease *Bartonella henselae*	Cat scratch or bite	Dermatitis, lymph node swelling, fever, malaise, anorexia, headache
Dogs	*Capnocytophaga canimorsus*	Dog bites	sepsis, skin infection
Swine Sheep, goats Dogs Cattle	Brucellosis *Brucella suis, ovis, melitensis, canis, abortus*	Contact ingestion	Fever, headache, chills, myalgia, nausea, weight loss, septicemia
Domestic and wild animals; particularly rodents, livestock, amphibians, reptiles	Leptospirosis *Leptospira interrogans*	Contact with urine or tissue of infected animal	Fever, headache, chills, myalgia, rash, anemia, kidney failure, jaundice, nervous system disease
Dogs, cats, sheep, livestock, poultry	*Campylobacter* spp.	Ingestion, contact	Diarrhea, fever, nausea, vomiting
Farm animals Rodents Reptiles	Salmonellosis *Salmonella* spp.	Contact, inhalation, ingestion	Gastrointestinal disease, septicemia
Rodents, rabbits, pigs, sheep, cattle, horses, dogs, cats, and birds	Yersiniosis *Yersinia enterocolitica* and *pseudotuberculosis*	Ingestion, contact	Fever, diarrhea, abdominal pain
Birds (including parrots, ducks, turkeys, etc.)	Psittacosis *Chlamydophila psittaci*	Contact, inhalation	Fever, headache, myalgia, chills, pneumonia, hepatitis, encephalitis

Rabbits, hares, voles, muskrats, beavers	Tularemia *Francisella tularensis*	Animal contact, ingestion and tick bites	Skin ulcers, lymph node swelling, septicemia, pneumonia, gastrointestinal disease
Rats	Rat-bite fever *Streptobacillus moniliformis*	Primarily through rat bite	Chills, fever, malaise, headache, muscle pain, rash, arthritis, pneumonia
Various species of wild and domestic animals	Listeriosis *Listeria monocytogenes*	Ingestion, contact	Meningitis, septicemia
Viral			
Rodents	Hantavirus	Inhalation of infected aerosols (respiratory secretions, urine, saliva, feces)	Fever, myalgia, headache, cough, respiratory failure
All mammals; particularly wild and domestic canines, cats, skunks, raccoons, bats, and other feral animals	Rabies	Bites, saliva contact	Neurologic disease, dementia, coma
Horses or birds w/ mosquitoes	Eastern, western, and St. Louis encephalitis; West Nile Virus infection (arboviral disease)	Mosquito-borne from birds	Neurologic disease, dermatitis, fever
Avian species, swine, horses, mink	Influenza	Aerosol and contact	Fever, headache, myalgia, prostration, coryza, sore throat, cough
Sheep	Orf, contagious ecthyma, contagious pustular dermatitis, parapoxvirus	Contact	Ulcerative to nodular dermatitis
Rodents, swine, dogs, nonhuman primates	LCM (Lymphocytic choriomeningitis)	Contact, inhalation of secretions (urine, feces, saliva)	Fever, myalgia, headache, malaise (flu-like symptoms)
Swine	Streptococcosis *Streptococcus suis*	Contact, ingestion	Sepsis
Fungal			
Dogs, cats, rodents, cattle, horses	Dermatomycosis Ringworm *Trichophyton* and *Microsporum* spp.	Contact	Dermatitis
Avian species, particularly pigeons	Cryptococcosis *Cryptococcus neoformans*	inhalation	Pulmonary disease, meningitis, osteomyelitis
Rickettsial			
Cattle, Sheep, Goats	Q-fever *Coxiella burnetii*	Contact, inhalation, ingestion	Fever, chills, headache, weakness, malaise, profuse sweating, pneumonia

Dogs, rodents and their ticks and fleas	Rocky Mountain Spotted Fever *Rickettsia rickettsii*	Tick bites, aerosol	Fever, headache, encephalitis, myalgia, rash
Dogs, horses	Ehrlichiosis *Ehrlichia* spp.	Tick bite	Fever, chills, headache, weakness, malaise, nausea, vomiting
Parasitic			
Warm-blooded animals; particularly cats, sheep	Toxoplasmosis *(Toxoplasma gondii*)	Contact with cat feces or sheep placenta; ingestion of undercooked meat	Fever, myalgia, arthralgia, swollen lymph nodes, hepatitis; severe fetal infection in pregnant women; severe disease in immunocompromised people
Wild and domestic dogs and cats	Scabies *Sarcoptes scabiei*	Close contact with infected animals	Dermatitis
Wild and domestic animals; dogs, cats	Giardiasis *Giardia lamblia*	Ingestion	Anorexia, nausea, cramps, bloating, diarrhea
Mammals, birds, reptiles, fish; lambs, calves, pigs, rabbits, guinea pigs, mice, dogs, cats	Cryptosporidiosis *Cryptosporidium* spp.	Ingestion	Cramping, abdominal pain, diarrhea, anorexia, weight loss, malaise; severe diarrhea in immunocompromised people
Pigs	Balantidiasis *Balantidium coli*	Ingestion	Diarrhea, abdominal pain, straining, nausea, vomiting
Wild and domestic animal species	Roundworms Tapeworms Hookworms	Ingestion or contact	Mild gastrointestinal disease, Cutaneous and visceral larval migrans
Cattle and swine	Cysticercosis tapeworms	ingestion	Mild gastrointestinal disease, central nervous system disease (swine tapeworm)
Wild and domestic dogs and cats	Echinococcosis *Echinococcus granulosis* and *multilocularis*	ingestion	Internal tapeworm cysts
Swine, dogs, cats, horses, rats, many species of wild animals	Trichinosis *Trichinella spiralis*	ingestion	Dermatitis, muscle pain, periocular swelling, fever, sweating, chills

Developed by the NDSU Institutional Animal Care and Use Committee (231-8114), May 2001.

APPENDIX B
INCIDENT REPORT

NDSU RISK MANAGEMENT
EMPLOYEE INCIDENT REPORT

North Dakota State University
University Police & Safety Office
1801 15th Ave. N., ANPC Office Building
Fargo, ND 58105
Telephone: 701-231-6740 Fax: 701-231-6739

The highlighted areas are required fields

SECTION 1 (Attach additional sheets if necessary)

Date of Incident (MM/DD/YYYY)	**Day of Week**		**Time of Incident** ☐AM ☐PM
Employee Name:	**Date of Birth** (MM/DD/YYYY)	**Sex** M ☐ F ☐	**Social Security #**
Address:	**City**	**State & Zipcode**	**Home Telephone Number**
Job Title:	**Department:**		**Your Campus Phone Number:**
Supervisor Name:	**Supervisor Campus Phone Number:**		**Date you notified Supervisor:**

SECTION 2

Was anyone injured? ☐ Yes ☐ No **Did anyone received medical treatment?** ☐ Yes ☐ No

If yes, treating doctor(s) name and medical facility/clinic(s) address:

Body Part Injured: (specify right, left, if applicable) | **Prior injury to this part of the body?** ☐ Yes ☐ No

Description of incident and/or event —be specific:
1. Describe in detail what and how this incident/event happened.

2. Location where incident happened (be specific—building, street, etc.)

Weather Conditions, if applicable
Clear ☐ **Raining** ☐ **Snowing** ☐ **Sleeting** ☐ **Other**

Any witnesses to the above incident? ☐ Yes ☐ No
Witness Name **Address** **Telephone Number**

SECTION 3

Request for Ergonomic Evaluation: ☐ Yes ☐ No

- *I have provided this information as fact to the best of my knowledge.*
- *I have read and understand the Process for Reporting Work Place Injuries.*
- *I acknowledge that if I did not seek medical attention, I did have the opportunity to do so and I waive medical care at this time. I understand this does not preclude me from seeking medical attention at a later time.*
- *I understand the 24-hour reporting requirement for all incidents regardless of whether medical attention is necessary.*
- *I understand in the event medical attention is necessary, I am required to go to NDSU's Designated Medical Provider unless I have named my own designated medical provider in writing prior to this incident, emergency medical attention is necessary, or if it is not during regular work hours.*
- *I understand that I am to contact NDSU's Workers Compensation Claims Specialist in the event I need medical attention.*

NDSU's Designated Medical Provider for the Fargo area is:
MeritCare Occupational Health Clinic
3838 12th Ave. N.
Fargo, ND 58105
701-234-4700

Employee Signature **Department** Date

(Supervisor Report - continue on next page)

Supervisor Report

The employee's immediate Supervisor must complete this section in its entirety. The information contained in this portion will assist in preventing further hazards.

Injured Employee: _____ **Specific Body Part:** _____

Date of Injury _____

SECTION 4

Describe in detail the events leading to this incident. Please investigate – What, where, when, how, and why. Attach photos, drawings on a separate piece of paper, if necessary.

Factors:
Describe conditions (equipment, procedures, environment, behavior) that may have led to the occurrence of this incident.

How could this incident been prevented? (i.e. safety equipment/training):

Mandatory Corrective Actions:
What are the reasonable actions or steps taken to eliminate or reduce the likelihood of this incident reoccurring?

Date corrective action taken: _____

Supervisor investigation completed by *(print)*: _____ **Campus Phone #** _____

_____ _____
Signature **Department** Date

Immediately forward this form by Fax to 231-6739 or by campus mail to UP&SO, ANPC Office Building

FOR OFFICE USE ONLY

APPENDIX C

University Police & Safety Office,

231-7759

HAZARD & RISK ASSESSMENT

This form is completed for the purpose of conducting an occupational health risk assessment for the participant. This form will be used in conjunction with the Health Assessment Questionnaire to evaluate for appropriate medical surveillance.

Completion of this form for each individual involved in our animal care and use program is required by the principal investigator, supervisor, or department chair in order to aid in determining appropriate training courses and necessary health precautions to minimize the potential for animal-related health risks to NDSU employees and students assigned to animal facilities and projects. This form needs to be completed only one time for each individual under their supervision unless one or more of the following has changed: the duration of animal exposure, the type of activity, the type of animal and/or a change in the individuals, health status. A faculty principal investigator may do their own risk assessment.

Faculty/Staff/Student Name: _____

Department: _____

Phone: _____

Nature of Work/Job Title: _____

PI Assessment of Potential Work-Related Health/Safety Issues

All Animals to be encountered:

_____ Amphibian
_____ Birds
_____ Cat
_____ Cattle
_____ Camelid
_____ Dog
_____ Ferret
_____ Fish
_____ Gerbil
_____ Goat
_____ Guinea Pig
_____ Other: List

_____ Hamster
_____ Marine Mammal
_____ Mice
_____ Horse
_____ Primate
_____ Rabbit
_____ Rat
_____ Reptile
_____ Sheep
_____ Wild Rabbit/Mice/Rat
_____ Poultry

Level 0 No animal contact
Level 1 No direct contact, but enters animal facility
Level 2 Does not conduct procedures on live animals but handles “unfixed” animal tissues and fluids
Level 3 Handles, restrains, collection of specimens or administers substances to live animals.
Level 4 Performs invasive procedures such as surgery, necropsy

Will work involve any of the following?

1. Biological Agents
    - a. Recombinant DNA Yes No
    - b. Infectious Agents Yes No
2. Human Blood, Tissues, or Cells Yes No
3. Physical Agents
    - a. Caustic, Flammables or cryoagents Yes No
    - b. Noise Yes No
    - c. Radiation Yes No
    - d. Radioisotopes Yes No
    - e. Extreme environmental conditions Yes No
    - f. Lasers Yes No
4. Chemical Agents
    - a. Anesthetic gases Yes No
    - b. Drugs/Chemotherapeutic agents Yes No
    - c. Heavy metals Yes No

PI/Supervisor's determination of special preventative measures or actions to be taken for this individual's animal-related work.

1. Training courses
    - _____ Baseline Safety Training
    - _____ IACUC Training
    - _____ Occupational Health & Safety Program
    - _____ Chemical/Lab Safety Training
    - _____ Radiation Safety Training
    - _____ Laser Safety Training
    - _____ Exposure Control Plan
    - _____ Chemical Hygiene
    - _____ Other Protocol Specific Procedures
2. Health Assessment, immunizations/vaccinations
3. Personal protective equipment like gloves, clothing, respirators, etc.
4. Avoiding contact with certain species, etc.

List other:

By signature, I certify that the information provided is accurate, that I have provided the participant in Section A with the NDSU plan on the Animal Care and Use Occupational Health Program, and that I have provided necessary training on the items detailed in that program and as specified in this form.

_____

PI, Supervisor, or Dept. Chair Name (***please print***)

_____ _____

Signature of PI, Supervisor, or Dept. Chair Date

Provide a copy to the employee in conjunction with the Health Assessment Form (App F)

Retain a copy within your departmental health files

APPENDIX D

North Dakota State University

EMPLOYEE HEPATITIS B VACCINATION SERIES CONSENT/DECLINATION FORM

(This form is mandatory)

I, an employee of this facility, understand that due to my occupational exposure to blood or other potentially infectious materials, I may be at risk of acquiring Hepatitis B virus (HBV) infection. Hepatitis B virus is a viral infection with a major effect on the liver. Due to this potential, I have been offered the Hepatitis B vaccination series, which is 98% effective in preventing Hepatitis B.

I understand that the vaccination series will include an initial dose followed by a 2nd dose one month later, 3rd dose taken six months after the first. Antibody testing is performed 1-2 months after the third dose to assure antibody production.

An evaluation by a Healthcare Professional as to the indication for the Hepatitis B vaccination, potential side effects, contraindications, and answers to any questions I may have will be provided prior to the series.
I have been informed that this vaccine and vaccination series will be:

- At no cost to me, the employee, and assumed by my department and offered at a reasonable time and place.
- Provided under the supervision of a licensed physician, or by or under the supervision of another licensed healthcare professional.
- Provided in accordance with recommendations of the U.S. Public Health Service.
- Provided all laboratory tests conducted by an accredited laboratory at no cost to me, the employee, but assumed by my department.
- My responsibility to complete the series and follow medical recommendations.

Please Sign Choice 1), 2), or 3) Below

1) I, _____(Name of Employee), on _____ (Date), **CONSENT** to the Hepatitis B vaccination series and follow-up as recommended by the U.S. Public Health Service, offered by my employer, and as stated above.

Please provide a copy of this form to the Medical Provider

I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future should I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.

2) I, _____(Name of Employee), on _____(Date),
DECLINE the HBV vaccination series and follow-up.

3) I, _____(Name of Employee), on _____(Date),
DECLINE the HBV vaccination series and follow-up based on the fact that I have previously had the vaccination series.

_____(Employee's Signature) _____ (Date)

_____(Employee's Job Classification)

_____ (Supervisor's Signature) _____(Date)

Date of Hire	Date of Consent or Decline	Date of Dose 1	Date of Dose 2	Date of Dose 3	Date of Titer	HCP Written Opinion and Vaccine Data on File?

Please file copies of this report in the employee's confidential Employee Medical Record File

APPENDIX E

NDSU University Police & Safety Office
231-7759

NDSU Occupational Health and Safety Program

HEALTH ASSESSMENT FOR PERSONS INVOLVED IN ANIMAL PROJECTS

Last Name _____ First Name _____ MI _____

☐ Male ☐ Female Date of Birth _____

Local Address _____

Permanent Address _____

Local Phone _____ Permanent Phone _____

NDSU Department: _____ Supervisor: _____

Job Title: _____ Species of Animal to be handled: _____

If you wish to "Decline to Participate", please sign now.

I, _____, on _____ (Date), decline to participate in the Occupational Health Assessment and medical evaluation, treatment and surveillance program.
(If opting out of this questionnaire, this form is to be **returned to your supervisor for retention**)

If you wish to participate, please continue with this questionnaire and submit to the following for review. They will determine if an evaluation is recommended.
For employees: Meritcare Occupational Health Center 3828 12th Ave. N. 234-4700
For students: NDSU Student Health Service-Wellness Center 231-7331

If you answer "yes" to any of the questions in this category, it is recommended that you submit this questionnaire to the medical provider for review since work with animals may involve an increased risk for you. *These answers are confidential and should be discussed directly with a healthcare provider.*

_____ A. Is animal husbandry an essential part of your duties (provide food/water, clean cages, groom animals, etc.)? ***Essential means it is the reason the duty/responsibility of the job exists.***
- ☐ No animal Contact
- ☐ No direct contact, but enters animal facility
- ☐ Does not conduct procedures on live animals, but handles "unfixed" tissues and fluids.
- ☐ Handles, restrains, collection of specimens or administers substances to live animals.
- ☐ Performs invasive procedures such as surgery, necropsy.

_____ B. Do you work with (or in the proximity of) pregnant mammals (rodents excluded)?
_____ C. Do you work with (or in the proximity of) wild-caught mammals and/or wild-caught birds?
_____ D. Do you work with (or in the proximity of) venomous animals?
_____ E. Does your work with animals require you to be in contact with agents that are infectious to humans (blood or other tissues from animals infected or contaminated with a pathogen)? List the agent(s) _____
_____ F. Do you have known or suspected allergies to animals?
_____ G. Do you have chronic health problems (diabetes, asthma, high blood pressure, etc.)?
_____ H. Do you have renal or liver disease?

_____ I. Do you have heart disease?
_____ J. Do you have immune system deficiencies (or other medical conditions that may limit your ability to carry out your duties)?
_____ K. Do you have pre-existing allergic tendencies (hay fever, eczema, cholinergic urticaria, etc.)?
_____ L. Do you have a history of spleen problems or have you had a splenectomy (spleen removal)?
_____ M. Are you pregnant?
_____ N. Are you under current therapy using high dose steroids, radiation, or carcinogens?
_____ O. Do you work directly with the rabies virus or have direct contact with animals quarantined for rabies surveillance?
_____ P. Are you exposed to animals or animal parts with potential of containing infectious rabies virus and/or are you responsible for the control of wild animals on campus?

Will the work involve any of the following?

1. Biological Agents
    a. Recombinant DNA Yes No
    b. Infectious Agents Yes No
2. Human Blood, Tissues, or Cells Yes No
3. Physical Agents
    a. Caustic, flammables or cryoagents Yes No
    b. Noise Yes No
    c. Radiation Yes No
    d. Radioisotopes Yes No
    e. Extreme environmental conditions Yes No
    f. Lasers Yes No
4. Chemical Agents
    a. Anesthetic gases Yes No
    b. Drugs/Chemotherapeutic agents Yes No
    c. Heavy Metals Yes No

Personal Health History: Please answer all questions and comment on "yes" answers in space provided. Have you had? (Check all that apply)

1. Asthma
2. Serious Allergies
3. Bronchitis
4. Chicken pox
5. Tuberculosis (or exposure)
6. Diabetes
7. Thyroid disorder
8. Kidney disorder
9. Urinary problems
10. Recurrent headaches
11. Head injury
12. Loss of consciousness
13. Recent weight gain
14. Recent weight loss
15. Prolonged anxiety
16. Vision problems
17. Hearing problems
18. Carpal Tunnel Syndrome
19. Musculo-skeletal problems
20. Neurological problems
21. Hepatitis A, B, or C
22. Heart Disease
23. Chest pain/pressure
24. Shortness of breath/emphysema
25. Rapid/Irregular heartbeat
26. High blood pressure
27. Low blood pressure
28. Back problems/pain
29. Benign tumors
30. Cancer
31. Jaundice
32. Epilepsy/seizure disorders
33. Toxoplasmosis
34. Digestive problems
35. Insomnia
36. Gall bladder disorder

(Women)

37. Irregular period's
38. Severe cramps
39. Excessive flow
40. Pregnancy
41. Miscarriage

Comments: (regarding "yes" answers above)

Has your physical activity been restricted during the past five years? _____ Describe: _____

_____

Have you had any surgery during the past five years? _____ Describe: _____

_____

Have you been seriously ill or injured during the last five years? _____ Describe: _____

_____

Are you currently receiving medical treatment/counseling? _____ Describe: _____

_____

Do you take any medications routinely? _____ Describe: _____

_____

DO YOU HAVE ALLERGIES TO CHEMICALS? _____ Name: _____

DO YOU HAVE ENVIRONMENTAL ALLERGIES? _____ Name: _____

DO YOU HAVE MEDICATION ALLERGIES? _____ Name of drug(s): _____

RECORD OF VACCINATIONS RECEIVED:

Date of last Tetanus booster: _____

Date of Tuberculin Skin Test: _____ Result: _____

Dates of Hepatitis B Series: _____

PROVIDERS NOTES AND RECOMMENDATIONS:

- ☐ No medical evaluation/vaccine recommended based on the information provided.
- ☐ Recommend medical evaluation/vaccine based on submitted information.
- ☐ Notified individual of recommended medical evaluation/vaccine.

Health Care Provider Signature: _____ Date: _____

Return the "**Health Assessment Report to Supervisors" (Appendix G)** to your supervisor

APPENDIX F

University Police & Safety Office,
231-7759

NDSU Occupational Health and Safety Program

HEALTH ASSESSMENT REPORT TO SUPERVISORS

Employee/Student: _____ *Department:* _____

As a healthcare provider who has completed a health assessment of the student or employee listed below who will be working with animals, I certify that (check one):

☐ No existing health condition has been identified that could alter the employee's exposure-risk profile.

OR

☐ A health condition exists that affects the employee's exposure-risk profile but the risk can be minimized or eliminated. The employee must take the following precautions or preventive measures (e.g., vaccinations; wearing gloves, masks, etc.; avoiding contact with certain species) to minimize or avoid the risks: _____

_____

_____

OR

☐ A health condition exists that affects the employee's exposure-risk profile that cannot be eliminated or minimized.

Employee/Student Name (Please print) _____

Supervisor Name (Please print) _____

Health Provider Facility Provider (Circle one) MeritCare Occupational Health Center Designated Medical

Health Care Provider Name (Please print) _____

Health Care Provider Signature _____ Date _____

Return to Supervisor

APPENDIX G

Institutional Animal Care and Use Committee (IACUC)

For the protection of animal subjects

IACUC Office

Department of Sponsored Programs Administration
Office of the Vice President for Research, Creative Activities and Technology Transfer
1735 NDSU Research Park Drive, P.O. Box 5756
Fargo, ND 58105-5756, Phone (701) 231-8114, Fax (701) 231-8089

NDSU System Facilities Housing Live Animals:

Emergency Contact List

Generally, for any animal questions, concerns, problems, or emergencies contact the NDSU Attending Veterinarian, Neil Dyer, at 231-7521, 231-8307, or (218) 233-9278.

Facility/Group	Contact Person 1*	Contact Person 2	Contact Person 3
NDSU Attending Veterinarian	Neil Dyer, D.V.M. 231-7521, 231-8307, or 218-233-9278		
NDSU Institutional Animal Care & Use Committee (IACUC)	Jayma Moore, D.V.M. Chair 231-8435	Pierre Freeman, Director 231-8114 or 231-8045	Phil Boudjouk, Institutional Official 231-8045 or 231-6542
NDSU Police	231-8998 (non-emergency)	911 (emergency)	Captain William MacDonald 231-7835 793-6243 Cell
Back-up Veterinarian (only contact if unable to reach Dr. Dyer and facilities managers)	Sarah Wagner, D.V.M. 231-5393, 701-232-5687		
Sudro 207	Stephen Qian 701-306-3088	Jagdish Singh 231-7943	Charles Peterson 231-7609
Stevens 104	Mark Sheridian 231-8110	Jim Grier 231-8444	
Stevens 111	Jim Grier 231-8444	William Bleier 231-8421	
Stevens Hall Greenhouse, *Winter housing*	Mark Clark 231-8246	Wendy Reed 231- 5921	William Bleier 231-8421
Van Es 106	Jane Schuh 231-7841 or 237-5456	Scott Hoselton 231-7905 or 277-8816	

* Unless otherwise noted, the area code for all phone numbers is 701.

Robinson Hall Rooms 116-125, 127-146	Tom Colville 231-7530 or 293-3772	Amy Ellwein 231-6369 or 218-233-6961	Teresa Sonsthagen 231-7531 or 588-4523
Robinson 126	Thomas Gustad 231-7530 or 293-3772	Rick Feldman 231-7518 or 235-3293	
Pole Barns West of ANPC	Tim Johnson 799-7847, 231-7612 or 232-0510 (H)	Terry Skunberg 231-7611, 231-7612	Teresa Sonsthagen 231-7531 or 588-4523
Animal Nutrition and Physiology Center	Tim Johnson 799-7847, 231-7612 or 232-0510 (H)	Terry Skunberg 231-7611, 231-7612	Al Misek 280-2729, 793-0512
Beef Barn	Gerry Erickson 231-8737	Matt Laubach 231-7022	Casselton Veterinary 347-5496
Sheep Barn	Wes Limesand 231-7782	Doug Tufte 231-7782	Casselton Veterinary 347-5496
Dairy Barn	Dan Shimek 231-7955	Todd Molden 231-7955	Valley Veterinary 232-3391
Swine Barn	Ron Zimprich 231-7039	Casselton Veterinary 347-5496	
Quarantine Barns West of I-29	Al Misek 280-2729, 793-0512	Dale Redmer 231-7991	
Horse Park ***September – May only***	Carrie Hammer 231-5682, 793-0421	Bobbi Bingeman 793-4351	Al Misek 280-2729, 793-0512
Hettinger Research Extension Center (REC)	Chris Schauer 567-4323, 567-3582	West River Veterinary Clinic 567-4333	
Central Grasslands (Streeter) REC	Brian Kreft 424-3406	Steele Veterinary Clinic 475-2300	Ritchie Cargo 424-3639
Carrington REC	Vern Anderson 652-2951	Southwood Veterinary Clinic Jamestown, ND (701) 252-3430	
Dickinson REC (Manning)	Gary Ottmar 573-4553	Dr. David Hacker 764-5626	
Dickinson REC (Dickinson)	Kris Ringwall 483-2427	Yost Veterinary Clinic 225-4863	Dr. Pat Williams 225-8719

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