The College of New Jersey

Occupational Health and Safety Program (OHSP)
for the
Institutional Animal Care and Use Committee

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Table of Contents

STATEMENT OF PURPOSE

The College of New Jersey (TCNJ) is committed to providing a safe and healthful environment for all members of its community. In pursuit of this endeavor, the Occupational Health and Safety Program (OHSP) for the Institutional Animal Care and Use Committee (IACUC), described below, provides guidelines and outlines procedures in accordance with federal and state regulations that meet occupational standards for working with vertebrate animals.

INTRODUCTION

The OHSP for the IACUC provides guidelines and outlines procedures for TCNJ Employees and Research Personnel working within the boundaries of the animal care and use program. The two goals of this program are:

1. to prevent injury and illness by eliminating, controlling, or protecting against hazards in the workplace; and
2. to protect human health and the environment from improper disposal or handling of wastes associated with animal care and research.

Any exceptions to the normal procedures outlined in this document must be approved by the Office of Environmental Health and Safety (EHS) for this document, or authorized designee.

Any employee who fails to adhere to the procedures contained within this document will be subject to disciplinary action, up to and including termination of employment.

STATUTES AND REGULATIONS

The following statutes and regulations apply to the care of research animals at TCNJ:

1. As mandated by the federal Animal Welfare Act (AWA), the U.S. Department of Agriculture (USDA) adopted animal welfare regulations (AWRs) with subsequent amendments that require proper care and monitoring of laboratory animals, and informed review and approval of associated research.
    - Animal Welfare Act as Amended (7 USC, 2131-2159) – **Attachment A**
    - Public Law 89-544 - Animal Welfare Act of August 24, 1966
    - Public Law 91-579 - Animal Welfare Act Amendments of 1970
    - Public Law 94-279 - Animal Welfare Act Amendments of 1976
    - Public Law 99-198 - Food Security Act of 1985, Subtitle F - Animal Welfare
    - Public Law 101-624 - Food, Agriculture, Conservation, and Trade Act of 1990, Section 2503 - Protection of Pets
    - Code of Federal Regulations, Title 9, Chapter 1, Subchapter A - Animal Welfare (Parts 1 through 4)
    - Final Rules: Animal Welfare; 9 CFR Parts 1 and 2. Federal Register, Vol. 54, No. 168, August 31, 1989, P. 36112-36163
    - Final Rule: Animal Welfare; Standards; 9 CFR Part 3. Federal Register, Vol. 55, No. 32, February 15, 1991, P. 6426-6505.
2. As it relates to TCNJ, the Office of Laboratory Animal Welfare (OLAW) exercises compliance oversight relative to the Public Health Service Policy on the Humane Care and Use of Laboratory Animals (PHS Policy) (**Attachment A**) which places responsibility for ensuring a safe working environment for personnel involved in the care and use of vertebrate animal's for research teaching or demonstration purposes.

Animal research conducted at TCNJ is subject to the following federal agencies:

1. The USDA oversees animal welfare regulations in accordance with the Animal Welfare Act.
2. The NJ Public Employees Occupational Safety and Health (PEOSH), Occupational Safety & Health Administration (OSHA) and the Environmental Protection Agency (EPA) are the regulating agencies for employee health and safety.

The following EHS programs correspond to regulations enforced by the federal and state agencies that relate to the program outlined in this document:

1. Chemical Hygiene Plan
2. Bloodborne Pathogens Exposure Control Plan
3. Eyewash & Emergency Shower Inspection Program
4. Right-To-Know / Hazard Communication Program
5. Regulated Medical Waste Program
6. Respiratory Protection Program
7. Personal Protective Equipment Program
8. Hazardous Waste Disposal Program
9. Back Safety Education Program
10. Ergonomics Program

DEFINITIONS

Animal - Any live, vertebrate animal used or intended for use in research, teaching, research training, experimentation, or biological testing or for related purposes.

AWR - Animal Welfare Regulations and all amendments as adopted by the U.S. Department of Agriculture.

Decontamination - The process or treatment that renders a laboratory instrument or environmental surface safe to handle.

Decontamination Procedures - Includes both sterilization and disinfection as two procedures to address microbial contamination.

Disinfection - The elimination of essentially all pathogenic non-spore forming microorganisms (but not necessarily all microbial forms) from work surfaces and equipment. The effectiveness is influenced by a number of factors, including: types and numbers of organisms; amount of organic matter; the object being disinfected; the disinfectant being used; exposure time, temperature and disinfectant concentration.

Employee (including Student Worker) – An individual employed by TCNJ, classifications include full time staff and faculty members as well as student workers whose job descriptions include animal care.

IACUC - Institutional Animal Care and Use Committee. AWRs and PHS Policy both require that institutions conducting animal research have an Institutional Animal Care and Use Committee (IACUC) to review and monitor animal care and use and provide oversight of all aspects of research involving vertebrate animals

Principal Investigator (PI) - Employee of TCNJ conducting animal research under an approved IACUC protocol.

PPE - Personal Protective Equipment.

Research Personnel - PI, student researcher, visiting researcher, visiting student

Sterilization - The use of physical or chemical processes to destroy all microbial life, including highly resistant forms such as bacterial spores.

Student Researcher - An individual who is enrolled at TCNJ and has been cleared to work with animals, but is not a TCNJ employee (not a Student Worker)

Universal Precautions - The act of assuming that all potentially infectious equipment and animal fluids are actually infected and using all appropriate precautions to prevent exposure.

Zoonoses - Diseases of animals that are transmissible to humans.

IDENTIFIED PARTIES AND RESPONSIBILITIES

The EHS office shall be responsible for:

1. Maintaining the Program, and/or updating the Program to reflect current protocols and/or regulations;
2. Meeting with the IACUC to review the facilities and Program on a semiannual basis;
3. Coordinating compliance of TCNJ's Regulated Medical Waste Program;
4. Reviewing animal care and use protocols for environmental, occupational health and safety concerns as they are proposed;
5. Conducting initial and annual departmental safety training for TCNJ full time Faculty and Staff (including Principal Investigators) working in animal laboratories;
6. Maintaining the Bite/Scratch Log with the Animal Bite/Scratch Incident Report Forms (**Attachment B**);
7. Coordinating removal of animal carcasses via a hazardous waste disposal contractor (**Attachment C**);
8. Coordinating initial, and if necessary additional, medical monitoring services to employees who are involved in the care and use of vertebrate animals (**Attachment D**); and
9. Maintaining and overseeing the records associated with inspections of the eyewash and emergency shower units, fire extinguishers and fume hoods/snorkels.

The Principal Investigator shall be responsible for:

1. Contacting EHS to discuss health and safety questions the Principal Investigator has that are associated with new protocols being developed to submit to IACUC;
2. Ensuring that all research personnel have the proper training to carry out approved research protocols.
3. Reporting all injuries and illnesses to TCNJ Office of Human Resources
4. Reporting animal bites and/or scratches to EHS, using the Animal Bite/Scratch Incident Report Form (**Attachment B**);
5. Providing details of the Regulated Medical Waste Program to all researchers;
6. Contacting EHS should an issue be found with the emergency showers and eyewash stations;
7. Providing information about environmental, occupational health and safety concerns, and procedures to eliminate or mitigate these concerns via protocols;
8. Consulting with the Office of Facilities Management should there be a need to change the current facilities as outlined in this Program to match changes in research and/or materials;
9. Contacting Building Services for problems with unwanted pests in the animal facility;
10. Providing access to Operations employees to conduct monthly inspections and/or provide maintenance of fire extinguishers, emergency showers, and eyewash stations, as needed.
11. Ensuring that all individuals, including all research personnel, are listed on (or appended to) the approved IACUC protocol for which they are conducting associated tasks.

All Employees (including the PI and those working the PI) performing animal research shall be responsible for:

1. Acting in accordance with this Program;
2. Receiving any specialized training and education needed for animal research or caring for research animals. This includes student researchers or student workers who are conducting tasks associated with animal research;
3. Participating in and adhering to the medical monitoring program;
4. Adhering to all medical restrictions identified through the medical monitoring program;
5. Ensuring that all regulated medical waste is handled in accordance with TCNJ's Regulated Medical Waste Program;
6. Contacting Campus Police at 609-771-2345 using a cell phone or 9-1-1 from any hard-wired campus phone to report an emergency injury or illness, and then informing Human Resources within 24-hours;
7. Contacting Human Resources to report a non-emergency injury or illness;
8. Completing an Animal Bite/Scratch Incident Report Form (**Attachment B**) for all animal bites and scratches, and providing it to the Principal Investigator. The Principal Investigator will then provide the report form to EHS;
9. Entering a work order for necessary cleaning or facility maintenance and coordinating the escort of the worker to the restricted lab.

Research Personnel performing animal research shall be responsible for:

1. Acting in accordance with this Program;
2. Completing and adhering to all training and education provided;
3. Completing the Animal Bite/Scratch Incident Report Form for all animal bites and scratches and reporting a bite or scratch (or other relevant injuries/illnesses) to the Principal Investigator (or proxy);
4. Completing medical monitoring forms and obtaining medical monitoring approval;
5. Ensuring that all regulated medical waste is handled in accordance with TCNJ's Regulated Medical Waste Program.

Operations employees performing job duties within the animal research facilities shall be responsible for:

1. Acting in accordance with this Program;
2. Coordinating job activities (i.e. ceiling tile replacement, sprinkler repair, cleaning, information technology issues, etc.), especially those that may result in loud noises, production of harmful debris (e.g. dust), or other disruptions to essential systems (i.e. HVAC, Electrical, Water, etc.) in and around animal housing and research areas. Informing the appropriate contact for the location where the job activities will be performed, with the expectation that the contact will inform the Principal Investigator and other parties as necessary;
3. Acting in accordance with the special posted requirements for each animal facility room;
4. Reporting to Human Resources with a non-emergency injury or illness
5. Immediately contacting Campus Police for all emergencies (e.g. injury, illness, etc.), at 609-771-2345 using a cell phone or 9-1-1 from any hard-wired campus phone.

POTENTIAL HAZARDS AND EXPOSURES WHEN WORKING WITH ANIMALS

1. Physical Hazards

For all emergencies, contact Campus Police at 609-771-2345 using a cell phone or 9-1-1 from any hard-wired campus phone.

A. Housekeeping and Sanitation

- To maintain appropriate levels of sanitation:

i. Keep all work surfaces clean and clear of obstructions, waste, and non-essential materials when not in use.
ii. Remove all boxes and bags of bedding material from the work area.
iii. Do not store boxes of chemicals on the floor.
iv. Ensure floors and work surfaces are clean. Use the appropriate cleaning and/or disinfectant solutions, and post "Wet Floor" signs when necessary. If the need arises, enter a Work Order to request Building Services to clean the floor.
v. Store animal feed separately from chemicals, chemical waste, and animal waste.
vi. Use a sufficient number of bags for the animal waste to meet the minimum required thickness of 6-mil, and dispose of immediately in the exterior dumpster by the loading dock.
vii. Include signage in research areas to alert others to any special precautions that must be taken with each room.
viii. Refer to TCNJ's Chemical Hygiene Plan for additional information.

B. Animal Bites and Scratches

- Animals respond to sights, sounds, and smells as people do, but they also hear, smell, and react to things that people cannot detect. In addition, animals have a "flight zone," and if approached by another animal or by a person, including the handler, the animal may try to escape. Even an unsuccessful escape may cause the animal to act aggressively that could lead to bites or scratches:

i. Obtain any specialized training that is needed to safely handle the research animals you work with.
ii. Be patient when handling animals. Inappropriate handling of an animal can cause discomfort, pain, and distress, and provoke an animal to attempt to or successfully bite or scratch.
iii. Wear appropriate Personal Protective Equipment (PPE) when handling animals. This can reduce the potential for injury or illness from a bite or a scratch.
iv. Keep in mind that even minor bites or scratches can result in infections and illnesses if they are not treated and cared for properly.
v. Following any bite or scratch, immediately and thoroughly wash the injury with soap and water to help prevent infection. Seek medical assistance as necessary, complete the Animal Bite/Scratch Incident Form (**Attachment B**) and report the incident to the appropriate supervisor.
vi. In the event of an injury, follow the procedures outlined in the appropriate section(s) of this program as they relate to your role in animal research.

C. Sharps (Needles, syringes, pipettes and scalpels)

- Sharps such as needles, syringes, pipettes, scalpel blades, etc., pose a risk for injury in the research lab and the animal facility. To minimize these risks:

i. Avoid using sharps whenever possible.
ii. When handling sharps is necessary, use extra care to avoid inadvertent contact since this has the potential for causing injury and associated illness.

iii. Always place used needles directly into a properly labeled sharps container without recapping.
iv. Do not attempt to bend, shear, break, or remove the needle from the syringe.
v. Do not bend, shear, recap or remove contaminated needles and other contaminated sharps unless:
    a. it can be demonstrated that there is no feasible alternative;
    b. the action is required by a specific medical procedure; or
    c. the recapping or needle removal is accomplished through the use of a medical device or one-handed technique.
vi. Do not place hands or fingers in sharps containers.
vii. Refer to TCNJ's Bloodborne Pathogens Exposure Control Plan and Regulated Medical Waste Program for additional information.

D. Lifting and Handling Heavy Loads

- Lifting and handling heavy loads using improper lifting techniques poses a risk for strain-related injuries. To minimize this risk:

i. Be aware that poor physical fitness, obesity, poor posture, and medical/physical conditions are personal factors that may increase the risk for strain-related injuries.
ii. Utilize proper lifting techniques or equipment and, if necessary, seek assistance to avoid injuries while moving large, heavy or awkward objects such as cages, bags of feed and bedding, equipment, boxes of supplies, etc.
iii. Whenever possible, reduce the weight of the load. If this is not possible, obtain assistance to move heavy or cumbersome loads.
iv. Whenever possible, use the elevator rather than the stairs to move objects from one floor to another. If use of the stairs is unavoidable, use extra caution on steps, move slowly, and coordinate your movements with anyone who is assisting you.
v. Refer to TCNJ's Back Safety Education Program for additional information.

E. Workstation Ergonomic Guidelines

- Inadequate lighting and improper posture or awkward movement while working at a computer can lead to eye strain, lower back pain, neck pain, muscle strains, as well as other discomforts. To minimize these hazards:

i. While working in a seated position, set chair height so that your heels are on the floor, or a footrest if necessary, while your knees are at about a 90-degree angle. Sit with your lower back against the backrest. Adjust the chair as necessary, including back angle, armrest height, seat pan depth, etc., to achieve a comfortable and supported seated position
ii. While using a computer in either a seated or standing position, keep your shoulders relaxed and your elbows at about a 90-degree angle. Place the keyboard so that your wrists are flat, with your fingers below your wrist. Adjust the monitor so that its top is at eye level.
iii. Place frequently used items (e.g. phone, stapler, tools, equipment, etc.) within easy reach, and avoid reaching and twisting.
iv. Use appropriate levels of general and task lighting as necessary to avoid eye strain.
v. If you have any questions or would like to request an ergonomic assessment of your workspace, contact the EHS office.
vi. Refer to TCNJ's Ergonomics Program and Back Safety Education Program for additional information.

2. Chemical Hazards

For all emergencies, contact Campus Police at 609-771-2345 using a cell phone or 9-1-1 from any hard-wired campus phone.

Hazard determinations for various drugs and chemicals in a protocol must be described in each protocol. Considerations regarding route of transmission, dosage, frequency of exposure, and use of appropriate engineering controls and PPE must be explained in detail.

Use of chemicals which are carcinogenic or known to have a respiratory hazard must be handled in a fume hood or vented biological safety cabinet.

A. Products Currently Used with Animal Research
   i. See **Attachment G**
   ii. The Principal Investigator shall submit any changes to IACUC via an updated or amended protocol. EHS will update the list based on the protocols.

B. The presence of chemicals in the research lab and/or the animal facility pose a potential hazard to the health of research personnel and animals. To minimize this hazard, the following guidelines should be followed:
   i. Be certain that you understand the proper use of any chemical or reagent before you use it.
   ii. Before using any chemicals or following any procedures that you are unsure of, obtain additional training and/or education through the Principal Investigator.
   iii. Properly use all necessary PPE. This may include but is not limited to safety glasses, safety goggles, chemical resistant gloves, lab coats and other commonly used PPE. Be aware that chemical sterilizing agents may require specialized PPE.
   iv. Be aware of potentially hazardous chemicals that are generally used in animal laboratories. These include:
      - Solvents (xylene, acetone, dimethyl sulfoxide)
      - Acids (hydrochloric, sulfuric, glacial acetic)
      - Bases (sodium hydroxide, quaternary disinfectants)
      - Fixatives (formaldehyde, paraformaldehyde, osmium tetroxide)
      - Sterilizing agents (peracetic acid, chlorine dioxide, peroxides, gluteraldehyde)
      - Anesthetics (isoflurane, tribromoethanol, methane sulfonate, nitrous oxide, urethane, barbiturates).
      - Toxic compounds (chlorine dioxide)
   v. Be familiar with the chemicals and the hazards associated with them that are used in your animal care and laboratory environment. Specific hazards may be present in your lab environment that do not exist elsewhere. The Campus-Wide Chemical Hygiene Plan (CHP) requires a written Standard Operating Procedure (SOP) for handling specific hazards that do not exist elsewhere in the department.
   vi. Always check the label for specific chemical properties, such as flammability, combustibility, corrosiveness, reactivity, and/or exposure hazards.
   vii. When in doubt, consult the manufacturer's Safety Data Sheets (SDS; aka MSDS) for all chemical products used. These documents provide detailed information on the hazards and precautions related to a chemical's use, and are available in the lab in which the chemical is stored and/or used.
   viii. Handle all chemical products with caution, and refer to the SDS and label for handling information.
   ix. Refer to TCNJ's Chemical Hygiene Plan, the Right to Know / Hazard Communication Program, and the Eyewash and Emergency Shower Inspection Program for additional information.

3. Biological Hazards

For all emergencies, contact Campus Police at 609-771-2345 using a cell phone or 9-1-1 from any hard-wired campus phone.

In some cases, organisms carried by research animals (e.g. bacteria, viruses), biological materials used in animal research, as well as the vertebrate animals used in research themselves may pose a health risk to the research personnel working with animals. The following information is provided to minimize health risks due to biological hazards.

A. Animals Used in Active Animal Care and Use Protocols at TCNJ

i. Mice – laboratory-supplied
ii. Rats – laboratory-supplied
iii. *Danio rerio* (zebrafish) – pet store-supplied
iv. *Xenopus laevis* (frogs) – laboratory-supplied
v. Snakes (various species) – caught in the wild and/or laboratory stock (non-venomous)
vi. *Gasterosteus aculeatus* (threespine stickleback fish) — wild caught or lab-reared
vii. *Birds (various species)*- caught in the wild

B. Animal Allergies

An allergic reaction is among the most common conditions that adversely affects the health of personnel that work with animals. The prevalence of allergic symptoms among workers exposed to animals ranges from 10% to 40%. Workers who are exposed continually to animal allergens tend to have progressively more frequent and severe symptoms, and an estimated 10% develop asthma. Therefore, it is critical that all workers seek to minimize their exposure to animal allergens. Additionally, once an animal allergy develops, the affected worker should minimize any additional allergen exposure to prevent the progression of allergy symptoms.

An allergic reaction is most often manifested by nasal symptoms (allergic rhinitis), itchy eyes (allergic conjunctivitis), and rashes. Symptoms usually evolve over a period of 1-2 years and may lead to acute anaphylaxis (a severe allergic reaction resulting from previous exposure) in a small number of people.

Allergens can be transferred from animals to humans in a variety of ways. Allergen proteins are most often passed from the animal through waste (hair, dander, urine, or feces). While these substances all produce respirable allergens, allergic reactions to them are not always triggered following inhalation. Sometimes direct contact with exposed skin is enough to cause an allergic reaction either locally or systemically. For example, the allergen protein from rodents is of urinary origin, and fish proteins can be an inhalation allergen for those who are sensitized.

Prudent efforts to prevent animal allergen exposure and reduce the frequency of sensitization require strict work practices and consistent use of PPE. In addition:

i. The work area must be kept clean to prevent inhalant and/or contact exposure and maintained (i.e. timeliness removal of bedding waste, etc.).
ii. The filters used in animal caging units and cage changing stations should be regularly cleaned and/or replaced.
iii. Procedures that minimize the release of airborne materials, including bedding dust and antibiotic aerosols, and the contamination of hands, arms, body and face should be adopted.
iv. Workers must use appropriate PPE during each and every animal contact to minimize allergen exposure.

v. It is particularly important to wear a dust face mask to reduce inhalation and hand-to-face spread of allergens, and to cover all exposed skin (i.e. by wearing gloves, a lab coat, sleeve protectors, etc.) to prevent allergen contact.

Once animal procedures are complete, all contaminated PPE and clothing must be removed and disposed of properly to prevent repeated exposure while performing subsequent duties. Consult your Principal Investigator (or proxy) for further information and access to approved PPE.

C. Zoonoses

Most laboratory animal species today are bred to be free of diseases that can be transmitted from animals to humans (zoonoses) that once were more common in these animals. However, in some laboratories where animals are used for research, there may still be a significant exposure hazard for transmission of diseases to humans, some of which can be life-threatening. Preventing exposure to these animal-related illnesses requires knowledge of the zoonoses related to the animals with which you will be working.

In the sections that follow, the zoonotic agents listed for each animal species are those that may be present in the animals being used. If a researcher is exposed through a bite, scratch, aerosol droplet, mucosal secretion, feces or urine, there is the potential for infection. In such cases, medical consultation through Capital Health Systems or Student Health Services is required.

i. Laboratory Mice - Modern laboratory mice are bred to exclude all zoonotic agents. Currently, TCNJ uses pathogen-free mice only. However, there is always concern about secondary infections that can occur with bites and scratches. Common skin, intestinal, and soil bacteria present on the researcher or the animal can infect a scratch or bite wound and cause secondary infections. Therefore, all mice should be handled with care, and any wound from a bite or scratch must be cleansed immediately with soap and water or an antiseptic, and medical treatment sought, if necessary, using the procedures detailed in the Program. The incident must be documented by completing a bite/scratch incidence form and reported to the appropriate supervisor. For severe wounds, medical consultation must be sought.

ii. Wild Mice – Wild mice, or laboratory mice that have been exposed to wild mice, have the potential to carry a variety of zoonotic bacteria and viruses that can be transmitted to humans. Because of the serious consequences of infection, those handling wild mice must follow animal handling procedures strictly, practice effective personal hygiene, and use proper PPE at all times when handling animals to help prevent exposure or an injury/illness.

iii. Foreign Mice - Mice that have originated from the wild, have had contact with wild mice, or are from foreign countries could be infected with one or more of the illness agents described here:

a. *Hantavirus* – Hantavirus is transmitted through inhalation of dried rodent feces and urine, when such material is raised into the air from disturbed bedding or nesting material. Transmission can also occur through rodent bites and contamination of broken skin or mucous membranes. The infection progresses from flu-like symptoms to respiratory complications and has resulted in death in over 50% of the cases, particularly when medical care was not obtained quickly. Exposure can be prevented through the use of proper PPE, good personal hygiene (e.g., washing hands with soap and water after each animal handling), wetting the bedding material prior to disturbance (to help limit hazards being released) and working in a properly-ventilated area.

b. *Lymphocytic Choriomeningitis Virus (LCMV)*– LCMV is transmitted to humans by inhalation, broken skin, or mucous membrane exposure to blood, urine, feces, and other body secretions from infected mice. The infection results in flu-like

symptoms one to three weeks after exposure. More severe symptoms that can result include meningitis and encephalitis. There is a special risk during pregnancy since the fetus can become infected. The use of proper PPE, such as disposable gloves and lab coat, along with careful hand washing will further reduce the likelihood of exposure.

iv. Rats - Modern laboratory rats are bred to exclude all zoonotic agents. Currently, TCNJ uses pathogen-free rats only. Therefore, unless the laboratory rats are exposed to wild rodents (those coming from the natural habitat outside the laboratory), there is limited concern for disease transmission from these research rats. However, there is always concern about secondary infections that can occur with bites and scratches. Common skin, intestinal, and soil bacteria present on the researcher or the animal can infect the scratch or bite wound and cause these secondary infections. Therefore, all rats should be handled with care. Should a person be bitten or scratched, the wound must be cleansed immediately with soap and water or an antiseptic, and medical treatment sought, if necessary, using the procedures detailed in the Program. The incident must also be reported as detailed in this Program.

   a. Rat-Bite Fever - Historically, rats have been known to carry the bacteria which can cause Rat-Bite Fever. When the bacteria are introduced through the bite, the wound initially heals, but soon develops ulcers, followed by a swelling of the lymph nodes, and a distinctive red and purple rash. Symptoms of arthritis, though rare, may occur. However, these bacteria have not been found in laboratory rats for decades due to the special efforts of commercial suppliers to eliminate this bacterium from breeding colonies.

v. Fish - Fish used in research colonies are mostly wild-caught or raised on commercial farms. These animals often contain parasites and bacteria. Of zoonotic concern are gram-negative bacteria that can cause secondary infection by contaminating existing wounds or entering through breaks in the skin. These bacteria include:

   a. Aeromonas – Aeromonas is transmitted to humans through drinking water or through contact with broken skin. The exposure results in gastrointestinal infections and acute diarrhea. Use of proper PPE, such as disposable gloves, will help prevent contamination of skin surfaces. Likewise, thorough hand washing is very important to further reduce potential for infection.
   b. Pseudomonas – Pseudomonas, much like aeromonas, is transmitted to humans through drinking water or through contact with broken skin. While the mild to moderate symptoms include gastrointestinal infections and acute diarrhea, severe pseudomonas infections can be life-threatening in immuno-compromised persons, and can cause chronic infections in cystic fibrosis patients. Use of proper PPE, such as disposable gloves, will help prevent contamination of skin surfaces. Likewise, thorough hand washing after every handling is very important to further reduce potential for infection.
   c. Mycobacterium – Mycobacterium can be transmitted from animals to humans by inhalation, broken skin, or mucous membrane exposure to infected animal mucous. There are several different strains of mycobacterium which cause severe diseases in both humans and animals; the two most common are leprosy and tuberculosis. The use of proper PPE, such as disposable gloves and a lab coat, along with careful hand washing after every handling, will reduce the likelihood of exposure.

vi. Amphibians - Amphibians used in research colonies are mostly wild-caught or raised on commercial farms. These animals often contain parasites and bacteria. Of zoonotic concern are gram-negative bacteria that will cause secondary infection by contaminating existing wounds or by entering through breaks in the skin. These bacteria include:

a. Aeromonas – Aeromonas is transmitted to humans through drinking water or through contact with broken skin. The exposure results in gastrointestinal infections and acute diarrhea. Use of proper PPE, such as disposable gloves, will help prevent contamination of skin surfaces. Likewise, thorough hand washing after every handling is very important to further reduce potential for infection.

b. Pseudomonas – Pseudomonas, much like aeromonas, is transmitted to humans through drinking water or through contact with broken skin. While the mild to moderate symptoms include gastrointestinal infections and acute diarrhea, severe pseudomonas infections can be life-threatening in immuno-compromised persons, and can cause chronic infections in cystic fibrosis patients. Use of proper PPE, such as disposable gloves, will help prevent contamination of skin surfaces. Likewise, thorough hand washing after every handling is very important to further reduce potential for infection.

c. Mycobacterium – Mycobacterium can be transmitted from animals to humans by inhalation, broken skin, or mucous membrane exposure to infected animal mucous. There are several different strains of mycobacterium which cause severe diseases in both humans and animals; the two most common are leprosy and tuberculosis. The use of proper PPE, such as disposable gloves and lab coat, along with careful hand washing after every handling will reduce the likelihood of exposure.

d. Salmonella – Frogs and toads are frequent carriers of salmonella and have been linked to outbreaks. Increasing evidence suggests that amphibians are also a source for salmonellosis (diarrhea, abdominal cramps, and fever). The most common route of exposure in humans is via breaks in the skin (i.e. scratches, puncture wounds, etc.) after direct contact with contaminated animals or indirect contact through contaminated surfaces. Even minimal indirect contact with frogs can result in diarrhea, fever, abdominal cramps, and vomiting. The use of proper PPE, such as disposable gloves and lab coat, along with careful hand washing after every handling will reduce the likelihood of exposure.

vii. Snakes - EHS has confirmed that venomous snakes are not currently housed at TCNJ. However, venomous snakes are used for off-campus research by TCNJ Principal Investigators. See **Attachment E** for Venomous Snake Bite Response Procedures.

a. Salmonella – Snakes are known to carry salmonella bacteria as part of their natural defenses. Salmonella can cause a variety of symptoms in humans, including fever, diarrhea, and abdominal cramps. A small number of persons who are infected with salmonella will go on to develop pains in their joints, irritation of the eyes, and painful urination. The coupling of PPE (gloves) with good personal hygiene habits (washing hands after every handling) is a very simple way to help prevent contracting this zoonosis.

viii. Birds - EHS has confirmed that birds are not currently housed at TCNJ. However, TCNJ research personnel working with wild birds off site may be exposed to biological hazards due to the following pathogens:

a. H5N1: Highly pathogenic influenza viruses have been linked to illness and sometimes death. Studies have established the viral hemagglutinin (HA) surface glycoprotein as the major determinant of H5N1 virulence.

b. Influenza A viruses: This virus circulating in avian species rarely infects humans. However, persons with specific medical conditions such as a chronic illness, immunodeficiency and pregnancy may be at higher risk of developing disease or complications from a zoonotic disease. Zoonotic diseases associated with birds include avian tuberculosis, erysipelas, ornithosis, cryptococcosis, histoplasmosis, salmonellosis, cryptosporidiosis, campylobacterosis, and escherichiosis. Avian influenza and velogenic Newcastle disease are potential threats in birds from foreign countries but are currently rare in bird populations in the United States. Birds, particularly wild, migratory species, can carry ticks associated with Lyme disease. Additional information on zoonotic diseases can be found on the Center for Disease Control and Prevention webpage: "Healthy Pets, Healthy People" (Link: https://www.cdc.gov/healthypets/index.html)

D. Contaminated Sharps

While sharps (i.e. needles, syringes, broken glassware, etc.) present a physical hazard due to the risk of lacerations caused by mishandling them, needlestick injuries represent a substantial risk since they can become infected, especially when injecting animals with microbial agents or drawing blood. Therefore, additional care should be taken when working with sharps. To minimize this risk:

i. Prevent exposure by assuming that all animal fluids carry bloodborne pathogens and/or other contagious diseases and are potentially infectious (known as Universal Precautions).
ii. Place potentially contaminated reusable sharps in appropriate containers immediately, or as soon as possible, after use.
iii. Do not place hands or fingers into a sharps container for any reason.
iv. Store contaminated reusable sharps in containers that do not require "hand processing" (putting a hand or fingers into the sharps container).

FACILITY DESIGN AND OPERATION

Research laboratories are designed and equipped to meet the demands of the tasks being performed within them. Engineering controls involve making changes to workstations or to the equipment used on the job. Administrative or work practice controls involve changing the way a job is done to avoid work-related hazards. Along with these controls, which help to mitigate a hazard at the source, the use of PPE is a safety control, and is the last line of defense against potential exposure or injury/illness. These controls work together to provide a safe and healthful working environment.

1. Engineering Controls for the Animal Facility and Research Labs

A. Fume Hoods

i. Laboratory fume hoods provide the primary control measure available in the laboratory to minimize exposure to hazardous substances used or generated during research activities.
ii. Fume hood should be used with the sash as low as possible. The fume hood is more effective at the sash operating height. In addition, the lowered sash provides a physical barrier between you and the fume hood contents.
iii. Hoods equipped with a flow-indicating device will sound an alarm if the sash is too high, indicating inadequate flow velocity. If the alarm sounds, lower the sash to the operating level (or lower) which will provide an adequate flow velocity (at this level the alarm should not sound).
iv. The fume hoods are inspected and serviced annually by an outside vendor to confirm proper operation. Any fume hoods that do not pass inspection standards will be removed from service and repaired.
v. Report any issues to the Office of Facilities Operations by calling ext. 2353 or entering a work order online.

B. Local Exhaust Ventilation
    i. The individual rat and mouse caging racks have a positive-pressure local exhaust ventilation system equipped with HEPA (High Efficiency Particulate Air) filters to help control any respirable hazards to or from the animals. The caging system is also equipped with pre-filters which are either washable or autoclavable.
    ii. Cage Washing Facilities
        a. The animal cage washing room has a floor drain and additional ventilation for the cage cleaning operations. The cage and bottle washer is isolated in a separate room to more effectively contain soiled bedding and the release of aerosols during cage washing procedures. In addition, Temp-A-Sure strips are used periodically to document that the cage and bottle washer is achieving the target temperatures necessary for proper cage sterilization. Once the cages are sterilized, set-up of clean cages occurs in a separate location. The cage and bottle washer is on a service contract and the soap dispenser is inspected regularly to ensure that the equipment functions properly.

C. Lighting
    i. The animal facility is equipped with emergency lights via generator backup to assist personnel to evacuate the facility safely in the event of a power outage.
    ii. The animal facility has adequate overhead lighting with standard fluorescent bulbs.

D. Emergency Eyewash Stations
    i. Laboratory spaces are equipped with emergency eyewash stations based on the hazards used within those spaces.
    ii. The emergency eyewash stations within the Science Complex and Biology Building are inspected monthly by designated personnel.
    iii. Report any issues with an eyewash station to Facilities Operations.
    iv. Eyewash stations requiring service will be tagged out by Facilities until repaired. All repairs to the eyewash stations will be performed by the Plumbing Shop within the Office of Facilities Operations.

E. Temperature and Humidity Control
    i. The room in the Biology Building that houses rats and mice is equipped with an independent ceiling-mounted heating and cooling unit that activates automatically when the room temperature shifts outside of preset levels.
    ii. Problems associated with temperature and humidity control should be directed to the Office of Facilities Operations at x2353.

F. Emergency Power
    i. Lighting, as well as power to the Thoren caging system for rats and mice, is supplied by an emergency power generator in the event of a main power failure in the Biology Building.

2. Reporting a Problem (non-emergency)

For problems that do not require *immediate* attention (non-emergency problems), a Work Order should be submitted online to Facilities, describing the nature and the location of the problem. These problems may include, for example, improperly functioning fume hoods, broken eyewash stations, leaky sinks or faucets, burnt out light bulbs, tripped circuit breakers, etc. Do not attempt to make repairs yourself!

3. Reporting a Problem (emergency)

For emergency problems that require immediate attention (e.g. flooding in the building) contact the Office of Facilities Operations at x2353 as soon as it is safe to do so. If the Office of Facilities Operations is unavailable, immediately contact Campus Police at 609-771-2345 using a cell phone or 9-1-1 from any hard-wired campus phone.

PERSONAL PROTECTIVE EQUIPMENT FOR LABORATORIES

The Principal Investigator is responsible for supplying the necessary and proper personal protective equipment (PPE) for each of their approved protocols. The PPE should be properly maintained and cleaned as necessary and stored in a designated area.

The level of PPE required for animal handling depends upon the degree of hazard present and the potential for exposure to the hazard. The appropriate level of PPE will be determined by the Principal Investigator, in consultation with EHS. The use of PPE, when necessary, must be described in all submitted Animal Care and Use Protocols (ACUPs).

1. Arm and Hand Protection

Injury can occur when arms and hands are exposed to physical, chemical, and/or biological hazards. Such hazards may include, but are not limited to: skin absorption of harmful substances; bites, scratches, cuts, lacerations, abrasions, or punctures; chemical or thermal burns; dermatitis; and harmful temperature extremes. Appropriate PPE is therefore needed to minimize the risk of injury due to these hazards.

Gloves are often used to prevent scratch and bite injuries from animals, as well to minimize injury or illness due to exposure to hazardous materials. While there is no "universal" type of glove that can protect against all potential hazards, it is important to select the most appropriate gloves for a particular application, while also understanding the limitations of the glove. Therefore, the specific hazards likely to be encountered should be considered before purchasing gloves.

A. Selection Criteria
    i. To select the appropriate PPE:
        a. Determine the potential injuries/illnesses, and the associated risks, that could be sustained from a specific animal. For example, handling a particular animal may require protection from bites/scratches and from exposure to disease. There may be a need to select gloves that protect against the greatest risk.
        b. Determine the toxic properties of any chemicals being used.
        c. Review the specific tasks associated with the research, to help determine the degree of dexterity required, the duration, frequency, and degree of exposure to a hazard, and the physical stresses that will be applied, among other criteria.
        d. Determine the level of arm protection that is necessary for handling a specific animal. A lab coat may be sufficient, or if additional protection is necessary, gaiters or extra-long gloves may be required.
    ii. In general, any type of chemical-resistant glove can be used for handling dry powder chemicals. In certain circumstances it is acceptable (and more cost-effective) to regularly change cheaper gloves than to reuse more expensive types, as long as performance characteristics are met and they provide adequate protection. If gloves are to be reused, they must be cleaned and decontaminated according to manufacturer's recommendations.

B. Latex Gloves and Related Allergies
    i. Many people have an allergic reaction to natural rubber latex. Latex exposure symptoms include skin rash and inflammation, respiratory irritation, asthma, and shock. In addition to skin contact with the latex allergens, inhalation is another potential route of exposure. Latex proteins may be released into the air along with the powders used to lubricate the interior of the glove
    ii. The National Institute for Occupational Safety and Health (NIOSH) recommends the following actions to reduce exposure to latex:
        a. Whenever possible, substitute another glove material (i.e. nitrile, neoprene, etc.)
        b. If latex gloves must be used, choose reduced-protein, powder-free latex gloves.
        c. Wash hands with mild soap and water after removing latex gloves.

2. Eye and Face Protection

Injury may result when eyes are exposed to hazards from flying particles, acids or other caustic liquid chemicals, and/or chemical gases or vapors. Such hazards may result in: damage to the eye, loss of vision (temporary or permanent), and/or the absorption of harmful substances into the body, as well as other injuries/illnesses. Therefore, the use of eye protection under these circumstances is essential.

Animals also present a hazard to the eyes and face; therefore, eye and face protection is required while handling animals. No single type of eye or face protection can provide protection against all potential hazards. It is therefore important to select the most appropriate type for a particular application, while also understanding the limitations and complications of its use. Contact lens wearers must wear appropriate eye and face protection in a hazardous environment since certain environments and activities (i.e. handling animals, dispensing chemicals, working in a dusty environment, etc.) may represent an additional hazard to contact lens wearers. Examples of eye and face protection include, but are not limited to, safety glasses (impact resistance), safety goggles (protection from chemical splashes, as well as dust), and face shields (provides full face protection).

A. Selection Criteria
    i. To select appropriate PPE for eye and face protection:
        a. Determine the potential injuries/illnesses, and the associated risks, that could be sustained from a specific animal. Recognize the possibility of multiple and simultaneous exposure to a variety of hazards
        b. Select adequate protection against the highest level of each of the anticipated hazards.
    ii. Select eye and face protection made of durable construction that can be disinfected and cleaned.
        a. For splash goggles:
            1) Select goggles that provide adequate ventilation and protect from splash entry.
            2) Select goggles that offer resistance to fogging, as atmospheric conditions, as well as restricted ventilation, can cause lenses to fog. Fogged eyewear can decrease visibility which, in turn, can result in a more hazardous situation.
        b. For safety glasses:
            1) Select safety glasses with side shields. If there are no side shields (e.g. wrap around, on the temples, etc.), they are not safety glasses.
            2) If needed, select safety glasses designed to be worn over prescription frames. These are called OTG ("Over-the-glass") safety glasses. Alternatively, prescription safety glasses may be selected.
            3) All safety glasses must be marked with a "Z87" (or similar) on either the lens or frame. Regular prescription lenses and sunglasses are not approved safety eyewear in a laboratory.
        c. Face shields:
            1) Face shields are not a substitution for primary eye protection, and should only be worn over safety glasses or goggles.

B. Fitting
    i. Any type of eye protection should be reasonably comfortable for the wearer.
    ii. Eyewear must fit snugly without interfering with the movements, vision, other personal protective equipment or prescription glasses of the wearer.

C. Inspection & Maintenance
    i. It is essential that safety glasses, safety goggles and face shields be kept clean since eye strain can result from looking continuously through dirty lenses. In addition, dirty lenses defeat the protective barrier established by PPE, leading to contamination and additional

hazards. Before use, inspect and, if necessary, clean the eye protection according to manufacturer recommendations. Store clean eye and face protection equipment in a clean, dust-proof container such as a box, bag, or plastic envelope, or in a dust-free environment.

ii. Replace any safety glasses or safety goggles with damaged, cracked, or pitted lenses. They are designed to withstand *one* impact from a flying particle. Any safety glasses or goggles that are damaged due to an impact should be replaced immediately.

3. Body Protection

Bodily injury is possible due to hazards associated with animal research. Such hazards may include, but are not limited to, chemical splashes, bodily fluid splashes, animal bites and scratches, and lacerations, cuts, and abrasions. A variety of protective clothing is available for the body, but the most common piece of personal protective equipment for persons performing animal research is the laboratory coat.

A. Selection Criteria:

i. To select appropriate PPE to protect against bodily injury:

a. Determine the potential injuries/illnesses, and the associated risks, that could be sustained from a specific animal. For example, a task may require protection from bites/scratches and from exposure to dusty or splashing materials. There may be a need to select appropriate PPE to protect against the greatest risk.

b. Determine if a laboratory coat provides sufficient protection for the expected tasks. In particular, determine if the laboratory coat must be closed (i.e. buttoned up) while conducting such tasks.

c. If a standard laboratory coat will not provide sufficient protection, determine if a disposable suit/coverall (e.g. a Tyvek suit) will. These suits are particularly useful to protect against dusty materials or materials that can splash, as well as protecting personal clothing from becoming soiled/dirty.

d. Determine if additional penetration protection is required, such as may be provided by a leather apron or coat.

e. Determine if leg or foot protection is necessary.

ii. No matter what type of body protection is provided, it should not be worn outside of the laboratory. This eliminates the possibility of contamination from outside the laboratory.

a. Note: ONLY lab coats dedicated for the homeotherm room that houses rats and mice may be used in that specific location, and these coats may not be used anywhere else. This is to minimize inadvertent entry of pathogens into the homeotherm room. In addition, protective foot coverings must be worn when entering the homeotherm room. Similar to the lab coats, these foot coverings should not be used anywhere else.

B. Fitting

i. Disposable suits/coveralls and laboratory coats come in a variety of sizes. It is not necessary to "up-size" this PPE to accommodate normal street clothes, since these measurements have already been taken into consideration when manufactured. Coats and coveralls that are too large can present a hazard to the user, since the extra material can get caught on edges, come to rest in a chemical or biological fluid spill, can present a fire hazard, or can cause the wearer to trip.

4. Respiratory Protection

Respirators are an effective method of protection against designated hazards when properly selected and worn. TCNJ's EHS does not recommend the use of any hazardous substance that exceeds the Permissible Exposure Limit (PEL) set by OSHA as it would require the use of a respirator. Should such a substance be required to be used, EHS must be informed in advance of its use in order to coordinate the process (i.e. medical evaluation and clearance, fit testing, and training) for proper respirator use for the individual.

Laboratory personnel may voluntarily choose to wear a filtering facepiece respirator (i.e. N95 and not a gasket respirator) if the amount of a hazardous substance does not exceed the PEL set by OSHA. If a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the wearer.

A. Voluntary Respirator Use
    i. To use a respirator:
        a. Read (and adhere to) all instructions provided by the manufacturer on the use, maintenance, cleaning and care of the respirator, and pay close attention to all warnings regarding the respirator's limitations.
        b. Select a respirator that is certified for use to protect against the contaminant of concern. A label or statement of certification should appear on the respirator or respirator packaging. It will specify what the respirator is designed to protect against (i.e. the hazard type and the amount).
        c. Do not wear a respirator into atmospheres containing contaminants other than those for which the respirator is designed to protect the wearer. For example, a respirator designed to filter dust particles will not protect against gases, vapors, or very small solid particles of fumes or smoke.
        d. Respirators that are designed for multiple uses and/or are shared amongst multiple wearers should be thoroughly cleaned after each use (per manufacturer's instructions) and stored in a clean, dry place for the next user. The preference is to not share respirators.
        e. For assistance in respirator and cartridge selection contact EHS.

DISPOSAL OF HAZARDOUS WASTE

Laboratory wastes unique to the animal facility include, but are not limited to, animal bedding and animal carcasses. Such wastes have specific procedures for proper disposal:

A. Soiled animal bedding is placed by the user in sturdy plastic bags, sealed, and either double-bagged or triple-bagged. Bags of soiled bedding should be limited to 40 pounds to prevent back and shoulder injury during subsequent handling. The user is responsible for disposing of bags with soiled bedding directly into the dumpster located behind the Biology Building.
B. Animal carcasses must be bagged, sealed, and stored in designated freezers, which then get transferred to the blue drum in the Biology Storage Room. Although animal carcasses are not defined as hazardous waste, they are removed by a vendor contracted to dispose of hazardous waste. The hazardous waste disposal schedule is available to area contacts (about every 90 days). Individual Principal Investigators with animal carcass waste must fill out a Hazardous Waste/Universal Waste Form (**Attachment C**) when necessary. Animal carcasses must not be placed in the regular bulk trash. Removal of animal carcasses is coordinated through EHS.
C. All sharps must be stored in appropriately labeled sharps containers and are considered regulated medical waste. Medical waste must be disposed of in accordance with TCNJ's Regulated Medical Waste Program. All other biologically-contaminated material must be placed in red medical waste bags. These bags must be disposed of in accordance with TCNJ's Regulated Medical Waste Program. Removal of regulated medical waste is coordinated via EHS.

BEST PRACTICES SUMMARY

1. Best Practices to Prevent Injury and Illness When Working With Research Animals

A. For general practices, not specific to working with research animals, refer to the Campus-Wide Chemical Hygiene Plan (CHP).
B. Avoid the use of sharps whenever possible. Use extreme caution when working with a needle and syringe to inject research animals, or when using sharps during necropsy procedures. Never remove, recap, bend, break, or clip used needles from disposable syringes.

C. Wear appropriate PPE in all areas of the animal facility and animal laboratories.
D. Properly remove and dispose of gloves and wash hands after handling animals, or tissues derived from them, and before leaving areas where animals are housed or used.
E. Never eat, drink, smoke, handle contact lenses, apply cosmetics, or take (or apply) medicine in areas where research animals are housed. Always wash hands before doing so if you had previously been handling animals.
F. Perform operations that generate hazardous aerosols in a biological safety cabinet, or in other ventilated enclosures (such as the cage changing station).
G. Keep doors to animal housing rooms closed.
H. Promptly decontaminate work surfaces when procedures are completed and after surfaces are soiled by spills of animal material or waste.
I. Properly dispose of animal waste and bedding.
J. Always adhere to the Universal Precautions when dealing with animal material and waste.

MEDICAL MONITORING AND INJURY REPORTING FOR EMPLOYEES

1. Initial Medical Monitoring for Employees

A medical evaluation is required prior to exposure to animals, animal material, or animal waste. Medical Monitoring is intended to assess employee risks associated with animal research and to identify any contraindications for working with vertebrate animals. If contraindications are found, the information supplied by the Medical Monitoring Questionnaire may allow the formulation of a plan to work with vertebrate animals with specific restrictions in place.

Employees of TCNJ (full-time faculty and staff, including student workers whose job description includes animal care), who have exposures related to animal use and care are required to adhere to the following procedures:

A. Complete the Medical Monitoring Questionnaire (**Attachment D**; also available on the IACUC website) and have it reviewed and signed by a qualified healthcare professional. All medical monitoring will be conducted by a licensed health care professional through a medical monitoring contract that is awarded annually to a licensed health care facility in the area (contracted via EHS). Once completed and signed, the Medical Monitoring Questionnaire should be submitted to TCNJ's contracted healthcare provider. Due to the nature of the information on the form, it is recommended that it be enclosed in a sealed envelope with your name and department on the outside.
B. The contractor will review the form and will provide the results of their review to EHS, who will provide these results (limited to "cleared" or "not cleared") to the supervisor of the employee. The employee will either be cleared to work with animals, or will require additional medical evaluation from their personal care physician to make a final determination. The employee shall provide verification of clearance, from their personal care physician, to EHS. EHS will then inform the employee's supervisor of the change in clearance status. Then the employee may resume their duties.
C. No employee may begin research until they have been medically cleared to do so.
D. Any orientation process with the specific PI that entails handling vertebrate animals cannot be undertaken until the employee has received medical clearance.
E. Any employee who is not medically cleared, or cleared with medical restrictions, must discuss this with the IACUC Chairperson and EHS to determine what accommodations (e.g. additional equipment, modification of tasks, etc.) can be made to allow the job duties to proceed.

All employee medical records will be kept confidential and maintained in a locked cabinet within EHS. Medical records will not be disclosed or reported to any person, within or outside the workplace, without the employee's expressed written consent, except as may be required by law. Medical records shall be provided to the employee or to anyone having written consent, upon request of the employee, within 15 working days of the request.

After the initial medical monitoring process, employees are required to contact EHS at any time for medical review and consultation if they:

A. Become injured or ill from an incident or exposure at TCNJ.
B. Feel they are developing an allergy.
C. Are planning a pregnancy, or become pregnant.
D. Develop health concerns related to their exposure to animal research.
E. Begin work with a new animal species.
F. Have any significant change in health status.

Following the required initial medical evaluation, on an annual basis EHS will contact all Principal Investigators to offer a follow-up medical evaluation. Instructions to receive a follow-up medical evaluation will be provided at such time.

All medical evaluations are offered at no charge to TCNJ personnel.

Employees should share any information regarding injuries or illnesses from conducting animal research with their personal care physician.

2. Injury Reporting Procedures for Employees

(including Student Workers, if injured / becoming ill while working with vertebrate animals)

A. Emergencies (defined as life- or limb-threatening)
    i. Contact Campus Police immediately at 609-771-2345 from a cell phone or 9-1-1 from any campus hard wired phone.
    ii. Contact Human Resources within 24 hours of the injury/illness and, if appropriate, complete an Animal Bite/Scratch Incident Report Form.
    iii. Refer to **Attachment E** for additional information regarding poisonous snake bites, if necessary.
    iv. Include all appropriate Safety Data Sheets (SDS) if the injury or illness was due to chemical exposure.
B. Non-Emergencies
    i. Contact Human Resources to report the injury.
    ii. Seek medical attention as instructed by Human Resources.
    iii. If the injury was a bite or scratch, complete an Animal Bite/Scratch Injury Report Form as per instructions on the form.

MEDICAL MONITORING AND INJURY REPORTING FOR STUDENTS

1. Initial Medical Monitoring for Student Researchers

Students of The College of New Jersey who are involved in the care and use of vertebrate animals are required to adhere to the following procedures:

A. Complete the Medical Monitoring Questionnaire (**Attachment D**; also available on the IACUC website). Have the form reviewed and signed by Student Health Services or your personal care physician. Place the completed and signed form in a sealed envelope and write your name and PAWS ID Number on the outside of the envelope. This envelope can be either hand-delivered,

sent through campus mail, or sent via other delivery services to Student Health Services. Address the envelope to Janice Vermeychuk, Student Health Services, 107 Eickhoff Hall.

i. A Student Health Services' nurse practitioner or physician will review the questionnaire and make a determination for medical clearance based on the student's responses.
ii. This determination will be communicated to the student and to EHS, who will then inform the Principal Investigator. The Questionnaire will be kept in the student's electronic medical file by Student Health Services and the original will be destroyed.

B. Students with certain medical conditions will be required to obtain medical clearance from their personal healthcare provider. Student Health Services will provide these students with the "Animal Research Student Evaluation & Clearance Form" (Attachment F) to be completed by their personal healthcare provider and sent from the healthcare provider to Student Health Services for final clearance.
C. Note: No student may begin research until they have been cleared by Student Health Services. Any student who is cleared with medical restrictions or has specific identified limitations must discuss this with the Principal Investigator who, in consultation with EHS and the IACUC Chair, may formulate a plan for accommodations (e.g. additional equipment or modification of tasks performed) that will allow work to proceed safely.
D. No orientation process that involves handling vertebrate animals may be conducted until the student has received medical clearance.
E. After beginning work with research animals, students should contact Student Health Services if they:
    i. experience a bite or scratch from an animal in a laboratory at TCNJ.
    ii. feel they are developing an allergy.
    iii. are planning a pregnancy, or become pregnant.
    iv. develop health concerns related to exposure to animal research.
    v. begin work with a new animal species.
    vi. have a significant change in health status.
    vii. The student should share any information regarding injuries received or illnesses contracted while conducting animal research with their personal health care provider.

2. Injury Reporting Procedures for Students

A. <u>All Injuries and Illnesses, including Emergencies (defined as life- or limb-threatening) and Non-Emergencies</u>
    i. Contact Campus Police at 609-771-2345 using a cell phone or 9-1-1 from any hard-wired campus phone.
    ii. Notify the Principal Investigator.
    iii. If appropriate, complete an Animal Bite/Scratch Incident Report Form (**Attachment B**) and report the incident to the appropriate supervisor
    iv. After receiving immediate care, complete a Venomous Snake Bite Response Procedures (**Attachment E)** after any poisonous snake bite.
    v. In the case of a poisonous snake bite, the student should receive appropriate emergency care and should NOT be sent to Student Health Services. See **Attachment E** for important details.
    vi. Include all appropriate Safety Data Sheets (SDS; aka MSDS) if the injury or illness was due to chemical exposure

TRAINING AND EDUCATION

1. Initial and Annual Training of Employees

(including Visiting Student Researchers, Visiting Faculty, and Student Workers whose job descriptions include animal care)

Initial training must be completed prior to working directly with animals. Initial IACUC training of relevant safety topics will be given to all employees who come into contact with animals for research purposes. This includes full-time faculty and staff, as well as student workers whose job descriptions include animal care. The TCNJ program training is provided by EHS, and the Consulting Veterinarian provides specific IACUC animal training.

2. Specialized Training of Students

The Principal Investigator is responsible for providing any specialized education and/or training associated with the specific animals used in the lab. The Principal Investigator is also responsible for providing a current list of students each semester confirming that education and/or training was provided to each student handling animals.

TRACKING PROGRESS

IACUC conducts a semiannual meeting to review, for compliance, this Program and facility inspections.

ADDITIONAL INFORMATION AND GUIDANCE

- National Research Council's Occupational Health and Safety in the Care and Use of Research Animals
- National Research Council's Guide for Care and Use of Laboratory Animals
- Applied Research Ethics National Association, Office of Laboratory Animal Welfare's Institutional Animal Care and Use Committee Guidebook

ATTACHMENT LIST

- Attachment A: Public Health Service Policy on the Humane Care and Use of Laboratory Animals (PHS Policy)
- Attachment B: Animal Bite/Scratch Incident Report Form
- Attachment C: Hazardous and Universal Waste Disposal Inventory Form
- Attachment D: Animal Research Medical Monitoring Questionnaire
- Attachment E: Venomous Snake Bite Response Procedures
- Attachment F: Animal Research Clearance Forms for Primary Care Physicians
- Attachment G: Products Currently Used with Animal Research

ATTACHMENT A

Public Health Service Policy on the Humane Care and Use of Laboratory Animals (PHS Policy)

("Attachment A- IACUC H&S.pdf")

Attachment A

Public Health Service Policy on the

Human Care and Use of Laboratory Animals

(PHS Policy)

Revised 2015

Preface

This 2015 reprint of the Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals (Policy) is available in both printed and electronic formats. The electronic version may be found on the Office of Laboratory Animal Welfare (OLAW) website and includes hyperlinks to selected documents referred to in the text.

The 2015 reprint of the PHS Policy reflects the following changes from the 2002 reprint: (1) On January 1, 2012, OLAW adopted the *Guide for the Care and Use of Laboratory Animals:* Eighth Edition (*Guide*), an update of the 1996 Seventh Edition, released by the National Academy of Sciences Institute for Laboratory Animal Research (ILAR) in 2011. Institutions with PHS Animal Welfare Assurances implemented the Eighth Edition of the *Guide* during 2012. (2) On February 26, 2013, the American Veterinary Medical Association (AVMA) Panel on Euthanasia released the AVMA Guidelines for the Euthanasia of Animals: 2013 Edition (Guidelines). PHS Assured institutions implemented the 2013 AVMA Guidelines during the period from March 1, 2013, to September 1, 2013. (3) The OLAW mail address has been removed and electronic and fax contact information has been provided to facilitate efficient communication and conserve resources. (4) Footnotes 2, 7, 9, 11, and 13 have been modified to require PHS Assured institutions to comply with U.S. Department of Agriculture regulations that are applicable to their programs. (5) A change in format, but not content, was made to PHS Policy IV.B.3. (6) Grammatical corrections were made to reflect current writing standards.

This reprint includes the Health Research Extension Act of 1985, Public Law 99-158, "Animals in Research" (November 20, 1985), which provides the statutory mandate for the PHS Policy. Also included in this reprint are the U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research and Training (Principles). The U.S. Principles were promulgated in 1985 by the Interagency Research Animal Committee and adopted by U.S. Government agencies that either develop requirements for or sponsor procedures involving the use of vertebrate animals. The Principles were incorporated into the PHS Policy in 1986 and continue to provide a framework for conducting research in accordance with the Policy.

OLAW, which has responsibility for the general administration and coordination of the Policy, provides specific guidance, instruction, and materials to institutions that must comply with the Policy. For supplemental materials, please contact OLAW at the National Institutes of Health at olaw@od.nih.gov , or visit the OLAW website at OLAW.nih.gov.

Table Of Contents

Health Research Extension Act of 1985

Public Law 99-158

November 20, 1985, "Animals in Research"

Sec. 495.

(a) The Secretary, acting through the Director of NIH, shall establish guidelines for the following:

- "(1) The proper care of animals to be used in biomedical and behavioral research.

  "(2) The proper treatment of animals while being used in such research. Guidelines under this paragraph shall require-

  - "(A) the appropriate use of tranquilizers, analgesics, anesthetics, paralytics, and euthanasia for animals in such research; and

    "(B) appropriate pre-surgical and post-surgical veterinary medical and nursing care for animals in such research.

Such guidelines shall not be construed to prescribe methods of research.

- "(3) The organization and operation of animal care committees in accordance with subsection (b).

- "(b) (1) Guidelines of the Secretary under subsection (a)(3) shall require animal care committees at each entity which conducts biomedical and behavioral research with funds provided under this Act (including the National Institutes of Health and the national research institutes) to assure compliance with the guidelines established under subsection (a).
- "(2) Each animal care committee shall be appointed by the chief executive officer of the entity for which the committee is established, shall be composed of not fewer than three members, and shall include at least one individual who has no association with such entity and at least one doctor of veterinary medicine.

  "(3) Each animal care committee of a research entity shall-

  - "(A) review the care and treatment of animals in all animal study areas and facilities of the research entity at least semiannually to evaluate compliance with applicable guidelines established under subsection (a) for appropriate animal care and treatment;

    "(B) keep appropriate records of reviews conducted under sub-paragraph (A); and

    "(C) for each review conducted under subparagraph (A), file with the Director of NIH at least annually (i) a certification that the review has been conducted, and (ii) reports of any violations of guidelines established under subsection (a) or assurances required under paragraph (1) which were observed in such review and which have continued after notice by the committee to the research entity involved of the violations.

Reports filed under subparagraph (C) shall include any minority views filed by members of the committee.

"(c) The Director of NIH shall require each applicant for a grant, contract, or cooperative agreement involving research on animals which is administered by the National Institutes of Health or any national research institute to include in its application or contract proposal, submitted after the expiration of the twelve-month period beginning on the date of enactment of this section-

- "(1) assurances satisfactory to the Director of NIH that-

    - "(A) the applicant meets the requirements of the guidelines established under paragraphs (1) and (2) of subsection (a) and has an animal care committee which meets the requirements of subsection (b); and

      "(B) scientists, animal technicians, and other personnel involved with animal care, treatment, and use by the applicant have available to them instruction or training in the humane practice of animal maintenance and experimentation, and the concept, availability, and use of research or testing methods that limit the use of animals or limit animal distress; and

"(2) a statement of the reasons for the use of animals in the research to be conducted with funds provided under such grant or contract.

Notwithstanding subsection (a)(2) of section 553 of title 5, United States Code, regulations under this subsection shall be promulgated in accordance with the notice and comment requirements of such section.

"(d) If the Director of NIH determines that-

- "(1) the conditions of animal care, treatment, or use in an entity which is receiving a grant, contract, or cooperative agreement involving research on animals under this title do not meet applicable guidelines established under subsection (a);

  "(2) the entity has been notified by the Director of NIH of such determination and has been given a reasonable opportunity to take corrective action; and

  "(3) no action has been taken by the entity to correct such conditions; the Director of NIH shall suspend or revoke such grant or contract under such conditions as the Director determines appropriate.

"(e) No guideline or regulation promulgated under subsection (a) or (c) may require a research entity to disclose publicly trade secrets or commercial or financial information which is privileged or confidential."

U.S. Government Principles for the Utilization and Care
of Vertebrate Animals Used in Testing, Research, and Training

The development of knowledge necessary for the improvement of the health and well-being of humans as well as other animals requires in vivo experimentation with a wide variety of animal species. Whenever U.S. Government agencies develop requirements for testing, research, or training procedures involving the use of vertebrate animals, the following principles shall be considered; and whenever these agencies actually perform or sponsor such procedures, the responsible Institutional Official shall ensure that these principles are adhered to:

I. The transportation, care, and use of animals should be in accordance with the Animal Welfare Act (7 U.S.C. 2131 et seq.) and other applicable Federal laws, guidelines, and policies.*

II. Procedures involving animals should be designed and performed with due consideration of their relevance to human or animal health, the advancement of knowledge, or the good of society.

III. The animals selected for a procedure should be of an appropriate species and quality and the minimum number required to obtain valid results. Methods such as mathematical models, computer simulation, and in vitro biological systems should be considered.

IV. Proper use of animals, including the avoidance or minimization of discomfort, distress, and pain when consistent with sound scientific practices, is imperative. Unless the contrary is established, investigators should consider that procedures that cause pain or distress in human beings may cause pain or distress in other animals.

V. Procedures with animals that may cause more than momentary or slight pain or distress should be performed with appropriate sedation, analgesia, or anesthesia. Surgical or other painful procedures should not be performed on unanesthetized animals paralyzed by chemical agents.

VI. Animals that would otherwise suffer severe or chronic pain or distress that cannot be relieved should be painlessly killed at the end of the procedure or, if appropriate, during the procedure.

VII. The living conditions of animals should be appropriate for their species and contribute to their health and comfort. Normally, the housing, feeding, and care of all animals used for biomedical purposes must be directed by a veterinarian or other scientist trained and experienced in the proper care, handling, and use of the species being maintained or studied. In any case, veterinary care shall be provided as indicated.

VIII. Investigators and other personnel shall be appropriately qualified and experienced for conducting procedures on living animals. Adequate arrangements shall be made for their in-service training, including the proper and humane care and use of laboratory animals.

IX. Where exceptions are required in relation to the provisions of these Principles, the decisions should not rest with the investigators directly concerned but should be made, with due regard to Principle II, by an appropriate review group such as an institutional animal care and use

committee. Such exceptions should not be made solely for the purposes of teaching or demonstration.**

*For guidance throughout these Principles, the reader is referred to the *Guide for the Care and Use of Laboratory Animals* prepared by the Institute of Laboratory Animal Resources, National Academy of Sciences.

**Published in the *Federal Register*, May 20, 1985, Vol. 50, No. 97, by the Office of Science and Technology Policy [FR Doc. 85-12059].

Public Health Service Policy on Humane Care and Use of Laboratory Animals

I. Introduction

It is the Policy of the Public Health Service (PHS) to require institutions to establish and maintain proper measures to ensure the appropriate care and use of all animals involved in research, research training, and biological testing activities (hereinafter referred to as "activities") conducted or supported by the PHS. The PHS endorses the "U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training" developed by the Interagency Research Animal Committee. This Policy is intended to implement and supplement those Principles.

II. Applicability

This Policy is applicable to all PHS-conducted or supported activities involving animals, whether the activities are performed at a PHS agency, an awardee institution, or any other institution and conducted in the United States, the Commonwealth of Puerto Rico, or any territory or possession of the United States. Institutions in foreign countries receiving PHS support for activities involving animals shall comply with this Policy, or provide evidence to the PHS that acceptable standards for the humane care and use of the animals in PHS-conducted or supported activities will be met. No PHS support for an activity involving animals will be provided to an individual unless that individual is affiliated with or sponsored by an institution which can and does assume responsibility for compliance with this Policy, unless the individual makes other arrangements with the PHS. This Policy does not affect applicable state or local laws or regulations which impose more stringent standards for the care and use of laboratory animals. All institutions are required to comply, as applicable, with the Animal Welfare Act , and other Federal statutes and regulations relating to animals.

III. Definitions

A. ***Animal*** - Any live, vertebrate animal used or intended for use in research, research training, experimentation, or biological testing or for related purposes.

B. ***Animal Facility*** - Any and all buildings, rooms, areas, enclosures, or vehicles, including satellite facilities, used for animal confinement, transport, maintenance, breeding, or experiments

inclusive of surgical manipulation. A satellite facility is any containment outside of a core facility or centrally designated or managed area in which animals are housed for more than 24 hours.

C. ***Animal Welfare Act*** - Public Law 89-544, 1966, as amended (P.L. 91-579, P.L. 94-279, and P.L. 99-198), 7 U.S.C. 2131 et seq. Implementing regulations are published in the Code of Federal Regulations (CFR), Title 9, Chapter 1, Subchapter A, Parts 1, 2, and 3 , and are administered by the U.S. Department of Agriculture.

D. ***Animal Welfare Assurance or Assurance*** - The documentation from an institution assuring institutional compliance with this Policy.

E. ***Guide*** - *Guide for the Care and Use of Laboratory Animals:* Eighth Edition, National Academy Press, 2011, Washington, D.C., or succeeding revised editions .

F. ***Institution*** - Any public or private organization, business, or agency (including components of Federal, state, and local governments).

G. ***Institutional Official*** - An individual who signs, and has the authority to sign the institution's Assurance, making a commitment on behalf of the institution that the requirements of this Policy will be met.

H. ***Public Health Service*** - The Public Health Service, or the PHS, includes the Agency for Healthcare Research and Quality, the Centers for Disease Control and Prevention, the Food and Drug Administration, the Health Resources and Services Administration, the Indian Health Service, the National Institutes of Health, and the Substance Abuse and Mental Health Services Administration.

I. ***Quorum*** - A majority of the members of the Institutional Animal Care and Use Committee (IACUC).

IV. Implementation by Institutions

A. Animal Welfare Assurance

No activity involving animals may be conducted or supported by the PHS until the institution conducting the activity has provided a written Assurance acceptable to the PHS, setting forth compliance with this Policy. Assurances shall be submitted to the Office of Laboratory Animal Welfare (OLAW), Office of the Director, National Institutes of Health (NIH).[1] The Assurance shall be signed by the Institutional Official. OLAW will provide the institution with necessary instructions and an example of an acceptable Assurance. All Assurances submitted to the PHS in accordance with this Policy will be evaluated by OLAW to determine the adequacy of the institution's proposed program for the care and use of animals in PHS-conducted or supported activities. On the basis of this evaluation, OLAW may approve or disapprove the Assurance, or negotiate an approvable Assurance with the institution. Approval of an Assurance will be for a specified period of time (no longer than five years) after which time the institution must submit a new Assurance to OLAW. OLAW may limit the period during which any particular approved Assurance shall remain effective or otherwise condition, restrict, or withdraw approval. Without an applicable PHS-approved Assurance, no PHS-conducted or supported activity involving animals at the institution will be permitted to continue.

- 1. Institutional Program for Animal Care and Use

The Assurance shall fully describe the institution's program for the care and use of animals in PHS-conducted or supported activities. The PHS requires institutions to use the *Guide for the Care and Use of Laboratory Animals (Guide)* as a basis for developing and implementing an institutional program for activities involving animals.[2] The program description must include the following:

a. a list of every branch and major component of the institution, as well as a list of every branch and major component of any other institution, which is to be included under the Assurance;

b. the lines of authority and responsibility for administering the program and ensuring compliance with this Policy;

c. the qualifications, authority, and responsibility of the veterinarian(s) who will participate in the program and the percent of time each will contribute to the program;

d. the membership list of the Institutional Animal Care and Use Committee(s) (IACUC) established in accordance with the requirements set forth in IV.A.3. of this Policy;[3]

e. the procedures that the IACUC will follow to fulfill the requirements set forth in this Policy;

f. the health program for personnel who work in laboratory animal facilities or have frequent contact with animals;

g. a synopsis of training or instruction in the humane practice of animal care and use, as well as training or instruction in research or testing methods that minimize the number of animals required to obtain valid results and minimize animal distress, offered to scientists, animal technicians, and other personnel involved in animal care, treatment, or use;

h. the gross square footage of each animal facility (including satellite facilities), the species housed therein, and the average daily inventory, by species, of animals in each facility; and

i. any other pertinent information requested by OLAW.

- 2. Institutional Status

Each institution must assure that its program and facilities are in one of the following categories:

Category 1 - Accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC). All of the institution's programs and facilities (including satellite facilities) for activities involving animals have been evaluated and accredited by AAALAC, or another accrediting body recognized by the PHS.[4] All of the institution's programs and facilities (including satellite facilities) for activities involving animals have also been evaluated by the IACUC and will be reevaluated by the IACUC at least once every six months, in accordance with IV.B.1. and 2. of this Policy, and reports prepared in accordance with IV.B.3.of this Policy.

Category 2 - Evaluated by the Institution. All of the institution's programs and facilities (including satellite facilities) for activities involving animals have been evaluated by the IACUC. These programs and facilities will be reevaluated by the IACUC at least once every six months, in accordance with IV.B.1. and 2. of this Policy, and reports will be prepared in accordance with IV.B.3. of this Policy. The most recent semiannual report of the IACUC evaluation shall be submitted to OLAW with the Assurance.

- 3. Institutional Animal Care and Use Committee (IACUC)
    - a. The Chief Executive Officer shall appoint an IACUC, qualified through the experience and expertise of its members to oversee the institution's animal program, facilities, and procedures.[5]
    - b. The Assurance must include the names,[6] position titles, and credentials of the IACUC chairperson and the members. The committee shall consist of no fewer than five members, and shall include at least:
        - (1) one Doctor of Veterinary Medicine, with training or experience in laboratory animal science and medicine, who has direct or delegated program authority and responsibility for activities involving animals at the institution (see IV.A.1.c.);
        - (2) one practicing scientist experienced in research involving animals;
        - (3) one member whose primary concerns are in a nonscientific area (e.g., ethicist, lawyer, and member of the clergy); and
        - (4) one individual who is not affiliated with the institution in any way other than as a member of the IACUC, and is not a member of the immediate family of a person who is affiliated with the institution.
    - c. An individual who meets the requirements of more than one of the categories detailed in IV.A.3.b.(1)-(4) of this policy may fulfill more than one requirement. However, no committee may consist of fewer than five members.

B. Functions of the Institutional Animal Care and Use Committee

As an agent of the institution, the IACUC shall with respect to PHS-conducted or supported activities:

- 1. review at least once every six months the institution's program for humane care and use of animals, using the *Guide* as a basis for evaluation;[7]
- 2. inspect at least once every six months all of the institution's animal facilities (including satellite facilities) using the *Guide* as a basis for evaluation;
- 3. prepare reports of the IACUC evaluations conducted as required by IV.B.1. and 2. of this Policy, and submit the reports to the Institutional Official;[8]
  (The reports must meet the following criteria:
    a. The reports shall be updated at least once every six months upon completion of the required semiannual evaluations.

b. The reports shall be maintained by the institution and made available to OLAW upon request.

c. The reports must contain a description of the nature and extent of the institution's adherence to the *Guide* and this Policy and must identify specifically any departures from the provisions of the *Guide* and this Policy, and must state the reasons for each departure.

d. The reports must distinguish significant deficiencies from minor deficiencies. A significant deficiency is one that, consistent with this Policy, and, in the judgment of the IACUC and the Institutional Official, is or may be a threat to the health or safety of the animals.

e. If program or facility deficiencies are noted, the reports must contain a reasonable and specific plan and schedule for correcting each deficiency. If some or all of the institution's facilities are accredited by AAALAC or another accrediting body recognized by the PHS, the report should identify those facilities as such.)

- 4. review concerns involving the care and use of animals at the institution;
- 5. make recommendations to the Institutional Official regarding any aspect of the institution's animal program, facilities, or personnel training;
- 6. review and approve, require modifications in (to secure approval), or withhold approval of those components of PHS-conducted or supported activities related to the care and use of animals as specified in IV.C. of this Policy;
- 7. review and approve, require modifications in (to secure approval), or withhold approval of proposed significant changes regarding the use of animals in ongoing activities; and
- 8. be authorized to suspend an activity involving animals in accordance with the specifications set forth in IV.C.6. of this Policy.

C. Review of PHS-Conducted or Supported Research Projects

- 1. In order to approve proposed research projects or proposed significant changes in ongoing research projects, the IACUC shall conduct a review of those components related to the care and use of animals and determine that the proposed research projects are in accordance with this Policy. In making this determination, the IACUC shall confirm that the research project will be conducted in accordance with the Animal Welfare Act insofar as it applies to the research project, and that the research project is consistent with the *Guide* unless acceptable justification for a departure is presented.[9] Further, the IACUC shall determine that the research project conforms with the institution's Assurance and meets the following requirements:
    - a. Procedures with animals will avoid or minimize discomfort, distress, and pain to the animals, consistent with sound research design.
    - b. Procedures that may cause more than momentary or slight pain or distress to the animals will be performed with appropriate sedation, analgesia, or anesthesia, unless the procedure is justified for scientific reasons in writing by the investigator.

- c. Animals that would otherwise experience severe or chronic pain or distress that cannot be relieved will be painlessly killed at the end of the procedure or, if appropriate, during the procedure.
- d. The living conditions of animals will be appropriate for their species and contribute to their health and comfort. The housing, feeding, and nonmedical care of the animals will be directed by a veterinarian or other scientist trained and experienced in the proper care, handling, and use of the species being maintained or studied.
- e. Medical care for animals will be available and provided as necessary by a qualified veterinarian.
- f. Personnel conducting procedures on the species being maintained or studied will be appropriately qualified and trained in those procedures.
- g. Methods of euthanasia used will be consistent with the recommendations of the American Veterinary Medical Association (AVMA) Panel on Euthanasia, unless a deviation is justified for scientific reasons in writing by the investigator.[10]

- 2. Prior to the review, each IACUC member shall be provided with a list of proposed research projects to be reviewed. Written descriptions of research projects that involve the care and use of animals shall be available to all IACUC members, and any member of the IACUC may obtain, upon request, full committee review of those research projects. If full committee review is not requested, at least one member of the IACUC, designated by the chairperson and qualified to conduct the review, shall review those research projects and have the authority to approve, require modifications in (to secure approval), or request full committee review of those research projects. If full committee review is requested, approval of those research projects may be granted only after review at a convened meeting of a quorum of the IACUC and with the approval vote of a majority of the quorum present. No member may participate in the IACUC review or approval of a research project in which the member has a conflicting interest (e.g., is personally involved in the project) except to provide information requested by the IACUC; nor may a member who has a conflicting interest contribute to the constitution of a quorum.
- 3. The IACUC may invite consultants to assist in the review of complex issues. Consultants may not approve or withhold approval of an activity or vote with the IACUC unless they are also members of the IACUC.
- 4. The IACUC shall notify investigators and the institution in writing of its decision to approve or withhold approval of those activities related to the care and use of animals, or of modifications required to secure IACUC approval. If the IACUC decides to withhold approval of an activity, it shall include in its written notification a statement of the reasons for its decision and give the investigator an opportunity to respond in person or in writing.
- 5. The IACUC shall conduct continuing review of each previously approved, ongoing activity covered by this Policy at appropriate intervals as determined by the IACUC, including a complete review in accordance with IV.C.1.-4. at least once every three years.

- 6. The IACUC may suspend an activity which it previously approved if it determines that the activity is not being conducted in accordance with applicable provisions of the Animal Welfare Act, the *Guide*, the institution's Assurance, or IV.C.1.a.-g. of this Policy.[11] The IACUC may suspend an activity only after review of the matter at a convened meeting of a quorum of the IACUC and with the suspension vote of a majority of the quorum present.
- 7. If the IACUC suspends an activity involving animals, the Institutional Official in consultation with the IACUC shall review the reasons for suspension, take appropriate corrective action, and report that action with a full explanation to OLAW.
- 8. Applications and proposals that have been approved by the IACUC may be subject to further appropriate review and approval by officials of the institution. However, those officials may not approve an activity involving the care and use of animals if it has not been approved by the IACUC.

D. Information Required in Applications and Proposals for Awards Submitted to the PHS

- 1. All Institutions

Applications and proposals (competing and noncompeting) for awards submitted to the PHS that involve the care and use of animals shall contain the following information:

a. identification of the species and approximate number of animals to be used;

b. rationale for involving animals, and for the appropriateness of the species and numbers used;

c. a complete description of the proposed use of the animals;

d. a description of procedures designed to assure that discomfort and injury to animals will be limited to that which is unavoidable in the conduct of scientifically valuable research, and that analgesic, anesthetic, and tranquilizing drugs will be used where indicated and appropriate to minimize discomfort and pain to animals; and

e. a description of any euthanasia method to be used.

Noncompeting applications and contract proposals for other than full and open competitions need not repeat the information required by IV.D.1.a.-e. if the information was complete in the last competing application or proposal and there are no significant changes to that information. However, the application or proposal must contain a statement to that effect. If there are significant changes in the information, then the application or proposal must specifically identify them and state the reasons for the changes.

- 2. Institutions That Have an Approved Assurance

Applications or proposals (competing and noncompeting) covered by this Policy from institutions that have an approved Assurance on file with OLAW shall include verification of approval (including the date of the most recent approval) by the IACUC of those components related to the care and use of animals. For competing applications or proposals only, such verification may be filed at any time prior to award unless specifically required earlier by the funding component. If verification of IACUC approval is submitted subsequent to the submission of the application or proposal, the verification shall state the

modifications, if any, required by the IACUC. The verification shall be signed by an individual authorized by the institution, but need not be signed by the Institutional Official.

- 3. Institutions That Do Not Have an Approved Assurance

For applications and proposals covered by this Policy from institutions that do not have an approved Assurance on file with OLAW, the signature of the official signing for the applicant organization shall constitute a declaration that the institution will submit an Assurance when requested by OLAW. Upon such request, the institution shall prepare the Assurance as instructed by OLAW and in accordance with IV.A. of this Policy. The authorized IACUC shall review those components of the application or proposal as required by IV.C. of this Policy. Upon IACUC approval of those components of the application or proposal, the institution shall submit the Assurance to OLAW.

E. Recordkeeping Requirements

- 1. The awardee institution shall maintain:
    - a. a copy of the Assurance which has been approved by the PHS;
    - b. minutes of IACUC meetings, including records of attendance, activities of the committee, and committee deliberations;
    - c. records of applications, proposals, and proposed significant changes in the care and use of animals and whether IACUC approval was given or withheld;
    - d. records of semiannual IACUC reports and recommendations (including minority views) as forwarded to the Institutional Official; and
    - e. records of accrediting body determinations.
- 2. All records shall be maintained for at least three years; records that relate directly to applications, proposals, and proposed significant changes in ongoing activities reviewed and approved by the IACUC shall be maintained for the duration of the activity and for an additional three years after completion of the activity. All records shall be accessible for inspection and copying by authorized OLAW or other PHS representatives at reasonable times and in a reasonable manner.

F. Reporting Requirements

- 1. At least once every 12 months, the IACUC, through the Institutional Official, shall report in writing to OLAW:
    - a. any change in the institution's program or facilities that would place the institution in a different category than specified in its Assurance (see IV.A.2.of this Policy);
    - b. any change in the description of the institution's program for animal care and use as required by IV.A.1.a.-i. of this Policy;
    - c. any changes in the IACUC membership;[12] and

    - d. notice of the dates that the IACUC conducted its semiannual evaluations of the institution's program and facilities and submitted the evaluations to the Institutional Official.

- 2. At least once every 12 months, the IACUC, at an institution which has no changes to report as specified in IV.F.1.a.-c. of this Policy, shall report to OLAW in writing, through the Institutional Official, that there are no changes and shall inform OLAW of the dates of the required IACUC evaluations and submissions to the Institutional Official.
- 3. The IACUC, through the Institutional Official, shall promptly provide OLAW with a full explanation of the circumstances and actions taken with respect to:
    - a. any serious or continuing noncompliance with this Policy;
    - b. any serious deviation from the provisions of the *Guide*;[13] or
    - c. any suspension of an activity by the IACUC.
- 4. Reports filed under IV.F. of this Policy shall include any minority views filed by members of the IACUC.

V. Implementation by the PHS

A. Responsibilities of the Office of Laboratory Animal Welfare

OLAW is responsible for the general administration and coordination of this Policy and will:

- 1. request and negotiate, approve or disapprove, and, as necessary, restrict or withdraw approval of Assurances;
- 2. distribute to Scientific Review Administrators of initial review and technical evaluation groups, and to PHS awarding units, lists of institutions [domestic and foreign] that have an approved Assurance;
- 3. advise awarding units and awardee institutions concerning the implementation of this Policy;
- 4. evaluate allegations of noncompliance with this Policy;
- 5. have the authority to review and approve or disapprove waivers to this Policy (see V.D. of this Policy); and
- 6. conduct site visits to selected institutions.

B. Responsibilities of PHS Awarding Units

PHS awarding units may not make an award for an activity involving animals unless the prospective awardee institution and all other participating institutions have approved Assurances on file with OLAW, and unless the awardee institution has provided verification of approval by the IACUC of those components of the application or proposal related to the care and use of animals. If any one of these institutions does not have an approved Assurance on file with OLAW, the awarding unit will ask OLAW to negotiate an Assurance with the institution or institutions before an award is made. No award shall

be made until all required Assurances have been submitted by the institution or institutions and approved by OLAW, and the institution or institutions have provided verification of approval by the IACUC of those components of the application or proposal related to the care and use of animals.

C. Conduct of Special Reviews/Site Visits

Each awardee institution is subject to review at any time by PHS staff and advisors, which may include a site visit, to assess the adequacy or accuracy of the institution's compliance or expressed compliance with this Policy.

D. Waiver

Institutions may request a waiver of a provision or provisions of this Policy by submitting a request to OLAW. No waiver will be granted unless sufficient justification is provided and the waiver is approved in writing by OLAW.

FOOTNOTES

Footnote 1:

Assurances should be sent to OLAW, NIH, by e-mail to olawdoa@mail.nih.gov or by fax to 301-451-5672.

Footnote 2:

This Policy requires that Assured institutions base their programs of animal care and use on the *Guide for the Care and Use of Laboratory Animals* and that they comply with the applicable regulations (9 CFR, Subchapter A) issued by the U.S. Department of Agriculture (USDA) under the Animal Welfare Act. The *Guide* may differ from USDA regulations in some respects. Compliance with applicable USDA regulations is an absolute requirement of this Policy.

Footnote 3:

The name Institutional Animal Care and Use Committee (IACUC) as used in this Policy is intended as a generic term for a committee whose function is to ensure that the care and use of animals in PHS-conducted or supported activities are appropriate and humane in accordance with this Policy. However, each institution may identify the committee by whatever name it chooses.

Footnote 4:

As of the 2015 revision of this Policy, the only accrediting body recognized by the PHS is AAALAC.

Footnote 5:

The Health Research Extension Act of 1985 requires the IACUC to be appointed by the Chief Executive Officer (CEO) of the entity for which the committee is established. OLAW considers the CEO to be the highest operating official of the organization (such as the President of a University). If the CEO delegates authority to appoint the IACUC then the delegation must be specific and in writing. The CEO may or may not be the Institutional Official as defined by this Policy (see definition at III.G.).

Footnote 6:

Institutions may, at their discretion, represent the names of members other than the chairperson and veterinarian with program authority (see IV.A.3.) by using numbers or other symbols in submissions to OLAW. Sufficient information for OLAW to determine that all appointees are appropriately qualified must be provided. The identity of each member must be readily ascertainable by the institution and available to authorized OLAW or other PHS representatives upon request.

Footnote 7:

This Policy requires that Assured institutions base their programs of animal care and use on the *Guide for the Care and Use of Laboratory Animals* and that they comply with the regulations (9 CFR, Subchapter A) issued by USDA under the Animal Welfare Act. The *Guide* may differ from USDA regulations in some respects. Compliance with applicable USDA regulations is an absolute requirement of this Policy.

Footnote 8:

The IACUC may, at its discretion, determine the best means of conducting an evaluation of the institution's programs and facilities. The IACUC may invite ad hoc consultants to assist in conducting the evaluation. However, the IACUC remains responsible for the evaluation and report.

Footnote 9:

This Policy requires that Assured institutions base their programs of animal care and use on the *Guide for the Care and Use of Laboratory Animals* and that they comply with the applicable regulations (9 CFR, Subchapter A) issued by USDA under the Animal Welfare Act. The *Guide* may differ from USDA regulations in some respects. Compliance with applicable USDA regulations is an absolute requirement of this Policy.

Footnote 10:

AVMA Guidelines for the Euthanasia of Animals: 2013 Edition or succeeding revised editions. Available at https://www.avma.org/KB/Policies/Documents/euthanasia.pdf .

Footnote 11:

This Policy requires that Assured institutions base their programs of animal care and use on the *Guide for the Care and Use of Laboratory Animals* and that they comply with the applicable regulations (9 CFR, Subchapter A) issued by USDA under the Animal Welfare Act. The *Guide* may differ from USDA regulations in some respects. Compliance with applicable USDA regulations is an absolute requirement of this Policy.

Footnote 12:

Institutions may, at their discretion, represent the names of members other than the chairperson and veterinarian with program authority (see IV.A.3.) by using numbers or other symbols in submissions to OLAW. Sufficient information for OLAW to determine that all appointees are appropriately qualified must be provided. The identity of each member must be readily ascertainable by the institution and available to authorized OLAW or other PHS representatives upon request.

Footnote 13:

This Policy requires that Assured institutions base their programs of animal care and use on the *Guide for the Care and Use of Laboratory Animals* and that they comply with the applicable regulations (9 CFR, Subchapter A) issued by USDA under the Animal Welfare Act. The *Guide* may differ from USDA regulations in some respects. Compliance with applicable USDA regulations is an absolute requirement of this Policy.

ATTACHMENT B

Animal Bite/Scratch Incident Report Form

(“Attachment B- Bite-Scratch Report Form.pdf”)

ANIMAL BITE / SCRATCH INCIDENT REPORT FORM

Must be completed for ALL animal bites and/or scratches (even if no injury occurred)

Send Completed form to: *Office of Environmental Health and Safety (deitchb@tcnj.edu)*

I. Person Bitten (completed by the person bitten/scratched):		
Last Name:	First Name:	TCNJ ID#:
Role: ☐Faculty ☐Staff ☐Student Worker ☐Student Researcher		
Principal Investigator's Name:		
Date bite/scratch occurred:	Injury: ☐Bite ☐Scratch	
Date reported & to whom:		
Did the animal appear ill? (Describe) *(attach additional sheets if necessary)*	Describe the Bite/Scratch (include location on body): *(attach additional sheets if necessary)*	
Explain the circumstances under which the bite/scratch occurred (include campus location): *(attach additional sheets if necessary)*		

II. The Animal (if known, completed by the person bitten/scratched):		
Species:	Breed/Type:	ID # of animal:
Sex:	Color:	Age:
Vaccinated for rabies? ☐Yes ☐No ☐Unknown ☐Not applicable		Vaccination Date:
☐Laboratory-bred animal ☐Wild or feral animal		
Animal's health status:	Current location of animal:	

Signature of person bitten/scratched: _____ ***Date:*** _____

Signature of Principal Investigator: _____ ***Date:*** _____

Instructions

- **Emergencies**, or outside of normal business hours
  - Contact Campus Police at 609-771-2345 using a cell phone or 9-1-1 from a campus phone.
- **Non-Emergencies**
  - TCNJ Students (including Student Researchers): Report the incident to the Principal Investigator. For medical evaluation/treatment, call Student Health Services at 609-771-2889 to schedule an appointment. Bring this form to your appointment.
  - TCNJ Employees (Faculty, Staff, Student Workers) must report all injuries/illnesses (including bites/scratches) to Human Resources (609-771-2282) and to their supervisor/PI. HR will provide information for care options.

Principal Investigator must:

1. Ensure that someone bitten/scratched is offered appropriate care
2. Submit this report to EHS as soon as possible, and not more than 48-hours after the bite/scratch
3. Update the bite/scratch log for that facility

The Office of Environmental Health and Safety maintains a log of the Incident Report Forms, and provides to the TCNJ IACUC Chair, as part of the Institutional Animal Care and Use Committee's Occupational Health & Safety Program.

ATTACHMENT C

Hazardous / Universal Waste Disposal Inventory Form

("Attachment C- Hazardous-Universal Waste Disposal Inventory Form.pdf")

The College of New Jersey

Hazardous / Universal Waste Disposal Inventory Form

Waste Type: _____Hazardous _____Universal

(Only one type per inventory form, for tracking and collection purposes)

Send Completed form to: Office of Environmental Health and Safety (morrealn@tcnj.edu)

Department/Area:_____

Location:_____

(Only one location per inventory form)

Date *(When item became waste)*	**Waste Name**	**Original Weight** *(gallons, pounds, liters, etc.)*	**Quantity**	**Total Weight, In Pounds (lbs.)**

ATTACHMENT D

Animal Research Medical Monitoring Questionnaire

("Attachment D- Animal Research Medical Monitoring Questionnaire.pdf")

The College of New Jersey
Animal Research Medical Monitoring Questionnaire

Name:_____ TCNJ ID#_____

TCNJ Email:_____ Date of Birth_____ Gender:_____

Protocol #_____

Add your name and TCNJ ID # to all pages

Work Status: (check only one)

- TCNJ EMPLOYEE: Full-time or part-time employee with job duties in animal facilities OR animal research in their job description.

  _____FACULTY _____STAFF _____STUDENT EMPLOYEE

- _____STUDENT RESEARCHER: A student works with vertebrate animals but is not employed by TCNJ.

What is your role?

_____I am not handling animals, but will be working in areas where animals are housed.

_____I will handle or have regular contact with animals.

Indicate the animals you will be handling or having regular contact with (check all that apply):

___Mice (Laboratory)	___Snakes (Non-Venomous)	___Fish
___Mice (Wild)	___Snakes (Venomous)	___Birds
___Rats (Laboratory)	___Amphibians	___Reptiles

Other (identify):_____

Describe your duties as they pertain to your potential exposure to these animals:_____

_____

Who is your Research Supervisor / Principal Investigator?_____

To meet the requirements of the IACUC Occupational Health & Safety Program, The College of New Jersey is required to obtain an initial medical evaluation and clearance for all personnel whose job duties or academic work bring them in direct contact with animals and animal research. Following the required initial medical evaluation, on an annual basis EHS will contact all Principal Investigators to offer a subsequent (referred to as an "annual") medical evaluation. All medical evaluations are offered at no charge to TCNJ personnel.

Indicate your medical evaluation and clearance status (you must select one), then complete the Medical Surveillance Questionnaire (beginning on page 3):

_____**Initial**
For all NEW faculty, staff, student workers and student researchers, and returning personnel with a change in research duties.

_____**Follow-Up**
For faculty, staff, or student workers that have previously been medically cleared (such as during the initial medical evaluation).

Name: _____ TCNJ ID#_____

Reviewing Healthcare Provider, after review:

- *Return to TCNJ: Pages 1 & 2*
  - *Research/Protocol Information and Reviewing Healthcare Provider determination*
- *Do NOT return to TCNJ: Pages 3 & 4*
  - *Medical Surveillance Questionnaire (has personal information)*

This section is to be completed by the Reviewing Healthcare Provider

I have reviewed the examinee's form, and based on the responses:

___Examinee may perform the functions of their research with no medical restrictions.

___Examinee may not perform the functions of their research.

___Examinee may perform the functions of their research with specific limitations or accommodations.

___Examinee must receive a follow-up examination from their primary physician or healthcare provider, prior to working with animals.

Recommendations:

_____

_____

_____

_____ _____

Healthcare Provider's Signature Date

_____

Healthcare Provider's Name (Print)

Office Address: _____

Office telephone #:_____

TCNJ Employee Medical Monitoring File (Confidential) for all Faculty, Staff, and Student Workers will be maintained securely by Environmental Health and Safety, Maintenance Building

TCNJ Student Medical Records (Confidential) for all Student Researchers will be maintained securely by Student Health Services. Upload the completed form to OWL at https://tcnj.medicatconnect.com.

Name: _____ TCNJ ID#_____

MEDICAL SURVEILLANCE QUESTIONNAIRE

Instructions: Answer all questions
Do not return the completed form to a TCNJ employee

Immunizations:

Provide the date(s) you received the following vaccinations. If you do not know the date of vaccination, write "Received" to indicate you have received the immunization. If you are unsure if you have received this immunization, write "Unknown".

Hepatitis A	Hepatitis B	Tetanus Booster
Dose #1:_____	Dose #1:_____	Most Recent:_____
Dose #2:_____	Dose #2:_____	
Or, laboratory test for immunity:_____	Dose #3:_____	
	Or, laboratory test for immunity:_____	

Allergy History:

1. Are you allergic to any medicines? ___Yes ___No
   If Yes, list the name of the medicine and describe your reaction:_____
   _____
2. Do you have any of the following? (check all that apply)
   ___Chronic cough ___Chronic allergies (list):_____
   ___Itchy, irritated eyes ___Hay fever ___Skin rash
3. Do you have a history of asthma? ___Yes ___No
   If Yes, provide details (when does it occur, what triggers it, how it is managed & controlled):
   _____
   _____
4. Do you use any medicine for your asthma? ___Yes ___No
   If Yes, list the name(s) of the medicine(s) and how often you use them:_____
   _____
5. Have you ever experienced any of the following symptoms associated with animal contact (check all that apply, and note the type of animal):
   ___Sneezing ___Runny Nose ___Itchy, watery eyes ___Itchy skin
   ___Rash ___Hives ___Shortness of breath ___Wheezing
   ___Chest tightness ___Cough ___Anaphylaxis ___None
   List Animals:_____

Name: _____ TCNJ ID#_____

6. Are you allergic to any of the following? (check all that apply)

___Dogs ___Cats ___Cattle ___Horses ___Birds (feathers)

___Hogs ___Primates ___Rabbits ___Goats ___Sheep (wool)

___Guinea Pigs ___Mice ___Rats ___Latex ___Grasses

___Trees ___Weeds ___Alfalfa ___Insect stings/bites

___Chemicals (list):_____

___Other (list):_____

___No allergies

If you checked one or more of the above (except "No Allergies"), elaborate by describing your reaction and what you do for it:_____

_____

7. Do you have any skin problems, such as reactions to latex, dry/cracked skin, rashes? ___Yes ___No
If Yes, describe:_____

_____

Medical Factors:

1. In the last three months, have you taken any medications which might suppress your immune system (e.g. prednisone, cortisone, chemotherapy, methotrexate, etc.)? ___Yes ___No

2. Do you have any chronic medical conditions that might suppress your immune system (e.g., cancer, leukemia, lymphoma, diabetes, HIV or AIDS, tuberculosis, liver or kidney disease, alcoholism)?
___Yes ___No If Yes, specify condition:_____

_____

3. In the past year, did you develop any new medical problems? ___Yes ___No
If Yes, describe:_____

_____

For Females:

1. Are you pregnant? ___Yes ___No

2. Are you planning on becoming pregnant within the next year? ___Yes ___No

Note: Alert the Office Environmental Health and Safety if or when you do become pregnant. This may impact your research duties, and must be taken into consideration when performing research under certain protocols.

ATTESTATION – read, date, and sign

I have answered the questions on this form truthfully, and to the best of my recollection. The Institutional Animal Care and Use Committee (IACUC) may be informed only of the date of evaluation to verify my participation in the program, and whether or not I may continue to work with laboratory animals (or any restrictions in doing so).

_____ _____

Applicant's Signature Date

ATTACHMENT E

Venomous Snake Bite Response Procedures

(“Attachment E- Venomous Snake Bite Protocol.pdf”)

The College of New Jersey
Venomous Snake Bite Response Procedures

There are no venomous snakes on campus at TCNJ. The Procedures address the possibility of a researcher encountering a venomous snake when working outside of the lab; in a natural setting.

Principal investigator must have a printed copy of this document present during any handling or observations of venomous snakes.

General Considerations:

1. Never handle venomous snakes alone. Always have at least one adult colleague nearby.
2. Remove all rings, watches, or bracelets before performing any work involving venomous snakes.

Procedures for Snakebite Victim:

1. Get away from the snake to avoid additional bites.
    - If possible, secure the snake in a cage, bag, or other properly labeled container.
2. Remove all rings, watches, or bracelets immediately.
    - It is recommended that such items (especially rings) be removed BEFORE any work involving venomous snakes commences.
3. Inform assisting colleagues that you have been bitten.
4. If you must walk to reach transportation, walk SLOWLY.
5. DO NOT do any of the following:
    - DO NOT panic.
    - DO NOT overexert yourself.
    - DO NOT cut the bite site.
    - DO NOT apply ice or heat.
    - DO NOT apply a tourniquet.
    - DO NOT drink alcoholic beverages.
6. DO the following:
    - DO stay calm.
    - DO remove rings, watches, bracelets, constricting articles of clothing.
    - DO contact assisting colleagues.
    - DO call 911.
    - DO sit or lie in a comfortable position.
    - DO immobilize the bitten limb in a comfortable position at the same level or slightly lower than the heart.

Procedures for Colleague:

1. Get to the victim as rapidly as possible.

2. Check that no snakes are still in the vicinity to avoid additional bites. Safely secure any loose snakes to avoid another bite.

3. If conducting research off campus, call 911 and provide your location and all of the information you can of the incident.

    a. Venomous snakes may be found on campus, if bitten on campus call Campus Police at 609-771-2345 using a cell phone or 911 from any hard-wired campus phone and provide all of the information you can of the incident. Contact Campus Police even if no signs of envenomation are evident.

4. As soon as possible, have victim sit or lie in a comfortable position and immobilize the bitten limb in a comfortable position at a level at or slightly lower than the victim's heart.

5. Assess severity of envenomation. Proceed with arranging transport to designated hospital even if no symptoms of envenomation are evident. Arrange for transport to nearest Level 1 or Level 2 trauma facility. Call 911 on cell phone if possible.

6. Reassure the victim that he/she will be fine. Do not panic.

7. If the victim has extreme difficulty breathing or shows other signs of anaphylaxis, inject one EpiPen® (or suitable alternative) into thigh muscle. A second EpiPen® (or suitable alternative) injection can be given after 15 minutes if symptoms persist or worsen.

8. Notify the designated hospital that a venomous snakebite has occurred and that the victim is being transported to their facility - attempt to give them an estimated time of arrival.

9. Provide information on the species of snake responsible for the bite.

Procedure for EMT / Ambulance / First Emergency Responder:

1. Stabilize airway and breathing if necessary. Give oxygen.
2. Begin transport ASAP to nearest Level 1 or Level 2 trauma facility.
3. Notify the facility of the situation and estimated time of arrival at their facility.
4. Tell the facility to contact POISON CONTROL at 800-222-1222 for assistance by a physician with snakebite experience.
5. Start IV of normal saline.
6. Monitor vital signs.
7. Monitor for signs of anaphylaxis. Have epinephrine available and ready to administer if necessary.
8. If a light constricting band has been applied as first aid, DO NOT remove it until the victim has reached the medical facility where antivenin therapy will be initiated.
9. DO NOT do any of the following:
    - DO NOT apply a tourniquet
    - DO NOT apply ice or heat
    - DO NOT cut the bite site
    - DO NOT administer antivenin before consulting a physician
10. IMPORTANT NOTE:
    a. If bite symptoms appear extremely severe or anaphylaxis is evident call directly for helicopter transport to the nearest preferred Level 1 trauma facility.

Procedure for Attending ER Physician:

1. An algorithm for snakebite treatment is provided on the following page (Page 5) excerpted from:

    a. Lavonas et al. 2011. Unified treatment algorithm for the management of crotaline snakebite in the United States: results of an evidence- informed consensus workshop. BMC Emergency Medicine 2011:11:2 http://www.biomedcentral.com/1471-227X/11/2.

2. In addition to the effects of the snake venom, the patient may also experience an allergic response to venom components resulting in anaphylaxis. Watch for signs of anaphylaxis and treat accordingly.

3. Because few physicians have first-hand experience with venomous snakebite. Call POISON CONTROL at 800-222-1222 immediately for assistance in proper treatment, location of antivenin supply, and for contact with an experienced physician.

4. The following physicians are experienced in the treatment of venomous snakebite. They are aware of our work with snakes and our medical history. They should also be immediately contacted for instructions and assistance:

    a. ANTHONY F. PIZON, MD
    Chief
    Division of Medical Toxicology
    Dept. of Emergency Medicine UPMC Presbyterian
    Shadyside, Forbes Tower 9055
    200 Lothrop Street, Pittsburgh, PA, 15213
    pizonaf@upmc.edu
    UPPEMoffice@upmc.edu
    412-864-5382
    412-647-3333

    b. DANIEL E. KEYLER, PHARMD
    Clinical and Adjunct Professor
    Dept. of Experimental and Clinical Pharmacology
    University of Minnesota Medical School
    Hennepin County Medical Center
    Minneapolis, MN 55415
    keyle001@umn.edu
    952-933-2055 home
    612-840-0425 cell

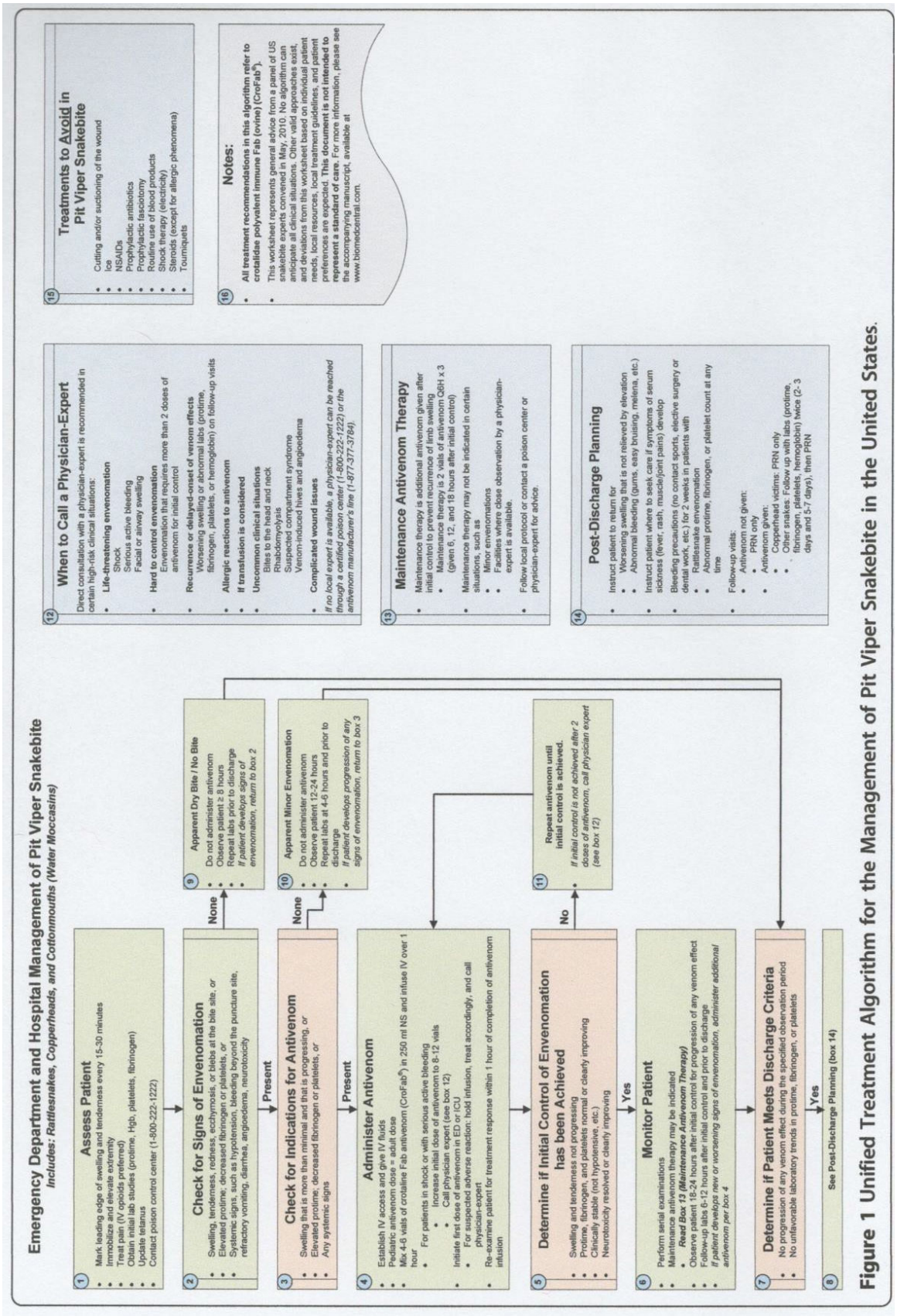

Figure 1 Unified Treatment Algorithm for the Management of Pit Viper Snakebite in the United States.

doi:10.1186/1471-227X-11-2

From: Lavonas et al. 2011. Unified treatment algorithm for the management of crotaline snakebite in the United States: results of an evidence-informed consensus workshop. BMC Emergency Medicine 2011:11:2 http://www.biomedcentral.com/1471-227X/11/2.

Contact information associated with snakebite protocol:

1. ANTHONY F. PIZON, MD
   Chief
   Division of Medical Toxicology
   Dept. of Emergency Medicine UPMC Presbyterian
   Shadyside, Forbes Tower 9055
   200 Lothrop Street, Pittsburgh, PA, 15213
   pizonaf@upmc.edu
   UPPEMoffice@upmc.edu
   412-864-5382
   412-647-3333

2. DANIEL E. KEYLER, PHARMD
   Clinical and Adjunct Professor
   Department of Experimental and Clinical Pharmacology
   University of Minnesota Medical School Hennepin County Medical Center
   Minneapolis, MN 55415
   keyle001@umn.edu
   952-933-2055 home
   612-840-0425 cell

3. POISON CONTROL
   800-222-1222
   https://www.chop.edu/centers-programs/poison-control-center

ATTACHMENT F

Animal Research Clearance Forms for Primary Care Physicians

("Attachment F- Animal Research Clearance Form for PCP.pdf")

The College of New Jersey
Animal Research Clearance Form for Primary Care Physicians

Patient's Name:_____ TCNJ ID#_____ Date of Birth:_____

Dear Healthcare Provider,

Your patient has applied to be a student researcher at The College of New Jersey in which the patient will handle or have regular contact with:

___Mice (Laboratory)	___Snakes (Non-Venomous)	___Fish
___Mice (Wild)	___Snakes (Venomous)	___Birds
___Rats (Laboratory)	___Amphibians	___Reptiles

Other (list):_____

Duties will include:_____

_____

Your patient has indicated on the Animal Research Medical Monitoring Questionnaire a pre-existing asthma and allergic conditions, including animal allergies. Exposure to laboratory animals may increase the likelihood of worsening symptoms in some people with pre-existing conditions. Therefore, we are requesting your evaluation of this patient and clearance to participate in animal research. *Complete and return this form to The College of New Jersey, Student Health Services, Attn. Janice Vermeychuk, 2000 Pennington Road, Ewing, NJ 08628, 609-771-2889.*

This section is to be completed by the Reviewing Healthcare Provider

Based on my evaluation:

_____Patient is fully cleared to participate in animal research or have regular contact with animals, with no medical restrictions.

_____Patient may participate in animal research or have regular contact with animals, with the following limitations or accommodations (be specific):

_____

_____Patient is NOT cleared to perform animal research or have regular contact with animals, due to:

_____

_____Patient is currently NOT cleared to perform animal research or have regular contact with animals, pending the following:

_____

_____ _____

Healthcare Provider's Signature Date

_____

Healthcare Provider's Name (Print)

Office Address: _____

Office Telephone #:_____

ATTACHMENT G

Products Currently Used with Animal Research

("Attachment G- Products Currently Used with Animal Research.pdf")

The College of New Jersey

Products Currently Used with Animal Research

1. Chlorine Dioxide (MB-10 tablets) – Clidox (disinfectant)
2. GLPC-7 (disinfectant)
3. Quatricide PV (disinfectant)
4. Simple Green (floor cleaner)
5. Betadine solution (10% Povidone-iodine)
6. Isoflurane (anesthetic inhalant)
7. Bupivicaine (injectable local anesthetic)
8. Carbon dioxide (for euthanasia)
9. MS 222 (Tricaine S) (fish anesthetic)
10. Chorionic Gonadotropin (hormone)
11. Ethanol (200 proof)
12. 10% bleach solution (disinfectant)
13. Lysol (disinfectant)
14. Urid - citric acid based cleaner (cage and bottle washer)