Georgia State University

Medical Monitoring Program for Vertebrate Animal Exposure Manual

Contents

1) Scope........................................................................................................................................2
2) Administration and Management .................................................................................................2
3) Hazard Identification and Risk Assessment................................................................................3
   Components of the MMPVAE for Category 1 Participants .........................................................4
   Components of the MMPVAE for Category 2 Participants .........................................................4
   Components of the MMPVAE for Category 3 Participants .........................................................5
   Components of the MMPVAE for Category 4 Participants .........................................................6
4) Selected Hazards and Preventative Measures.............................................................................6
   Laboratory Animal Allergies ........................................................................................................6
   Latex Allergies ..............................................................................................................................7
   Steps for Manual Lifting to Prevent/Minimize Back Injury ..........................................................7
   Bites and scratches ....................................................................................................................8
   Personal Protective Equipment (PPE) ...........................................................................................8
   Respiratory Protection ................................................................................................................8
   Personal Hygiene ........................................................................................................................9
   Impaired Immune System ..........................................................................................................9
   Health Precautions for Pregnant Personnel Working with Animals .........................................10
   Tetanus .....................................................................................................................................10
   Hepatitis A Virus .......................................................................................................................10
   Herpes B Virus of Macaque Monkeys .........................................................................................10
   Hepatitis B Virus .......................................................................................................................11
   Measles ......................................................................................................................................11
   Tuberculosis (TB) .......................................................................................................................12
   Oral Herpes Simplex (Cold Sores) ............................................................................................13
5) Availability and Procedure for treatment in the event of bites, scratches, illness, or injury.....13
1) Scope
The purpose of the Medical Monitoring Program for Vertebrate Animal Exposure (MMPVAE) is to prevent, monitor, and reduce diseases transmitted from animals to humans (zoonotic diseases) and mitigate adverse reactions from laboratory exposure associated with the animal care and use program. In addition, educational programs have been established to educate personnel about zoonotic diseases, personal hygiene, and other health related issues. The MMPVAE has been developed in accordance with the Occupational Health and Safety in the Care and Use of Research Animals document prepared by the National Research Council (NRC), the Guide for the Care and Use of Laboratory Animals (Institute of Laboratory Animal Resources [ILAR]), and the Biosafety in Microbiological and Biomedical Laboratories, CDC•NIH.
All faculty, staff, student and visiting researchers who are in direct physical contact with one or more animals used for research or a classroom project at the University are required to be enrolled in the MMPVAE. Also included are all members of the IACUC and physical plant staff and others having responsibility in the animal facilities.

2) Administration and Management
A Nurse Practitioner (NP) associated with the GSU School of Nursing serves as the Program Administrator for the MMPVAE. Specific services provided include, but are not limited to, distributing MMPVAE informational materials to enrollees, managing the enrollee database, performing a risk assessment based on the Enrollment Questionnaire, recommending strategies to prevent and minimize health risks, providing support (post exposure plans, environment risk assessment etc) to investigators and the Division of Animal Resources (DAR), advising committees (Institutional Animal Care and Use Committee, Institutional Biosafety Committee, etc) that interact with animal laboratory environments, and managing enrollee services (Tb skin test, mask fit test etc.).
Medical records are maintained by the medical services provider (MSP) and MMPVAE. The MSP is defined as either the NP or the occupational health physician group to whom the NP may refer an enrollee. Questions concerning the MMPVAE should be directed to the NP at 404-441-1822 or MMPVAE@gsu.edu.

The DAR provides training related to appropriate animal handling and restraint in an effort to minimize the occurrence of injuries and exposures to disease. Questions regarding veterinary aspects of zoonotic diseases should be directed to the veterinarians associated with the DAR. When necessary, the question will be routed to the MSP or other appropriate experts. The MSP offers professional medical support services for the MMPVAE. The MSP will provide preventive care measures, physical examinations, and administer appropriate diagnostic and medical evaluations when needed.

To enroll in the program, visit the MMPVAE portal at https://mmpvae.gsu.edu and submit a form (Health History Questionnaire). The Health History Questionnaire must be submitted on an annual basis. The completed Questionnaire is reviewed by the MSP (specifically the NP) as a critical component of the risk assessment process (e.g. to identify existing conditions that may influence the health of persons with animal contact and, in certain cases, the existence of human disease that could adversely affect the health of certain species of animals). Subsequent to the conduct of the risk assessment, the NP notifies enrollees of any recommended and/or required medical procedures (e.g. TB testing, immunizations, respiratory fit testing, and the like). In addition, based upon the answers provided on the questionnaire, the NP may contact the enrollee to request a meeting to discuss a
relevant issue(s). Certain medical screenings must be repeated on a periodic basis and program participants are sent reminders when such services are due (e.g., semiannual Tb skin testing, etc.). Expenses for medical services provided are borne by the university, not the program participant.

Many of the medical services are provided by the NP on the GSU campuses at no cost to the participant. In addition to the services provided by the NP, medical services may also be provided by an occupational health physician group. The enrollee can choose to waive recommended but not required medical procedures. Confirmation of services provided and results of authorized procedures under the auspices of the MMPVAE will be maintained by the NP. It is the responsibility of the Principal Investigators or Managers/Supervisors to ensure that all individuals working with vertebrate animals under their direction are enrolled in the MMPVAE.

3) Hazard Identification and Risk Assessment

Hazard identification and risk assessment are a cooperative effort involving the NP who administers the MMPVAE, the MSP, the Institutional Biosafety Committee (IBC), the Radiation Protection Committee (RPC), the Institutional Animal Care and Use Committee (IACUC), the Laboratory Safety Committee (LSC), the Attending Veterinarian, and the scientists conducting animal research. As a component of enrolling in the MMPVAE, individuals are required to complete a Health History Questionnaire. The questionnaire requests pertinent information regarding the risks of the work/exposure and displays assigned reading materials commensurate with answers provided on the questionnaire. The NP reviews the questionnaire, assesses requirements for participation, and assigns status as approved, pending or denied. This process inserts the enrollee into the occupational health and safety program database. Auto reminders are in place for annual enrollment updates to the enrollee Health Questionnaire and the NP manages risk surveillance and medical device reminders (e.g., TB testing, respirator fit testing, etc.) In addition, based upon the answers provided on the questionnaire, the NP may contact the enrollee to request a meeting to evaluate and discuss a relevant issue(s). The system also assigns reading materials which provide important information about inherent risks and issues of concern related to a laboratory animal environment to include laboratory animal allergies, relevant zoonotic diseases, personal hygiene, bites and scratches, lifting injuries, PPE, and vaccines, as applicable.

The use of hazardous materials, such as isotopes, toxic chemicals, biological agents, etc. in animals is allowed only after a thorough review by the IACUC, RPC, LSC, and/or IBC, as appropriate, with subsequent provisions being established which must be followed. The IACUC protocol inquires about the use of such materials and assures that the appropriate approvals are in place prior to the IACUC protocol being approved. Studies involving hazardous materials are conducted under the direction of a Principal Investigator who is responsible for ensuring the safety of the operation, and for following established policies and procedures for the use of these materials. The DAR and the PI and his/her research laboratory members must and do work closely in this respect to assure that the appropriate signage, training, and procedures are in place and that all relevant personnel are informed of such.

Proper training of personnel is an important component by which risk is minimized. DAR employees are required to read and follow SOPs related to the various animal care and use and associated procedures in which they engage. Similarly, all individuals working with primates are required to read the SOPs on an annual basis. Further, the IACUC reviews the training and experience of all personnel working with animals as a component of an IACUC-approved protocol. The DAR provides training
related to appropriate animal handling and restraint in an effort to minimize the occurrence of injuries and exposures to disease.

The MMPVAE enrollees are placed into one or more categories (see below) with regard to animal contact and/or exposure. Placement into a particular category(ies) constitutes the basis for the medical procedures which are recommended or required. Additional services may be recommended and/or required by the NP subsequent to the review of the completed questionnaire. In addition, should the enrollee be working with a biological, chemical, and/or radiological hazard then other recommendations and/or requirements may apply as determined by the appropriate oversight committees/individuals (e.g. IBC, RPC, LSC).

The categories are as follows:
1. Rodents, rabbits, ferrets, birds
2. Nonhuman primates
3. Fish, reptiles, amphibians
4. Wild Animals

Components of the MMPVAE for Category 1 Participants

**Category 1** participants are those who anticipate having direct (hands-on) or indirect (environmental/facility only) contact with rodents, rabbits, ferrets, birds and/or their tissues, body fluids or wastes.

**Tetanus Immunization (recommended)**

Immunization with tetanus toxoid is updated according to recommendations of the Advisory Committee of Immunization Practices (ACIP) of the Centers for Disease Control and Prevention (CDC). Booster doses may be administered during any of the following:
- 10 year booster of routine vaccination
- following the report of an injury
- as needed

**Protocol-Specific Hazards**

The use of hazardous materials, such as isotopes, toxic chemicals, biological agents, etc. in animals is allowed only after a thorough review by the IACUC, RPC, LSC, and/or IBC, as appropriate, with subsequent provisions being established which must be followed.

Components of the MMPVAE for Category 2 Participants

**Category 2** participants are those who anticipate having direct (hands-on) or indirect (environmental/facility only) contact with nonhuman primates and/or their tissues, body fluids or wastes.

**Tetanus Immunization (recommended)**

Immunization with tetanus toxoid is updated according to recommendations of the Advisory Committee of Immunization Practices (ACIP) of the Centers for Disease Control and Prevention (CDC). Booster doses may be administered during any of the following:
- 10 year booster of routine vaccination
- following the report of an injury
- as needed
Hepatitis-A Vaccination Program (recommended)
If an employee handles nonhuman primate blood, body fluids or tissues as a work requirement in research related activities, the MMPVAE recommends immunization against Hepatitis-A virus. Hepatitis-A is a human viral disease that affects the liver and other organs. Some people with the disease develop a long-lasting form that can lead to severe liver dysfunction or liver cancer. Those infected with the virus can become carriers--infecting others without becoming sick themselves. Hepatitis is primarily transmitted through non-human primate fecal material. Hepatitis-A has a prevalence in this part of the U.S. sufficient to warrant vaccination of health workers. Employees may be assigned to areas where non-human primate fecal material is sometimes handled.

Hepatitis-B Vaccination Program (recommended)
If an employee handles nonhuman primate blood, body fluids or tissues as a work requirement or works with human cells and tissues in research related activities, or works with sharps or scalpels, the MMPVAE recommends immunization against Hepatitis-B virus. Hepatitis-B is a human viral disease that affects the liver and other organs. Some people with the disease develop a long-lasting form that can lead to severe liver dysfunction or liver cancer. Those infected with the virus can become carriers--infecting others without becoming sick themselves. Hepatitis is primarily transmitted through human blood and body fluids. Hepatitis-B has a prevalence in this part of the U.S. sufficient to warrant vaccination of health workers. Employees may be assigned to areas where human blood and body fluids are sometimes handled.

Tuberculosis screening (required)
Tuberculosis is a zoonotic disease that can be devastating in any nonhuman primate colony. Due to the inherent risks, special precautions must be taken for those individuals working with nonhuman primates. Participation in the TB screening program (described elsewhere in this Manual) is mandatory.

Rubella (Measles) (required)
This is a zoonotic disease that can affect nonhuman primates and often causes a fatal pneumonia in nonhuman primates. Participation in the measles program (described elsewhere in this Manual) is mandatory.

Protocol-Specific Hazards
The use of hazardous materials, such as isotopes, toxic chemicals, biological agents, etc. in animals is allowed only after a thorough review by the IACUC, RPC, LSC, and/or IBC, as appropriate, with subsequent provisions being established which must be followed.

Components of the MMPVAE for Category 3 Participants
Category 3 participants are those who anticipate having direct (hands-on) or indirect (environmental/facility only) contact with fish, amphibians, or reptiles and/or their tissues, body fluids or wastes.

Tetanus Immunization (recommended)
Immunization with tetanus toxoid is updated according to recommendations of the Advisory Committee of Immunization Practices (ACIP) of the Centers for Disease Control and Prevention.
Booster doses may be administered every ten (10) years or as needed during any of the following:

- following the report of an injury
- as needed

**Protocol-Specific Hazards**

The use of hazardous materials, such as isotopes, toxic chemicals, biological agents, etc. in animals is allowed only after a thorough review by the IACUC, RPC, LSC, and/or IBC, as appropriate, with subsequent provisions being established which must be followed.

**Components of the MMPVAE for Category 4 Participants**

**Category 4** participants are those who anticipate having direct (hands-on) or indirect (environmental/facility only) contact with wild animals and/or their tissues, body fluids or wastes.

**Tetanus Immunization (recommended)**

Immunization with tetanus toxoid is updated according to recommendations of the Advisory Committee of Immunization Practices (ACIP) of the Centers for Disease Control and Prevention (CDC). Booster doses may be administered every ten (10) years or as needed during any of the following:

- following the report of an injury
- as needed

**Protocol-Specific Hazards**

The use of hazardous materials, such as isotopes, toxic chemicals, biological agents, etc. in animals is allowed only after a thorough review by the IACUC, RPC, LSC, and/or IBC, as appropriate, with subsequent provisions being established which must be followed.

**4) Selected Hazards and Preventative Measures**

**Laboratory Animal Allergies**

Animal care staff and others who handle laboratory animals may be sensitized to animal dander or other proteins. Individuals at risk of developing allergies or experiencing the onset of existing allergic reactions include those with preexisting allergies, asthma, seasonal rhinitis or eczema. Preventing exposure to the allergies may require the use of personal protective equipment such as gowns, gloves, and respiratory protection.

Allergic reactions to animals are among the most common conditions that adversely affect the health of workers involved in the care and use of animals in research. Of the 90,000 laboratory animal workers in the United States, up to 46% develop allergies to laboratory animals. Of those who develop symptoms, more than 10% eventually develop occupational related asthma with symptoms that persist even after exposure ceases. The manifestations of animal allergies, which range from rhinitis and itchy eyes to respiratory distress, have caused more than one third of laboratory animal workers at the National Institutes of Health to lose time from work. Vertebrate animal users are highly encouraged to review the information relating to animal allergies located at: https://www.ors.od.nih.gov/sr/dohs/Documents/III-12%20Laboratory%20Animal%20Allergies.pdf
Latex Allergies

As indicated by the Occupational Safety and Health Administration, United States Department of Labor allergy to latex was first recognized in the late 1970s. Since then, it has become a major health concern as an increased number of people in the workplace are affected. Health care workers exposed to latex gloves or medical products containing latex are especially at risk. It is estimated that 8-12% of health care workers are latex sensitive.

Between 1988-1992, the Federal Drug Administration (FDA) received more than 1,000 reports of adverse health effects from exposure to latex, including 15 deaths due to such exposure. Latex allergy is a reaction to certain proteins found in natural rubber latex, a product manufactured from the milky fluid that comes from the rubber tree. If you have a latex allergy, your body mistakes latex for a harmful substance. Latex allergy may cause a variety of allergic reactions to include sneezing or a runny nose and may cause a more severe reaction known as anaphylaxis which is a potentially life-threatening condition. The MSP may determine if you have a latex allergy or if you are at risk of developing a latex allergy.

Individuals with a latex allergy should wear nitrile gloves as opposed to the typical latex gloves.

Steps for Manual Lifting to Prevent/Minimize Back Injury

1. Assess the lifting environment. This is a mental process that takes just seconds before you begin the lift. Look at the surrounding area to become aware of possible hazards. Is the floor or ground level and dry? If not, you will need to take extra precautions during the lift. Do you know where you will place the object you are about to lift? If not, you may need to clear a place for the object before the lift. Is the pathway needed to perform the lift and/or carry the object clear? If not, you need to either take extra precautions or clear the pathway.
2. Assess the weight and size of the object. Nudge the object to assess the approximate weight of the object. This will help you determine whether you can lift the object yourself or whether you need additional help from another person or a mechanical lifting device. Also, assess the size of the object. Often, bulky items are not heavy, but require additional help to maintain proper body mechanics during lifting, carrying, and lowering. Know your limitations and get additional help when necessary. If possible, reduce the weight of heavy loads prior to moving them, e.g., by splitting the load in half.
3. Get close to the object to be lifted. Move other objects out of the way or move yourself to a position where you can be close to the object you are about to lift. The further the object is from your body, the greater the stress will be to your back when lifting.
4. Assume a stable stance. Your feet should be approximately shoulder width apart with feet staggered slightly.
5. Bend your knees. Bend your knees as far as you can and still be able to come to an upright position using your thigh muscles. If you have weak thighs, you may only be able to bend your knees slightly.
6. Grip the object firmly. Starting positions that are at a level between the knee and waist are the least stressful to the back.
7. Keep your back a straight, stable unit.
8. Initiate the lift with your legs and buttock muscles.
9. Lift with controlled speed. The faster you accelerate or decelerate an object, the greater the stress will be to your back.
10. Continue to keep your back a straight, stable unit.
11. Come to an upright position using your leg and buttock muscles.
12. Pivot, using your feet; do not twist.
13. To lower, use the same precautions noted above.

**Bites and scratches**

Most animals are capable of inflicting bites and/or scratches. Proper animal handling will serve to minimize the occurrence of bites and/or scratches; the use of the appropriate PPE will assist in this objective.

**Personal Protective Equipment (PPE)**

The Medical Monitoring Program for Vertebrate Animal Users is designed to help protect you from the risk of possible infection by animal-associated organisms or other agents associated with animal research. However, it is up to you to take proper precautions in the handling of animals. In doing so, the use of personal protective equipment (PPE) is critical. The PPE provides a physical barrier to potentially hazardous materials associated with animals. The institution shall provide, at no cost to you, appropriate PPE. The appropriate PPE to be utilized is based upon a risk assessment and takes into consideration the animal species utilized, the types of procedures being conducted, and the individual conducting the activity (e.g. the presence of laboratory animal allergies may require the use of additional PPE). The institution is also responsible for cleaning, laundering, disposal and replacement of PPE at no cost to you. To learn more about the subject of PPE, please consult your supervisor, the Division of Animal Resources, and/or the following publications: “Occupational Health and Safety in the Care and Use of Research Animals” and the “Guide for the Care and Use of Laboratory Animals,” both of which are published by the National Research Council and available online for perusal. Failure to use appropriate PPE may increase the chance of being exposed to potentially hazardous materials from animal contact. Therefore, the use of proper PPE is required.

**Respiratory Protection**

The laboratory environment contains hazards such as bacteria, viruses, and chemicals that may be inhaled by personnel and cause injury or illness. Control of laboratory hazards is best achieved by elimination of the hazard. In some instances, hazard elimination is not possible and mitigating the exposure is achieved through engineering controls (biosafety cabinets, specialized ventilation in rooms etc.) vaccination, and personal protective equipment that includes the use of respirators. Respirators in the laboratory environment are chosen based on the job required and should not be confused with surgical masks. Surgical facemasks do not seal the face, allow air to flow around the mask and are not designed to protect against inhaling infectious materials or chemicals. In addition, surgical masks are not regulated to require materials that filter small particles. Thus, particles can pass through or around surgical masks and pose the potential for inhalation by the wearer. **Thus, surgical facemasks are not considered reliable and not considered respiratory protection.** The purpose of a respirator is to protect the wearer by reducing the concentration of hazardous particles in the air that may be inhaled by the wearer. Respirators are designed to seal tightly to the face and are regulated to provide a known level of protection when used as part of a respiratory protection program. Respirators require fit testing and assure the wearer that inhaled air is forced through the filtering material, which allows contaminants to be captured and reduces exposure to large and small particles and droplets.

Respirators must be selected based on pathogen or chemical and the risk associated with the specific job to be performed. The PI is responsible for determining the level of protection required. Respirators are available in many types, sizes, and models. Respirators in the animal care and use setting require fit testing.
and medical clearance when applicable. The most commonly used respirators in this setting are filtering facepiece respirators (N95 masks for example) and powered air-purifying respirators, PAPRs (primarily hooded PAPRs). Non-powered, or negative-pressure respirators have a tight-fitting half mask that covers the nose and mouth or a full face piece which covers nose, mouth and eyes. N95 respirators:

1. Require annual fit testing.
2. Require that the individual **must wear the make, model and size mask** in which the fit test was performed and passed.
3. Are disposable one time use masks that should be replaced if contaminated or become wet.
4. Must not be worn with beard or mustache and men to be clean shaven.
5. Require repeat fit testing with weight loss or gain of plus or minus 10 pounds, change in facial features due to scarring, surgical reconstruction or dental procedures that change face shape. Individuals with such issues are responsible to inform Medical Monitoring and schedule fit testing after such an event. Medical monitoring is available to answer questions from any individual with concerns regarding fit of his/her mask.
6. Require proper donning and removal with a seal test before each use.

Air-purifying respirators (half or full mask) which require filters, cartridges, or canisters:

1. Require medical clearance for use.
2. Require annual fit testing.
3. Must be visually inspected before use.
4. Can not be worn in an oxygen deficient atmosphere.
5. Require replacement filters, cartridges, or canisters approved for mask model and type **without substitutions**.
6. Require proper donning and removal with pressure seal test before each use.

Powered air-purifying respirators with hood do not require a fit test or medical clearance. Individuals with beards or heavy facial hair may require a hooded PAPR in replacement of an N95. The Division of Animal Resources (DAR) provides training and use procedures for these respirators.

Any respirator that requires fit testing regardless of reason for use (respiratory safety, allergy or otherwise) must go through proper fit testing procedures and respiratory risk assessment prior to use in the laboratory environment. Any individual with questions or concerns regarding the use of respiratory protection in the environment may contact the Medical monitoring program by email at mmpvae@gsu.edu or phone 404-441-1822.

**Personal Hygiene**

There are a number of personal hygiene issues that apply to all workers who are exposed to animals. There must be no eating, drinking, or applying of cosmetics in areas where animals are housed. All work surfaces must be decontaminated daily and after any animal-related spills or contacts. Laboratory coats must be worn over street clothes or employees can change into special designated clothing when working with animals. Personal protective equipment must be used appropriately. Very importantly, thorough hand washing must be done after handling the animals and prior to leaving the laboratory.

**Impaired Immune System**
Individuals with an impaired immune system, due to medication or disease, may be at a significantly greater risk of contracting an infectious disease from the animals with which they work. Such individuals should contact their personal physician and specify that they work with laboratory animals. One can also discuss this issue with the Nurse Practitioner associated with the MMPVAE who may, in turn, refer the enrollee to an occupational health physician.

**Health Precautions for Pregnant Personnel Working with Animals**

Pregnant employees or those planning to become pregnant should contact their obstetrician/gynecologist immediately and specify that they work with laboratory animals. The particular species and types of activities involved (e.g. work with a particular infectious agent, chemical hazard, inhalant anesthetic, radioisotope, etc.) should be discussed so that one becomes educated about the associated risks and precautionary measures. One can also discuss this issue with the Nurse Practitioner associated with the MMPVAE who may, in turn, refer the enrollee to an occupational health physician.

**Tetanus**

Tetanus is caused by a toxin produced by bacteria that is frequently found on surfaces contaminated by dirt and/or the feces of some animals. The organism can gain entrance into the body through bite wounds, puncture wounds caused by sharp objects, or contamination of other deep wounds. Failure to be vaccinated against tetanus could result in severe illness or death. Immunization with tetanus toxoid is updated according to recommendations of the Advisory Committee of Immunization Practices (ACIP) of the Centers for Disease Control and Prevention (CDC). Booster doses may be administered every ten (10) years or as needed during any of the following:

- following the report of an injury
- as needed

**Hepatitis A Virus**

Individuals who may have occupational exposure to human or nonhuman primate (NHP) fecal material or fecally-contaminated materials while working on animal research will be offered the Hepatitis A vaccination. Failure to be vaccinated against HAV could result in severe illness such as liver disease. The vaccine is safe and effective in protecting the individual against the potentially deadly virus.

**Herpes B Virus of Macaque Monkeys**

B Virus naturally occurs in macaque monkeys. While relatively benign in its natural host, the alphaherpes virus can cause rapidly ascending encephalomyelitis (inflammation of the brain) with a fatality rate of approximately 80% if spread to humans (through bites, scratches, splashes, or needle-stick injuries). B virus directly affects the central nervous system of infected human and nonhuman primates.

In the macaque host, B virus causes mild symptoms similar to that of herpes simplex virus 1 (cause of common cold sores) in humans. These symptoms can include oral or genital lesions, but virus can be shed in the absence of lesions as well. If infected, the macaque monkey remains infected for the duration of its lifetime and is a potential source of the virus for humans. All macaque monkeys maintained by GSU are serologically negative for B virus (screened annually) but, as false negatives can occur and due to the severity of infection if acquired by a human, they are treated as if they are infected.
Georgia State University National B Virus Resource Laboratory provides diagnostic assays for both nonhuman primates and humans suspected to be infected with B virus. Service is provided on a 24/7 and on an emergency basis 365 days/year. Diagnostic testing services are offered for injury-related human and nonhuman primate samples as well as for routine screening. B virus zoonosis can be effectively managed with early detection of this deadly agent in cases of zoonotic infection. Early detection can translate into prevention of morbidity and mortality as a result of an inadvertent exposure to this uniquely pathogenic herpesvirus.

More information on B Virus Infection, (B virus herpesvirus, B-Virus Infection, Cercopithecine Herpesvirus, Cercopithecine herpesvirus) is available at http://www2.gsu.edu/~wwwvir/.

Individuals charged with working with macaque monkeys will be required to read and follow standard operating procedures designed to prevent potential exposure to this virus. Further, these standard operating procedures outline steps that must be followed in the event of a potential exposure.

**Hepatitis B Virus**

Individuals who may have occupational exposure to human or nonhuman primate (NHP) blood, tissue or other potentially infectious materials while working on animal research, will be offered the Hepatitis B vaccination. Failure to be vaccinated against HBV could result in severe illness such as liver disease. The vaccine is safe and effective in protecting the individual against the deadly virus.

**Measles**

Measles is best known for causing a rash in childhood, but measles can affect other parts of the body and sometimes occurs in adults. Vaccination has significantly reduced the number of cases in the United States, although isolated outbreaks continue to occur. There are two types of measles, each caused by a different virus. Although both produce a rash and fever, they are different diseases:

- The rubella virus causes "red measles," also known as "hard measles" or just "measles." Although most people recover without problems, rubeola can lead to pneumonia or inflammation of the brain (encephalitis).
- The rubella virus causes "German measles," also known as "three-day measles." This is usually a milder disease than red measles. However, this virus can cause significant birth defects if an infected pregnant woman passes the virus to her unborn child.

Both the rubeola and rubella viruses are spread through the respiratory route. This means they are contagious through coughing and sneezing. In fact, the rubeola virus is one of the most contagious viruses known to man. As a result, it can spread rapidly in a susceptible population. Infected people carry the virus in their respiratory tract before they get sick, so they can spread the disease without being aware of it.

If people are immune to the virus (either through vaccination or by having had measles in the past), they cannot get the disease caused by that virus. For example, someone who had rubeola as a child would not be able to get the disease again. Remember that rubella and rubeola are different viruses. An infection with one of these viruses does not protect against infection with the other. Like man, non-human primates (e.g. monkeys and apes) are also susceptible to both types of measles. If a non-human primate becomes infected with measles, it is usually because a human has passed the infection to the non-human primate.
Since students, faculty, and health care and other workers in colleges and other post-high school educational institutions are at increased risk of acquiring measles and mumps, they should receive two doses of Measles, Mumps, and Rubella (MMR) vaccine or provide other evidence of measles immunity (physician diagnosis or laboratory evidence). Personnel working with NHP are required to have proof of MMR vaccination or have a measles titer assayed. Personnel will be required to have a MMR vaccination booster if their titer assay is below the required level.

- A personal history of measles is NOT acceptable as proof of immunity. Acceptable evidence of measles immunity includes:
  - A positive serologic test for antibody
  - A physician diagnosis of disease
  - Birth before 1957
  - Written documentation of vaccination*

*Please note that MMR vaccination consists of two doses separated by at least 28 days. Since 2%-5% of persons do not develop measles immunity after the first dose of vaccine, the second dose is to provide another chance to develop measles immunity for persons who did not respond to the first dose. There is no evidence that adverse reactions are increased when MMR is given to a person who is already immune to one or more of the components of the vaccine.

Individuals who have not provided acceptable evidence of measles immunity will be:

- denied access to facilities housing NHPs; or
- required to wear additional PPE to protect the NHP from possible exposure and will have limited access within the animal facility.

### Tuberculosis (TB)

Tuberculosis is caused by a bacterial organism and is capable of producing serious disease in both people and nonhuman primates. Tuberculosis typically attacks the lungs but can also affect other parts of the body. It is typically transmitted via the air by coughing and sneezing. An active TB infection can spread to other people. A latent infection cannot spread to other people but, it can become active and is contagious.

The Division of Animal Resources periodically tests the nonhuman primates for the presence of TB. Similarly, people who have contact (direct or indirect with the latter being environmental exposure) with nonhuman primates (NHPs) must receive a semi-annual tuberculin skin test for clearance to work in the nonhuman primate facilities. Should an individual test positive on skin testing or have a positive history, the individual may be sent to Occupational Health for clearance from a provider. In this instance, a clear chest x-ray and a negative Interferon Gamma Release Assay (IGRA) are required for clearance that confirms a tuberculosis infection is not likely. Going forward, the individual is screened annually with an IGRA blood test and skin testing is no longer done every 6 months. Individuals may be required to complete a Tuberculosis risk questionnaire as deemed clinically necessary.

Individuals who have not completed their semi-annual tuberculin skin test or Annual IGRA will be:

- denied access to facilities housing NHPs; or
- required to wear additional PPE to protect the NHPs from possible exposure and will have limited access within the animal facility.
The MMPVAE program sends reminders as to when individuals need their semi-annual tuberculin skin test and/or annual Interferon Gamma Release Assay (IGRA).

Skin testing is done with the Mantoux (PPD) technique that measures hypersensitivity to tuberculin. The appearance of inflammation at the site of injection is measured to indicate past or present tuberculosis infection. Interferon Gamma Release Assay (IGRA) is a blood draw that requires waiting for the lab result to be given. At any time, if any employee has symptoms of TB (persistent cough, low grade fevers, unexplained weight loss, night sweats) further evaluation must be done.

Individuals with a previous positive skin test for tuberculosis should provide a certificate from the attending doctor (giving the circumstances of the positive test result, and indicating any treatment regimen that may have been conducted) to the Medical Monitoring Program. If the individual has ever been diagnosed with tuberculosis, this individual must present a written certification, signed by the attending doctor, proving that the individual was adequately treated. The certificate must include dates and types of medications taken for the Nurse Practitioner to review. Contact the MMPVAE Nurse Practitioner for more information at 404-441-1822.

The Advisory Committee on Immunization Practices recommends waiting 4-6 weeks after live virus vaccines before giving a routine TB skin test.

**Oral Herpes Simplex (Cold Sores)**

Humans who suffer periodically from cold sores represent a serious threat to some species of NHPs. The virus that causes the disease is lethal to some NHPs. People with active cold sore lesions should avoid contact with NHPs until their lesions have healed. It is the responsibility of the Midlevel or Senior Level Employee to decide if a "no contact" order should be given to the vertebrate animal user with cold sores if he or she is working with NHPs. This "no contact" order should not adversely affect the employee's terms or conditions of employment.

5) **Availability and Procedure for treatment in the event of bites, scratches, illness, or injury**

**Incident Reporting**

The Principal Investigator (PI) or Manager/Supervisor must ensure that individuals are trained to promptly report any illnesses/injuries, needle sticks, bite or scratch wounds, or splashes (particularly splashes that involve the eyes, mouth, open wound/abrasion, etc) that might result from animal contact. The specific steps to be followed are as follows:

Step 1) Report to PI or Manager/Supervisor*

* In the event of Life or Limb threatening emergency provide immediate first aid and call 911 and/or GSU Police 404-413-2100. After first aid has been rendered, seek medical care from Emory Midtown or Grady Hospital or otherwise as deemed necessary. If the injury/exposure involves a rhesus macaque monkey, immediately follow the post-exposure protocol as elucidated in LRC SOP.
#005 (Personnel Accident and Injury). It is acknowledged that a medical emergency can be a subjective designation. Accordingly, one is authorized to seek medical attention first as they see fit and notify their PI and/or supervisor to complete the paperwork as soon as possible afterwards.

Step 2) PI or Manager/Supervisor fills out the online lab accident report form (http://safety.gsu.edu/risk-management/forms/laboratory-accident-report/). The electronic submission of this form is to the Safety and Risk Management Office.

Step 3) Seek medical attention upon receiving authorization from the Safety and Risk Management Office (again, seek medical attention immediately in the event of a medical emergency* and/or if the injury/exposure involves a rhesus macaque monkey – in such cases the PI or Manager/Supervisor fills out the aforementioned lab accident report form after the injured/exposed individual has been delivered for appropriate care). Dr. Hart we need to think about this and make it in line with our new protocols- Herpes B was our primary concern and now we have all kinds of areas that I have suggested a card or PI information sheet be carried by the individual and taken with them to ER for help.

Step 4) If the Safety and Risk Management Office determines this to be a worker’s compensation claim, the PI or Manager/Supervisor will be prompted to fill out the appropriate worker’s compensation forms. (http://safety.gsu.edu/risk-management/occupation-health-safety/workers-compensation-2/)

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<table>
<thead>
<tr>
<th>Elizabeth Barrett</th>
<th>Office: (404)-413-9548</th>
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</thead>
<tbody>
<tr>
<td>Safety and Risk Management Director</td>
<td>Fax: (404) 413-9550</td>
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<tr>
<td>Department of Safety and Risk Management</td>
<td>E-mail: <a href="mailto:ebarett7@gsu.edu">ebarett7@gsu.edu</a></td>
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<tr>
<td>PO Box 3961</td>
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<tr>
<td>75 Piedmont Ave., Suite 506</td>
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Non-emergency care for students is available through the Student Health Clinic at Georgia State University, a Division within Student Affairs. The website (http://health.gsu.edu) is designed to provide information for students about the services offered at the Student Health Clinic. High Quality Primary and Urgent Care services are provided by a Board Certified Family Practice Physician and Certified Nurse Practitioners. These services include but are not limited to: immunizations, physicals, gynecologic exams, STD and HIV testing. The clinic is located on street level of the new “Commons” student housing complex.

<table>
<thead>
<tr>
<th>Georgia State University Health Clinic</th>
<th>Immunization Office</th>
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<tbody>
<tr>
<td>141 Piedmont Ave, Ste D</td>
<td>141 Piedmont Ave, Ste D</td>
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<tr>
<td>Atlanta, GA 30303</td>
<td>Atlanta, GA 30303</td>
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<tr>
<td>(404) 413-1930</td>
<td>(404) 413-1930</td>
</tr>
</tbody>
</table>

| Monday - Thursday 8 a.m. - 8 p.m.     | Monday - Friday 9 a.m. - 5 p.m. |
| Friday 8 a.m. - 5 p.m.                | No appointment necessary       |
| Appointments needed                   |                                   |

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