

## **IV-1. ANIMAL EXPOSURE PROGRAM**

- I. Purpose: The purpose of the Animal Exposure Program (AEP) is to provide:
  - A. Relevant health and safety information related to the use and care of animals.
  - B. Occupationally indicated immunizations.
  - C. Clinical evaluation and treatment for individuals with animal related injuries and illnesses.
- II. Relevant Occupational Medical Service (OMS) Procedure Manual Sections
  - A. Laboratory Animal Allergies. Chapter III Section 12
  - B. Measles, Mumps, Rubella (MMR) Immunization. Chapter III, Section 13
  - C. Nonhuman Primate Body Fluid Exposure. Chapter III Section 17
  - D. Occupational Injury and Illness. Chapter III Section 18
  - E. Preplacement Medical Evaluation. Chapter III Section 21
  - F. Rabies Immunization. Chapter III Section 22
  - G. Serum Storage Program. Chapter III Section 26
  - H. Tetanus, Diphtheria, Pertussis Immunization. Chapter III Section 27
  - I. Wound Care Guidelines. Chapter III Section 32
  - J. Biological Surety Program. Chapter IV, Section 3
  - K. Tuberculosis Surveillance Program. Chapter IV Section 23
- III. Attachments
  - A. Animal Exposure Program Enrollment Outline. [Attachment I](#)
  - B. Health Concerns Associated with Rabbit and Rodent (Small Animal) Contact. [Attachment II](#)
  - C. Health Concerns Associated with Aquatic Species Contact. [Attachment III](#)
  - D. Health Concerns Associated with Poultry, Cats, Dogs, Cows, Sheep, and Pigs (Large Animals) Contact. [Attachment IV](#)
  - E. Health Concerns Associated with Nonhuman Primate Contact. [Attachment V](#)
  - F. Health Concerns Associated with Nonhuman Primate Tissue Work. [Attachment VI](#)
  - G. B Virus Wallet Card. [Attachment VII](#)
  - H. Annual Recall Notice for TB Testing. [Attachment VIII](#)
  - I. Second Notice for TB Testing. [Attachment IX](#)
  - J. Removal Notice. [Attachment X](#)
  - K. Annual E-Mail Notice to AEP Participants. [Attachment XI](#)
- IV. Eligibility
  - A. Federal employees and participants in the Biological Surety Program (regardless of who employs them) at the NIH are required to participate in this program, if they:
    - 1. Have direct contact or are involved in the direct care of live animals;

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2. Share “air space” with a nonhuman primate (NHP); or
  3. Work with non-fixed NHP tissue, including blood.
- B. The minimum features of this program that an employee must receive to be identified as participating are listed in Section VI.B.
- C. Employees of non-federal organizations are eligible only for emergency medical care (e.g., evaluation and treatment of occupational injuries.)

#### V. Identification and Enrollment

- A. Supervisors identify potential workplace health hazards including contact with research animals as part of the preplacement medical evaluation process. OMS healthcare providers enroll position applicants in the program during the preplacement medical evaluation.
- B. Similarly, the Biological Surety Program Manager identifies workers who have access to research animals used in BSL-3 and -4 laboratories and OMS healthcare providers enroll them in the AEP as part of their biosurety visit.
- C. Supervisors may request that a current worker’s OMS clinical record be reviewed to determine whether the employee has already received the mandatory services for enrollment in the AEP (see Section VI.B).
- D. OMS healthcare providers review an employee’s clinical record when a worker reports an occupational injury or illness involving a research animal. If the individual is not already enrolled in the program, the appropriate services are provided and the healthcare provider requests that a health and safety specialist investigate the occurrence.

#### VI. Program Organization and Mandatory Minimum Requirements for Participation

- A. The AEP is subdivided into four broad categories:
1. Small animals: fish, amphibians, birds, rodents, rabbits, etc., (see Sections VII and Section XI).
  2. Large animals: cats, dogs, sheep, cattle, pigs, poultry etc., (see Sections VII, VIII, and XI).
  3. NHPs: marmosets, monkeys, apes (see Sections VII, IX, and XI).
  4. Nonhuman primate tissues (see Sections VII, X, and XI).
- B. The mandatory minimum requirements for certification of enrollment and continuing participation in the AEP are based upon the animals the employee has contact with at work. The requirements are as follows (see [Attachment I](#) for related information):
1. Employees working with small animals:
    - a. Personal medical history and counseling (Section VII.A.2), and
    - b. An offer to update tetanus immunization, as clinically warranted (Section VII.A.3).
  2. Employees working with large animals:
    - a. Personal medical history and counseling (Section VII.A.2),
    - b. An offer to update tetanus immunization, as clinically warranted (Section VII.A.3),

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- c. Rabies immunization, if applicable (Section VIII.A).
- d. Serologic testing for toxoplasmosis, if applicable (Section VIII.B), and
- e. Q fever counseling, if applicable (Section VIII.C).
- 3. Employees working with live NHPs
  - a. Personal medical history and counseling (Section VII.A.2),
  - b. An offer to update tetanus immunization, as clinically warranted (Section VII.A.3),
  - c. Tuberculosis screening and annually, as clinically warranted (Section IX.A), and
  - d. Evidence of protection from infection with rubeola or immunization (Section IX.B).
- 4. Employees working with non-fixed tissue from NHPs
  - a. Personal medical history and counseling (Section VII.A.2), and
  - b. Baseline tuberculosis screening.

#### VII. Services Offered to all AEP Participants

- A. Enrollment medical evaluation. The content of this evaluation is outlined below and determined by the type of animals the worker will encounter at work. It almost never includes a physical exam.
  - 1. An occupational and personal medical history which includes a review of:
    - a. The functional demands and environmental factors associated with the proposed position;
    - b. The type of animal(s) contacted;
    - c. Other potential worksite health hazards; and
    - d. The individual's medical history, including occupationally-indicated immunizations.
  - 2. Counseling and informational handouts:
    - a. Counseling includes:
      - i) The importance of utilizing Standard Precautions;
      - ii) The proper use of personal protective equipment;
      - iii) Recommended first aid procedures;
      - iv) The necessity to report all work-related injuries and illnesses, including allergies to OMS (see Section VII.B.3); and
      - v) The process for activating the emergency medical response system.
    - b. The worker is provided information and handouts regarding allergic reactions to laboratory animals (refer to the OMS Laboratory Animal Allergies procedure for more information) and relevant zoonoses based upon the animals used at the worksite (Attachments [II](#), [III](#), [IV](#), [V](#), and [VI](#)).
  - 3. Tetanus immunization. The worker is offered a booster dose of tetanus, diphtheria, and acellular pertussis (Tdap) vaccine if a dose of Tdap vaccine has not been administered as an adult, regardless of when the last dose of when the last dose of tetanus diphtheria (Td) vaccine was administered. The

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worker is offered a booster dose of Td vaccine, if the worker received a Tdap booster as an adult and ten or more years have lapsed since the last tetanus booster (see the OMS Tetanus, Diphtheria, Pertussis Immunization procedure for additional details.)

4. Documentation. The details of the enrollment are recorded both in the worker's OMS clinical record and the OMS Clinical Access Manager (CAM). This information in CAM is utilized for compliance reports and notifications to program enrollees.
- B. Medical evaluation for treatment of work related injuries and illnesses. Occupational injuries and illnesses are handled in accordance with the related OMS procedures.
1. Injuries
    - a. Wound evaluation and treatment are performed as described in the OMS Wound Care Guidelines.
    - b. Injuries involving body fluids from nonhuman primates are addressed in IX.C and D below and in the OMS procedure for Nonhuman Primate Body Fluid Exposure.
    - c. When the injury involves either a percutaneous or mucous membrane exposure to animal blood or other body fluid, 7.5 ml. of blood is obtained from the injured employee. The serum from this blood sample is stored for possible future reference. (See the Serum Storage procedure for additional details.)
  2. Illnesses – infections
    - a. Many of the agents that infect laboratory animals are capable of infecting humans. A few of those infectious agents are covered in this procedure.
    - b. Employees are counseled by an OMS nurse during the enrollment evaluation to report health complaints that they suspect may be related to the animals in their work area.
  3. Illnesses – allergies
    - a. Employees at risk for developing work-related allergies include those with a history of preexisting allergies (especially to household pets), asthma, seasonal rhinitis, or eczema.
    - b. Employees are counseled regarding the prevention of work-related allergies and provided a handout that describes: the risk for developing allergic reactions to laboratory animal proteins; how to avoid exposure to potential allergens; the physical signs and symptoms suggestive of an allergic reaction; and instructions that they should promptly report related concerns to OMS for evaluation. See the OMS Laboratory Animal Allergy procedure for further details.
- C. Injuries involving a potential exposure to a primate retrovirus or Select Agent or Toxin (SAT) are handled as described in the relevant OMS procedures.
- D. Annual reminders. Each year, OMS sends an email reminder to AEP participants' NIH email accounts. The reminder reiterates the counseling provided during the enrollment evaluation and includes relevant statistics and updates.

VIII. Additional Services for Large Animal Contact

- A. Rabies – immunization:
  - 1. Rabies immunization is provided to AEP participants who:
    - a. Have direct contact with quarantined animals potentially infected with rabies, or
    - b. Work with potentially infected animal body organs or perform post mortem examinations on selected animals with a history of poorly defined neurological disorders.
  - 2. Immunization is performed as outlined in the Rabies Immunization procedure.
- B. Toxoplasmosis – serologic testing and counseling:
  - 1. Individuals at risk for infection with *Toxoplasma gondii* include females of childbearing capacity and any worker known to be immunosuppressed who will have contact with cats or their feces.
  - 2. AEP participants at risk for exposure to *Toxoplasma gondii* are serologically tested for protection. A titer by immunofluorescent testing equal to or greater than 1:16 is protective.
  - 3. Susceptible participants who lack serologic evidence of immunity to toxoplasmosis and plan to work with cats are informed of their susceptibility and are provided additional educational information.
  - 4. The supervisor is advised to arrange a job reassignment for susceptible participants for the duration of the pregnancy and permanently for immunosuppressed employees. When this is not possible, consultation with a safety specialist is requested to identify other mechanisms to protect the employee.
- C. Q fever – counseling:
  - 1. AEP participants at risk of exposure to *Coxiella burnetii*, the causative agent for Q fever, include those who handle or use products of parturition or material contaminated by them (e.g., placenta, amniotic fluid, blood or bedding) from sheep, goats, cattle, or cats.
  - 2. Individuals with valvular or congenital heart defects, vascular grafts, and those who are immunosuppressed are at increased risk for developing chronic sequelae if infected with *Coxiella burnetii*.
  - 3. Background information
    - a. The incubation period averages 20 days, with a range of 14-39 days.
    - b. Signs and symptoms of acute infection include the sudden onset of severe headache, fever of 104° F or greater, chills and myalgia. The patient may present with pneumonitis or clinical hepatitis.
    - c. Treatment is initiated as soon as diagnosis is suspected.
    - d. Serologic confirmation of the diagnosis is accomplished three months later using enzyme immunoassay (EIA) testing of serum samples obtained at the time of initial report, at two weeks and every 30 days from that day for three months.
    - e. The employee's work status depends upon the severity of symptoms.

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Human-to-human transmission of Q fever has not been documented in a work setting.

4. During the AEP enrollment medical evaluation, an OMS clinician evaluates the participant for his/her likelihood of developing chronic sequelae if infected with *Coxiella burnetii*. The clinician refers participants at risk for complications of infection to an OMS medical provider for a determination of their fitness to work with materials potentially contaminated with *Coxiella burnetii*.

#### IX. Additional Services for NHP Contact

- A. Employees working with or caring for NHPs and those employees performing necropsies on NHPs are offered the following services, in addition to those listed in Section VII.
- B. B virus – counseling
  1. B virus (*Macacine herpesvirus 1*) is a herpes virus that infects rhesus, cynomolgus, and pig-tail macaques. The related illness in macaques is similar to herpes simplex virus infections. Like other herpes viruses, B virus persists in the host and can be isolated from sensory ganglia. The virus is shed in saliva and ocular and genital secretions.
  2. Approximately 30% of macaques tested following injuries reported to OMS have had serologic evidence of prior infection. One study estimated that approximately 2% of previously infected macaques are shedding on any given day. Although shedding may be associated with the presence of oral or genital ulcers, it can also occur in the absence of such findings. The risk of shedding is believed to increase, if the macaque was recently stressed (e.g., moved to an unfamiliar environment, etc.)
  3. Transmission of B virus from macaques to humans has resulted from bites, scratches, and other incidents that expose the worker to the macaque's neurologic tissue or mucous membrane fluids. Although human infection with B virus is a very infrequent occurrence, approximately 70% of workers infected with B virus die from complications of their infections.
  4. Herpes simplex can enter a sensory nerve in as little as 5 minutes. Although similar data is not available for B virus, it is not unreasonable to suspect that B virus may have similar capabilities.
  5. Employees are counseled to treat a potential exposure to macaque neurologic tissues and mucous membrane fluids as a medical emergency and are provided a related wallet card for quick reference (see [Attachment VII](#).) They are directed to initiate first aid at the workplace immediately following a potential exposure, and promptly notify OMS. An OMS medical provider obtains a targeted occupational and medical history and considers whether treatment with valacyclovir is advisable. If treatment is warranted, he or she instructs the worker to initiate treatment with the valacyclovir contained in the worksite bite-scratch kit. See the OMS Nonhuman Primate Body Fluid procedure for additional details.
- C. Tuberculosis – screening

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1. Tuberculosis (TB) is a zoonotic disease that is difficult to detect in NHPs and spreads rapidly in their colonies. Because there is no effective treatment for this infection in NHPs, infected animals are euthanized to control the spread of the infection. Due to the devastating consequences of tuberculosis for nonhuman primates and associated research projects, special precautions are taken to reduce the risk that employees involved in the use and care of these animals will infect them with *M. tuberculosis* (MTB).
2. Testing, interpretation of test results, counseling, and documentation is performed as outlined in the OMS Tuberculosis Surveillance Program (TBSP).
3. Prior positive screening test for TB. If either an earlier tuberculin skin test (TST) or an interferon gamma release assay (IGRA) was positive:
  - a. Further testing is not performed;
  - b. A TB Symptoms Questionnaire and Quiz and is administered (see the TBSP for additional details);
  - c. A chest radiograph is obtained, if the employee:
    - i) Cannot provide documentation of a normal chest radiograph following the positive test, or
    - ii) Received inadequate chemoprophylaxis or treatment.
  - d. A chest CT scan is obtained if the employee has symptoms suggestive of active pulmonary TB
  - e. If there are no clinical or radiographic findings suggestive of active pulmonary TB, the employee is cleared for NHP contact.
4. No prior positive screening test for TB. Testing is performed.
  - a. Negative test result – if the enrollment test is negative:
    - i) The employee is cleared for contact with NHPs, unless he/she lacks proof of protection to rubeola (see IX.D below).
    - ii) If a TST was used for the screening and there wasn't a negative TST in the preceding two years, the employee is encouraged to return for a second skin test in two weeks (baseline "two-step testing", see the TBSP for additional details.)
  - b. Positive test result: "prevalent positive" – if the enrollment test is positive and there was not a negative screening test for TB in the preceding 24 months:
    - i) The TB Symptoms Questionnaire and Quiz is administered and a chest radiograph is obtained;
    - ii) If there are no clinical or radiographic findings suggestive of active pulmonary TB, the course of action is as described in IX.C.3.e above.
    - iii) If there either the employee's medical history or radiographic study is suggestive of active pulmonary tuberculosis, the employee is blocked from returning to work and further clinical evaluation is pursued (see the OMS TBSP for additional details.)
  - c. Positive test result: "converter" – if the enrollment test is positive

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and there was a negative screening test for TB in the preceding 24 months:

- i) The employee is interviewed to determine possible reasons for the conversion (see the OMS Tuberculosis Surveillance Program for additional details).
- ii) The TB Symptoms Questionnaire and Quiz is administered and a chest radiograph is obtained.
- iii) The employee is restricted from accessing areas containing NHPs and the supervisor is notified of the restriction, while the clinical evaluation is extended to confirm the test findings and determine their significance (see the OMS Tuberculosis Surveillance Program for additional details).
- iv) If the findings ultimately attributed to a recent infection with MTB, the employee is not cleared to have access until s/he has initiated presumptive treatment. If the employee's personal healthcare provider is unwilling to initiate treatment, OMS may offer prophylaxis.

#### D. Rubeola (measles) – screening

1. Rubeola is one of the most frequently reported viral diseases of nonhuman primates.
2. Due to the morbidity and mortality associated with rubeola infections in New World primates and immunocompromised macaques, as well as the potential personal and public health consequences associated with rubeola infection, all employees working in rooms containing nonhuman primates must have evidence of protection to rubeola or receive the measles, mumps, and rubella vaccine. Workers will be considered to be protected from infection with measles if they:
  - a. Were born before 1957
  - b. Have documentation of physician-diagnosed measles
  - c. Have laboratory evidence of immunity to measles, or
  - d. Have documentation of having received 2 doses of live measles or MMR vaccine administered at least 28 days apart since 1980.
3. Medical clearance – upon receipt of positive rubeola titer or alternatively two weeks following immunization by OMS, the OMS AEP coordinator:
  - a. Documents that the employee has met the requirements for protection to rubeola in CAM and
  - b. Sends the employee an email to his or her NIH account alerting the worker that he or she is cleared for contact with NHPs and copies the worker's supervisor on the communication.
4. Notice that an employee is not medically cleared to have contact with NHPs – the OMS AEP coordinator immediately notifies the employee, his or her supervisor, and relevant APD by email that the worker is not medically cleared for contact with NHPs if the employee lacks serologic evidence of protection to rubeola and either refuses to be immunized or has a medical contraindication for immunization.



X Additional Services for Nonhuman Primate Tissue Contact

- A. B virus – counseling as described in IX.B above.
- B. Tuberculosis – baseline screening is encouraged, but not required, for employees working with non-fixed lung or lymph node tissue.
  - 1. Testing, interpretation, clinical evaluation, and documentation are as defined above in IX.C and in the OMS TBSP.
  - 2. Medical clearance for work is as defined above in IX.C with the exception of employees who meet the definition for a "converter". If the test findings are consistent with a recent infection with MTB and there is no clinical or radiographic evidence of active pulmonary TB, the employee is cleared to return to work while the clinical findings are investigated.

XI. Employee Recall

- A. Employees working with small and large animals are encouraged to return for tetanus boosting ten years from the date of their last booster dose. This guidance is provided during the AEP enrollment evaluation.
- B. Employees enrolled in the NHP portion of the AEP with a negative test for TB at the last AEP visit are recalled annually for repeat testing.
  - 1. One of two recall email notices, based upon the testing methodology previously used (see [Attachment VIII](#)), is sent to the employee at the beginning of the month the employee due to return for retesting.
  - 2. If the employee does not return for testing within a month of being recalled, OMS sends a second recall email to the employee and copies it to the supervisor. As with the first notice, the text of the notice is based upon the test methodology last used (see [Attachment IX](#)). The second notice alerts the employee that failure to return for periodic testing will result in his or her removal from the AEP.
  - 3. If the employee does not return for testing within two weeks of the second email, OMS sends a third email ([Attachment X](#)) to the employee's supervisor notifying him or her that the employee has not complied with the requirements of the AEP and has been removed from the program. The employee and the relevant Animal Program Director (APD) are copied on the email.

XII. Annual Reminders to AEP Participants

- A. Each year, OMS reminds AEP participants of various aspects of the counseling that they were provided during their enrollment evaluation. Examples of the issues addressed include the following:
  - 1. Potential health hazards in the workplace (e.g., laboratory animal proteins, biologic agents),
  - 2. A description of the type of injuries reported to OMS from animal care and use areas in the preceding year,
  - 3. Safety measures to reduce the risk of personal injury,

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4. The requirement to report all suspected work-related injuries and illnesses, and
  5. Symptoms suggestive of an allergic reaction to laboratory animal proteins.
- B. [Attachment XI](#) is an example of an annual email reminder OMS sends to AEP participants.

#### XIII. AEP Report for Animal Program Directors

- A. A list of employees enrolled in the AEP is provided to the APDs in their respective areas. The electronic report is a real-time view of the following AEP participant data maintained by OMS:
1. Name.
  2. Category of animal used or cared for (small, large, NHP, or NHP tissue).
  3. Date enrolled.
  4. Recall date for NHP workers.
  5. Compliant or non-compliant status.
- B. Each APD reviews the list with supervisors, and contacts OMS with any corrections.

#### XIV. References

- A. Centers for Disease Control and Prevention, National Center for Immunization and Respiratory Diseases (2011). Immunization of health-care personnel. Retrieved from website:[http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6007a1.htm?s\\_cid=rr6007a1\\_e](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6007a1.htm?s_cid=rr6007a1_e)
- B. Cohen, JI, et al. (2002). Recommendations for Prevention of and Therapy for Exposure to B Virus. *Clinical Infectious Diseases*; 35:1191-1203.
- C. Fox JG, Anderson LC, Loew FM, Quimby FC, eds. (2002). *Laboratory Animal Medicine*, 2nd ed.
- D. *Guide for the care and use of laboratory animals*. 8 ed. (2011). Washington, DC: The National Academies Press.
- E. Morbidity and Mortality Weekly Report (2002). "Guideline for Hand Hygiene in Health Care Setting." October 25, 2002, 51; (RR16), 1-44.
- F. *Occupational Health and Safety in the Care and Use of Research Animals* (1997). Washington, DC: The National Academies Press.
- G. *Occupational Health and Safety in the Care and Use of Nonhuman Primates* (2003). Washington, DC: The National Academies Press.

<b>ANIMAL EXPOSURE PROGRAM (AEP)</b>			
<b>Program</b>	<b>Mandatory</b>	<b>Elective</b>	<b>Follow-up</b>
<b>Small Animals</b> Rodents, Rabbits, Guinea Pigs, and Fish	<ul style="list-style-type: none"> <li>Standard Precautions and allergy counseling</li> <li>Discussion of relevant zoonoses (give HOs)</li> <li>Discussion of first aid measures and the need to report all work-related injuries and illnesses</li> </ul>	<ul style="list-style-type: none"> <li>Tdap if not received as an adult and a Td booster every 10 yrs</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Large Animals</b> Dogs, Cats, Sheep, Cattle, Pigs, Poultry	All in Small Animals and: <ul style="list-style-type: none"> <li>Rabies immunization, if warranted</li> <li>Toxo titer, if working with cats and a female of child bearing capacity</li> <li>Q Fever counseling, if warranted</li> </ul>	<ul style="list-style-type: none"> <li>Tdap if not received as an adult and a Td booster every 10 yrs</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Nonhuman Primates (NHP)</b> Working with live NHP or breathing their air	All in Small Animals and: <ul style="list-style-type: none"> <li>TB testing; if positive and clinically indicated, quiz and CXR</li> <li>Positive rubeola titer; if negative, receipt of the MMR</li> </ul>	<ul style="list-style-type: none"> <li>If tuberculin testing on enrollment was a TST and it was negative, a second is strongly encouraged</li> <li>Tdap if not received as an adult and a Td booster every 10 yrs</li> </ul>	<ul style="list-style-type: none"> <li>TB testing every 12 months, unless earlier testing was positive</li> </ul>
<b>NHP Tissues</b> Working with NHP lymph nodes or lungs	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>If tuberculin testing on enrollment was a TST and it was negative, a second is strongly encouraged</li> <li>Tetanus boost every 10 yrs</li> <li>TB testing; if positive and clinically indicated, quiz and CXR</li> </ul>	<ul style="list-style-type: none"> <li>TB testing every 12 months, unless earlier testing was positive</li> </ul>



### Health Concerns Associated With Rabbit/Rodent (Small Animal) Contact



Sprains, strains, bites, scratches and allergies are the most common work related health complaints reported by individuals working with rodents and rabbits (small animals). Of these injuries, allergic reactions to proteins in small animals' urine, saliva, and dander are the greatest potential health risk, because an allergic response may evolve into life-long asthma. Symptoms suggestive of an allergic reaction include: nasal congestion, a "runny" nose, sneezing, irritated eyes, hives, coughing, wheezing, and shortness of breath. Intense exposure to animal proteins by either inhalation or by direct contact with your skin will increase your risk of developing an allergy to the animal.

The following is an overview of the steps that you can take to minimize your risk of injury at work and a brief description of how the Occupational Medical Service (OMS) may be of use to you in enhancing your safety at work:

#### General Guidelines

**Safe Work Practices:** will markedly reduce your risk of being injured at work. Proper handling and restraint of animals is the single most effective measure in protecting personnel from bites and scratches. Bite protection gloves can be helpful when working with fractious rodent species and wearing long sleeves while handling rabbits can help in avoiding scratches. You can minimize your exposure to animal proteins by properly utilizing air handling and waste management systems such as biological safety cabinets, filter tops on animal cages, ventilated caging rack systems, and HEPA filtered bedding dump stations. In addition, when working with lab animals, you should use appropriate personal protective equipment (PPE) such as dust/mist masks, gloves and gowns. Properly disposing of PPE, washing your hands and forearms with soap and water, and decontaminating work areas will further reduce the risk of an allergic reaction. Refer to the Laboratory Animal Allergy Prevention Program (LAAPP) for additional detail on recommended safe work practices.

**Injuries and illnesses:** both Federal and contract workers must report all possible work-related injuries and illnesses to their supervisor and to OMS. Following a bite by a small animal or other injury in which the wound may be contaminated, first aid should be initiated at the work site.

#### First Aid

- Wash skin and wounds thoroughly with povidone-iodine or soap and water for 15 minutes.
- Rinse eyes and mucous membranes at the eyewash station for 15 minutes.
- Report all incidents to OMS immediately.

**OMS Health Units:**

Building 10, Room 6C306  
7:30 am – 5:00 pm M – F  
301-496-4411

IRF Fort Detrick, Room 1B116  
8:00 am – 4:30 pm M– F  
301-631-7233

Baltimore Bayview, Room 01B210  
8:00 am – 4:30 pm M– F  
443-740-2309

Rocky Mountain Laboratories, Room 5202  
7:30 am – 5:00 pm MST M– F  
406-375-9755



## Health Concerns Associated with Aquatic Species Contact



Although the risk of infection from marine life is remote, it is recommended that special care be taken when handling these animals, their habitats, and equipment. When handling the animals or coming in contact with the tank water, gloves should be worn or a net should be used when it is feasible. Hand washing is an important adjunct to the use of exam gloves for prevention of the spread of infectious organisms or other contaminants to both personnel and animals. For effective hand washing, antimicrobial soaps or alcohol-based hand rubs are recommended for use.

The following symptoms may be related to aquarium exposures:

GI Upset: *Aeromonas hydrophilia*, *Edwardsiella tarda*, *Giardia* species, *Pliesiomonas shigelloides*, *Vibrio* species, *Yersinia enterocolitica*.

Fever: *Edwardsiella tarda*, *Pasteurella maltocida*, *Yersinia enterocolitica*.

Skin Lesions: *Listeria monocytogenes*, *Mycobacterium marinum*, and *Vibrio* species.

Cellulitis: *Aeromonas hydrophilia*, *Pliesiomonas shigelloides*, *Streptococcus iniae*, *Vibrio vulnificans*.

Spontaneous Abortion: *Listeria monocytogenes*.

If you suspect that you have a medical problem related to you work, please report your concern to the Occupational Medical Service (OMS).

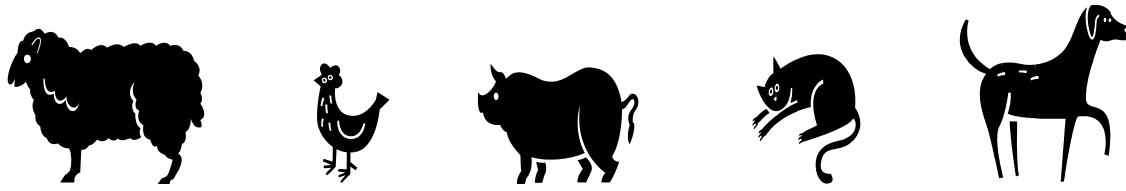
### OMS Health Units:

Building 10, Room 6C306  
7:30 am – 5:00 pm M – F  
301-496-4411

IRF Fort Detrick, Room 1B116  
8:00 am – 4:30 pm M– F  
301-631-7233

Baltimore Bayview, Room 01B210  
8:00 am – 4:30 pm M– F  
443-740-2309

Rocky Mountain Laboratories, Room 5202  
7:30 am – 5:00 pm MST M– F  
406-375-9755



### **Health Concerns working with Poultry, Cats, Dogs, Cows, Sheep, and Pigs (Large Animals) Contact**

Large animals in laboratory use are classified as Carnivores (dogs, cats), Ungulates (cows, sheep, and, pigs) and Poultry (chickens). Each group poses a different set of risks for the employee working with them.

Rabies is the most significant risk associated with carnivores. Fortunately, the controlled environment in the laboratory setting reduces this risk of exposure. If the investigative agent for study is rabies, the employee working with those animals is given the rabies vaccine series. A follow-up titer is drawn to verify immunity.

Toxoplasmosis is an organism that can be contracted from contact with a cat's excrement and contaminated foods (meat). This organism can have a detrimental effect on a developing fetus. Therefore, female employees of childbearing capacity should have a toxoplasmosis titer drawn. The individual may be tested to determine whether she has a protective level of antibodies against toxoplasma. Women with negative results are appropriately counseled on the risks of exposure to toxoplasma.

Personnel who work with carnivores must be aware that they are potential vectors for the transmission of infectious agents between their own carnivore pets and the laboratory animals of the same species. This takes place in the form of direct contact with the animals (bite or scratch), or contact with their excrement. By adhering to proper animal handling and protective measures, the employee can prevent contact infections from occurring. Employees should wash their hands before and after coming in contact with animal areas. Gloves should be worn to prevent contamination of the skin with pathogens that may be on animal's bodies or on surfaces soiled by their excreta. Protective clothing is required in all animal housing facilities to avoid contamination.

The ungulate species (sheep, cattle, goats, and pigs) are large animals. The injuries encountered while working with ungulate animals are a result of employee getting kicked, bitten, butted and or stepped on by animal. Training in proper use of halters, ropes and other restraint equipment is recommended.

Employees, who have contact with placenta, amniotic fluid, blood, milk, excrement, or bedding from sheep, goats, or cattle, are at risk for exposure to Q fever (*Coxiella burnetii*). This organism is resistant to heat, drying, and many common disinfectants. Humans often contract this disease through inhalation of contaminated bedding. Very few organisms are

needed to cause infection in human beings. Symptoms include: fever, headache, sore throat, vomiting, diarrhea, abdominal pain, and chest pain.

The single most effective measure in protecting personnel from poultry bites and scratches is to properly handle and restrain birds. Poultry may harbor numerous pathogens that may or may not cause overt illness in the birds themselves. Glove use and hand washing are critical to the prevention of the spread of infectious organisms or other contaminants to both personnel and animals.

Allergy to poultry (proteins, dust mites or colonizing microbes found in feathers, skin or in bedding) is the greatest potential health risk to individuals working with poultry. This allergic response may evolve into lifelong asthma. You can minimize your exposure to animal proteins by properly utilizing air handling and waste management system such as biological safety cabinets, ventilated caging rack systems and HEPA filtered bedding.

In addition, when working with lab animals you should use appropriate personal protective equipment (PPE) such as the use of gloves gowns dust/mist masks and hand washing before and after working with the animal.

**First Aid**

- Wash skin and wounds thoroughly with povidone-iodine or soap and water for 15 minutes.
- Rinse eyes and mucous membranes at the eyewash station for 15 minutes.
- Report all incidents to OMS immediately.

**OMS Health Units:**

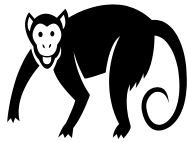
Building 10, Room 6C306  
7:30 am – 5:00 pm M – F  
301-496-4411

IRF Fort Detrick, Room 1B116  
8:00 am – 4:30 pm M– F  
301-631-7233

Baltimore Bayview, Room 01B210  
8:00 am – 4:30 pm M– F  
443-740-2309

Rocky Mountain Laboratories, Room 5202  
7:30 am – 5:00 pm MST M– F  
406-375-9755





## Health Concerns Associated with Nonhuman Primate Contact



It should not be surprising that, given our many similarities, humans and nonhuman primates (NHPs) are susceptible to similar infectious agents. Because of our differences, the consequences of infection with the same agent often vary considerably. Infection may cause few if any symptoms in one group and may be lethal for the other. There are steps that we can take to minimize the risk for transmitting infections from ourselves to NHPs and from them to us. The following is an overview of potential health hazards associated with NHP contact, steps you can take to minimize your risk of injury at work, and what you should do if you are injured at work.

**Measles:** is caused by a virus which infects both humans and NHPs. It is spread by aerosols and is extremely infectious. Adults who become infected may develop pneumonia, meningitis, and other serious consequences. Some NHPs will die if they are infected. Because of these health risks, all workers who have contact with NHPs must have either lab evidence of protection to measles (a positive measles titer) or documentation of immunization for measles. If the employee has neither, OMS provides both lab testing and immunization.

**Tuberculosis:** affects both humans and NHPs. This organism is also transmitted by aerosols. Usually, transmission is from humans to NHPs. Although infections in humans can be reliably detected and readily treated, the same is not true in NHPs. Diagnosing tuberculosis in NHPs is difficult and there is no effective treatment. Entire colonies of NHPs have been lost due to infections with tuberculosis. As a result, all personnel who work in areas containing NHPs are screened for tuberculosis. Depending upon your personal medical history testing may involve either a tuberculin skin test (TST) or a blood test. Those not already infected are tested every year to reduce the chance that they will accidentally introduce the infection to NHPs at the NIH. Workers who have been infected are evaluated to make certain that they do not have, nor will they be likely to develop, active tuberculosis.

**Herpes B:** (B virus, *Macacine herpesvirus 1*) is the macaque version of the herpes simplex virus. As in humans, once infected the virus takes up residence in the macaque's sensory nerves and occasionally travels down the length of the nerve and is released into the animal's mouth, eyes, or genitals. Usually this occurs without any outward evidence, although the animal may develop tiny blisters in those areas. The blisters may rupture leaving an ulcer that then develops a crust. Transmission to humans has resulted from bites, scratches, and other incidents that expose the worker to the macaque's neurologic tissue or mucous membrane fluids. B virus is not transmitted by exposure to macaque blood. Although human infection with B virus is a very infrequent occurrence, approximately 70% of workers infected with B virus die from complications of their infections. Accidental exposure to macaque neurologic tissues and mucous membrane fluids should be handled as a medical emergency; first aid should be initiated at the workplace; and the incident should be reported promptly to OMS.

**Simian Immunodeficiency Virus (SIV):** is a retrovirus that occurs in African Green monkeys, baboons, sooty mangabeys, and chimpanzees. Rhesus and other susceptible macaque species develop a clinical syndrome similar to that found in humans infected with human immunodeficiency virus (HIV). It is transmitted by exposures to NHP blood and other body fluids. Since 1993, three workers have developed laboratory evidence of infection with SIV. So far, none of these individuals has developed either laboratory or clinical evidence of disease. NHP blood, other body fluids, and tissues should be treated as potentially infectious. Exposures to NHP fluids should be properly decontaminated and reported to OMS for further care.

**Shigella:** is an organism that causes diarrhea in both humans and NHPs. Transmission can be prevented by adherence to standard safety precautions and appropriate hand washing.

**Tetanus:** is an unlikely consequence of work with animals in a laboratory. However, given the effects of an infection, immunization is offered to all individuals with animal contact at work ten years from the date of their last booster dose.

### **General Guidelines**

**Glove Use and Hand Washing:** are critical to the prevention of the spread of infectious organisms or other contaminants to both personnel and animals. Select the ideal glove for your work with the assistance of your supervisor and safety specialist. Regardless of the type of glove selected, be aware that micro-tears in the gloves may compromise the protection they offer. As a result, use the antimicrobial soaps or alcohol-based hand rubs that are provided to further protect you from contaminants. Your safety specialist may recommend additional precautions, based upon a risk assessment of the work you perform.

**Injuries:** All animal procedures should be performed by properly trained personnel who follow their facility's standard operating procedures. By employing safe work practices and utilizing appropriate personal protective equipment, workers minimize the likelihood that they will be bitten, scratched, and or exposed to animal body fluids and tissues. Despite these precautions, accidental exposures still happen. When an injury does occur, the worker (both Federal and contracted) must initiate appropriate first aid immediately, notify the supervisor, and promptly report the incident to OMS.

### **First Aid**

- Wash skin and wounds thoroughly with povidone-iodine or soap and water for 15 minutes.
- Rinse eyes and mucous membranes at the eyewash station for 15 minutes.
- Report all incidents to OMS immediately.

**Illnesses:** Both Federal and contract workers must report to OMS for all illnesses (for example: musculoskeletal, gastrointestinal, respiratory, neurological, or skin-related) that they suspect may be caused by the work they perform or animals with which they have contact.

**Emergency Medical Care after Regular Clinic Hours:** Exposures to NHP body fluids should be treated as an emergency. If the injury occurs after regular business hours, the injured worker should page the on-call OMS healthcare provider by calling: 301-496-1211.

**OMS Health Units:**

Building 10, Room 6C306  
7:30 am – 5:00 pm M – F  
301-496-4411

IRF Fort Detrick, Room 1B116  
8:00 am – 4:30 pm M– F  
301-631-7233

Baltimore Bayview, Room 01B210  
8:00 am – 4:30 pm M– F  
443-740-2309

Rocky Mountain Laboratories, Room 5202  
7:30 am – 5:00 pm MST M– F  
406-375-9755



## Health Concerns Associated with Nonhuman Primate Tissue Work



It should not be surprising that, given our many similarities, humans and nonhuman primates (NHPs) are susceptible to similar infectious agents. Because of our differences, the consequences of infection with the same agent often vary considerably. Infection may cause few if any symptoms in one group and may be lethal for the other. There are steps that we can take to minimize the risk for transmitting infectious agents from ourselves to NHPs and from them to us. The following is an overview of potential health hazards associated with NHPs, steps you can take to minimize your risk of injury at work, and what you should do if you are injured at work

**Tuberculosis:** is an infectious disease caused by *Mycobacterium tuberculosis* that affects both humans and NHPs. *M. tuberculosis* typically is transmitted by aerosols; however, it can also be transmitted by direct inoculation. If you work with NHP lungs or lymph nodes, you may be at risk for infection with *M. tuberculosis*. If you work with NHP lungs or lymph nodes, the Occupational Medical Service (OMS) recommends that you receive annual testing for tuberculosis. Depending upon your personal medical history testing may involve either a tuberculin skin test (TST) or a blood test.

**Herpes B:** (B virus, *Macacine herpesvirus 1*) is the NHP version of herpes simplex virus that occurs in macaques. As in humans, once infected the virus takes up residence in the macaque's sensory nerves and occasionally travels down the length of the nerve and is released into the animal's mouth, eyes, or genitals. Transmission to humans has resulted from bites, scratches, and other incidents that expose the worker to the macaque's neurologic tissue or mucous membrane fluids. B virus is not transmitted by exposure to macaque blood. Although human infection with B virus is a very infrequent occurrence, approximately 70% of workers infected with B virus died from complications of their infections. Accidental exposure to either should be handled as a medical emergency; first aid should be initiated at the workplace and the incident should be reported promptly to OMS.

**Simian Immunodeficiency Virus (SIV):** is a retrovirus that occurs in African Green monkeys, baboons, sooty mangabeys, and chimpanzees. Rhesus and other susceptible macaque species develop a clinical syndrome similar to that found in humans infected with human immunodeficiency virus (HIV). It is transmitted by exposures to NHP blood and other body fluids. Since 1993, three workers have developed laboratory evidence of infection with SIV. So far, none of these individuals has developed either laboratory or clinical evidence of disease. NHP blood, other body fluids, and tissues should be treated as potentially infectious. Exposures to NHP fluids should be properly decontaminated and reported to OMS for further care.

### General Guidelines

**Glove Use and Hand Washing:** are critical to the prevention of the spread of infectious

organisms or other contaminants to both personnel and animals. Select the ideal glove for your work with the assistance of your supervisor and safety specialist. Regardless of the type of glove selected, be aware that micro-tears in the gloves may compromise the protection they offer. As a result, use the antimicrobial soaps or alcohol-based hand rubs that are provided to further protect you from contaminants.

**Injuries:** Non-fixed animal tissues and body fluids should be handled as potentially infectious. Gloves should be worn when handling them and eye protection should be worn when splashes are of concern. Despite these precautions, accidental exposures still happen. When an injury involving a NHP tissue or fluid occurs, it should be treated as a medical emergency. The worker (both Federal and contracted) must initiate appropriate first aid quickly, notify the supervisor, and promptly report the incident to OMS.

### **First Aid**

- Wash skin and wounds thoroughly with povidone-iodine or soap and water for 15 minutes.
- Rinse eyes and mucous membranes at the eyewash station for 15 minutes.
- Report all incidents to OMS immediately.

**Illnesses:** Federal and contract workers must also report all illnesses (for example: musculoskeletal, gastrointestinal, respiratory, neurological, or skin-related) that they suspect may be caused by the work they perform to OMS.

**Emergency Medical Care after Regular Clinic Hours:** Exposures to NHP body fluids should be treated as an emergency. If the injury occurs after regular business hours, the injured worker should page the on-call OMS healthcare provider by calling: 301-496-1211.

### **OMS Health Units:**

Building 10, Room 6C306  
7:30 am – 5:00 pm M – F  
301-496-4411

IRF Fort Detrick, Room 1B116  
8:00 am – 4:30 pm M– F  
301-631-7233

Baltimore Bayview, Room 01B210  
8:00 am – 11:45 am Monday, Tuesday, Thursday & Friday  
443-740-2309

Rocky Mountain Laboratories, Room 5202  
7:30 am – 5:00 pm MST M– F  
406-375-9755

**B Virus Wallet Card**

-front-

**Symptoms of B virus (*Macacine herpesvirus-1*) Infection**

Very few people have been infected with B virus. However, if an infection does occur, it can be life-threatening. Prompt medical evaluation and treatment are important. Please read the following list of symptoms which may be related to a B virus infection.

1. Flu-like symptoms:
  - a. Fever and chills,
  - b. Muscle aches, or
  - c. Headache and fatigue.
2. At the injury site:
  - a. Itching or pain,
  - b. Tiny blisters or shallow ulcers, or
  - c. Numbness or loss of feeling.

-reverse-

Contact the Occupational Medical Service (OMS) if you have any questions about these symptoms.

If any of these symptoms occur within a month from the date of your injury, you should immediately contact OMS for an emergency evaluation. When OMS is closed (5:00 pm to 7:30 am, weekends and federal holidays), call the NIH operator (301-496-1211) and ask to speak with the OMS on-call physician. Give the operator your name and a phone number where you can be reached. An OMS physician will contact you within 15 minutes.

OMS Bethesda, MD 301-496-4411  
OMS Frederick, MD 301-631-7233  
Baltimore, MD 443-740-2309  
Hamilton, MT 406-375-9755

## Annual Recall Notice for TB Testing

Dear \_\_\_\_\_,

OMS records indicate that you are enrolled in the Animal Exposure Program (AEP) and that you are due for annual screening for tuberculosis. Compliance with annual testing is required for continuing access to nonhuman primates of areas where they are housed.

You may call 301-496-4411 within two weeks of the date of this memorandum to schedule an appointment to receive a skin test for tuberculosis or attend one of the following walk-in clinics in the OMS Bethesda clinic.

(Six dates and times offered for tuberculin skin test placement and reading)

If you work in Baltimore, you may schedule an appointment by calling 443-740-2309.

If you work in Frederick, you may schedule an appointment by calling 301-631-7233.

If you work at RML, you may schedule an appointment by calling 406-375-9755.

Thank you.

OR

Dear \_\_\_\_\_,

OMS records indicate that you are enrolled in the Animal Exposure Program (AEP) and that you are due for annual screening for tuberculosis. Compliance with annual testing is required for continuing access to nonhuman primates of areas where they are housed.

Please call OMS at 301-496-4411 within two weeks of the date of this memorandum to schedule an appointment for an IGRA blood test. Please note this test must be done before 11AM to allow for same day processing.

If you work in Baltimore, you may schedule an appointment by calling 443-740-2309.

If you work in Frederick, you may schedule an appointment by calling 301-631-7233.

If you work at RML, you may schedule an appointment by calling 406-375-9755.

Thank you.

## Second Notice for TB Testing

Dear \_\_\_\_\_,

OMS records indicate that you did not respond to a prior request to return to the clinic for annual TB screening as part of your participation in the Animal Exposure Program (AEP). Compliance with this testing is required for continuing access to nonhuman primates (NHPs) of areas where they are housed.

You must call 301-496-4411 within two weeks of the date of this memorandum to schedule an appointment to receive a skin test or attend one of the walk-in clinics below. Failure to do so will result in OMS notifying your supervisor and Animal Program Director that you have been removed from the AEP and should not be granted access to NHPs or their living quarters.

(Six dates and times offered for tuberculin skin test placement and reading)

If you work in Baltimore, you may schedule an appointment by calling 443-740-2309.

If you work in Frederick, you may schedule an appointment by calling 301-631-7233.

If you work at RML, you may schedule an appointment by calling 406-375-9755.

Thank you.

OR

Dear \_\_\_\_\_,

OMS records indicate that you did not respond to a prior request to return to the clinic for annual TB screening as part of your participation in the Animal Exposure Program (AEP). Compliance with this testing is required for continuing access to nonhuman primates (NHPs) of areas where they are housed.

You must call 301-496-4411 within two weeks of the date of this memorandum to schedule an appointment to schedule an appointment for an IGRA blood test. Please note this test must be done before 11AM to allow for same day processing. Failure to do so will result in OMS notifying your supervisor and Animal Program Director that you have been removed from the AEP and should not be granted access to NHPs or their living quarters.

If you work in Baltimore, you may schedule an appointment by calling 443-740-2309.

If you work in Frederick, you may schedule an appointment by calling 301-631-7233.

If you work at RML, you may schedule an appointment by calling 406-375-9755.

Thank you.

Occupational Medical Service  
Division of Occupational Health and Safety, ORS

Revised: April 2014  
Chapter IV Section 1



**Removal Notice**

Dear \_\_\_\_\_,

Please note that \_\_\_\_\_ did not respond to two email requests to report for mandatory testing in OMS for continued participation in the Animal Exposure Program (AEP). As a consequence, your employee has been removed from the AEP and should not be granted access to nonhuman primates or their living quarters.

Please call your local OMS clinic, if you have any related questions or concerns.

Thank you.

OMS Clinics:

Baltimore, MD: 443-740-2309

Bethesda, MD: 301-496-4411

Frederick, MD: 301-631-7233

Hamilton, MT: 406-375-9755

cc: Employee  
Animal Program Director

## **Animal Allergies in the Workplace Memo**

Dear AEP Participant,

This notice is intended to remind you of potential health issues for individuals that work with animals and related help that you can receive from the Occupational Medical Service (OMS).

### **Animal Allergies in the Workplace**

It is estimated that as many as one-in-three individuals working with animals in a laboratory setting will develop an allergy to animal proteins. An allergy can present as a “stuffy” or “runny” nose, irritated eyes, coughing, wheezing, or shortness of breath. Most workers who develop allergic reactions to animals will do so within the first year of working with them. Infrequently, reactions may occur only after working with animals for years. If you suspect that you may have an allergic reaction to animals in your work area, please notify your supervisor and call OMS for an appointment (see clinic locations and numbers below). OMS staff will document your concerns and provide a medical evaluation, request an assessment of your work area, and consider recommendations for changes to the personal protective equipment you use.

In addition to allergies, several medical conditions may increase your risk for more serious injury following a work-related injury or illness. Examples of such conditions include pregnancy, some medications, and illnesses that may compromise your immunity. Please call OMS for an appointment if you have any reason to suspect that your ability to resist infection or recover from an infection may be compromised. OMS staff can provide counseling and work with your supervisor to limit your occupational risk.

### **Animal Allergy Prevention**

The best approach for reducing the likelihood that a worker will develop an allergic reaction is to minimize exposure to proteins found in animal urine, saliva, and dander and in some types of bedding. Ideally, this is accomplished by limiting the chances that workers will inhale or have skin contact with animal proteins.

### **Ways to Reduce Exposure to Animal Proteins**

- Perform animal manipulations in a chemical fume hood, biological safety cabinet, or downdraft table if available.
- Cover street clothes when working with animals to avoid taking dander out of the animal area.
- Wear proper PPE, including a lab coat, gloves, and surgical mask.
- Remove and clean or dispose of PPE when leaving the work area.
- Avoid touching your face or eyes after handling animals or caging.
- Wash hands and forearms when finished with the work.
- Ask your [Safety Specialist](#) for additional recommendations to reduce exposure, particularly if you are working with animals in a laboratory or are shaving animals.

OMS services are free and confidential. Please let us know if we can help you.

Thank you,

Occupational Medical Service  
Division of Occupational Health and Safety, ORS

Revised: April 2014  
Chapter IV Section 1

James Schmitt, M.D.  
Medical Director, OMS

**OMS clinics and phone numbers**

Baltimore, MD: 443-740-2309

Bethesda, MD: 301-496-4411

Frederick, MD: 301-631-7233

Hamilton, MT: 406-375-9755