

**UNIVERSITY OF PITTSBURGH**  
**ANIMAL EXPOSURE SURVEILLANCE PROGRAM**

**I. Purpose**

The purpose of the Animal Exposure Surveillance Program (AESP) is to provide:

- relevant occupational health and safety information related to use and care of animals;
- occupationally indicated immunizations; and
- clinical evaluation and treatment for individuals with animal related injuries or illnesses.

**II. Eligibility**

All University of Pittsburgh faculty and staff are required to participate in this program if they:

- are involved in the care of animals or their living quarters; or
- have contact with animals (live or dead), their viable tissues, body fluids, or waste.

**III. Identification and Enrollment**

Investigators are required to list all individuals working with animals on the Protocol Registration Form. The Institutional Animal Care and Use Committee (IACUC) transmits the Protocol Review Form monthly to Environmental Health and Safety (EH&S) who enters the names into the AESP database.

EH&S informs animal users enrolled in the database to present for clinical evaluation at Employee Health Services. If the individual has not presented for an assessment, a second notification is sent to the individual which contains the date that the evaluation must be completed (usually one month after the second notification is sent). If the evaluation is not completed by this date, the name of the individual is transmitted to the Animal Care and Use Committee to be considered for suspension of privileges to utilize laboratory animals.

EH&S also enrolls eligible workers when the individual indicates their involvement in either utilizing animals or their viable tissues.

At the completion of their assessment, information is entered into a database which contains names, dates, enrollment in occupational health programs, immunizations recommended or required, immunizations administered and review dates. This database is maintained by the University Employee Health Nurse and EH&S.

**IV. Program Organization**

The surveillance program is subdivided into four broad categories:

1. Small animal - e.g., rodents, rabbits (see Section V)
2. Large animal - e.g, cats, dogs, livestock (see Sections V and VI)
3. Nonhuman primate - e.g., marmosets, monkeys, apes (see Sections V and VII)
4. Nonhuman primate tissues (see Sections V and VIII)

## **V. Services Offered to All AESP Participants and those working Small Animals**

A. A medical evaluation which includes an occupational medical history, safety and health counseling, and appropriate immunizations. The occupational medical history includes a review of:

- the functional demands and environmental factors associated with the proposed position;
- the type of animal(s) contacted;
- other potential work-site health hazards; and the individual's medical history.

The participant is counseled regarding:

- the bloodborne pathogen exposure control program,
- medical evaluation and treatment for occupational injuries and illnesses, including allergies
- relevant zoonoses based upon the animals used at the work site,
- pertinent safety and health risks and other infection control guidelines,
- the reporting of any gastrointestinal, respiratory, or dermal illness with signs or symptoms which resemble those occurring in the animals for which they care. Many of the agents responsible for infections in laboratory animals are capable of infecting humans. Several are covered in this surveillance protocol, many are not.

B. The participant is given a booster dose of tetanus/diphtheria (Td) toxoid, if clinically indicated.

C. During the AESP enrollment, the University screens employees at risk for developing work related allergies by requesting a history of pre-existing allergies, asthma, seasonal rhinitis, or eczema. Enrollees are advised of the availability of clinical care through the University and are encouraged to seek evaluation and treatment if they develop symptoms suggestive of a work related allergy.

## **VI. Large Animals**

In addition to those listed in Section V, a participant with large animal contact receives the following services, as indicated.

A. Rabies immunization is offered to employees who:

- work with the rabies virus;
- have direct contact with quarantined animals potentially infected with rabies;
- work with potentially infected animal body organs or perform post mortem examinations on selected animals with a history of poorly defined neurological disorders;
- capture or destroy wild animals as part of employment with the University;
- enter facilities where the rabies virus is used.

B. Serologic testing for toxoplasmosis

1. A toxoplasmosis antibody titer is obtained for immunosuppressed workers and any female employee of childbearing capacity who anticipate occupational exposure to cats or their feces.

- A titer of greater than or equal to 1: 16 by immunofluorescent testing is interpreted as protective.

2. Immunocompromised individual or any female of childbearing capacity who lacks immunity to toxoplasmosis that plans to work with cats is informed of their susceptibility and is provided additional educational information.
3. The supervisor of employees identified in steps 1 and 2 above is advised to arrange a job reassignment for immunosuppressed or pregnant employees for the duration of the pregnancy.

#### C. Q Fever

##### 1. Assessment and Counseling

Employees at risk of exposure to Q fever include those who:

- have direct involvement with the organism Coxiella burnettii in a research capacity, or
- handle or use products of parturition or material contaminated by them (e.g., placentas, amniotic fluid, blood, or bedding) from sheep, goats, cattle or cats.

The participant is evaluated for the likelihood of developing chronic sequelae should they acquire Q fever. Employees with valvular or congenital heart defects or immunosuppression are advised of the potential risks involved, and medical clearance for duty will be determined.

##### 2. Occupational Infection

- The incubation period averages 20 days, with a range from 14 to 39 days.
- Signs and symptoms of acute infection include the sudden onset of severe headache, high fever spiking to 104° F or greater, chills, and myalgia. The patient may present with pneumonitis or clinical hepatitis.
- Treatment is initiated as soon as diagnosis is suspected.
- 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.
- The employee's work status depends upon the severity of symptoms. Human to human transmission of Q fever has not been documented.

## VII. Non-Human Primates

Participants working with or caring for nonhuman primates and those workers performing necropsies on nonhuman primates, are offered the following services in addition to those listed in Section V.

#### A. Tuberculosis Screening

Tuberculosis is a zoonotic disease which is difficult to detect in nonhuman primates and spreads rapidly in nonhuman primate colonies. Because there is no effective treatment for this infection in nonhuman primates, 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 workers involved in the use and care of these animals will infect them with *M. tuberculosis*.

1. If the participant has a history of a previous positive reaction to a tuberculin skin test, further skin testing is not performed.

- A Tuberculosis Health Questionnaire is administered and the completed form is filed in the employee's medical record.
  - A chest radiograph is obtained, only if the employee's responses to the questions suggest active pulmonary tuberculosis or the employee cannot provide documentation of a normal chest radiograph following the discovery of the positive reaction.
  - A chest radiograph is obtained if the participant received inappropriate chemoprophylaxis or treatment.
2. Participants working with nonhuman primates who do not have a history of a prior positive reaction to a tuberculin skin test will receive a tuberculin skin test on enrollment.
- a. If the first tuberculin skin test is positive, a medical history is obtained for symptoms suggestive of active pulmonary tuberculosis and a chest radiograph is obtained.
- If the individual did not have a documented negative skin test in the preceding 24 months (i.e., the test result does not represent a tuberculin skin test conversion), and there is neither clinical nor radiographic evidence of active pulmonary tuberculosis, the employee is counseled, referred for further care as indicated, and medically cleared for duty.
  - If the employee had a documented negative skin test in the preceding 24 months and there is no radiographic evidence of active pulmonary disease, the employee is medically restricted from contact with live nonhuman primates until appropriate medical treatment has been received for at least three days.
  - If there is clinical or radiographic evidence of active pulmonary tuberculosis, the employee is medically restricted. This restriction is not removed until the individual provides documentation establishing that the clinical or radiographic findings can reasonably be attributed to a condition other than active pulmonary tuberculosis. The worker is not cleared to return to the work place until the University Employee Medical Director is reasonably convinced that the individual does not represent a health risk.
  - If the medical recommendation is that the employee not work, not work with live nonhuman primates, or not return to work, the employee, supervisor, and Human Resources are notified the day the decision is reached.
  - If the initial tuberculin skin test is negative and the second test is positive, the response is indicative of a prior infection (booster phenomenon) and the course of action is as described in Section VII.
- b. If the tuberculin skin tests is negative, and there are no other medical contraindications, the employee is medically cleared for work.

## B. Rubeola (measles) screening

Due to the potential personal and public health consequences associated with rubeola infection, all employees working directly with nonhuman primates (direct hands-on contact of intact animals) must have laboratory evidence of protection to rubeola.

C. Retrovirus testing

Simian Immunodeficiency Virus (SIV) infections occur naturally in African Green monkeys, baboons, sooty mangabeys, and chimpanzees. The infection commonly persists without any clinical manifestations. Several species of the genus Macaca (e.g., rhesus, cynomolgus) are highly susceptible and die following experimental or colony acquired SIV infection. To date, there have been three documented occupational infections with SIV. The medical significance of these infections is not yet clear.

Type D retroviruses (simian retroviruses, SRVS) may infect rhesus, cynomolgus, squirrel, pig-tailed, bonnet, and langur monkeys. It has not been convincingly demonstrated whether humans have been infected with type D retroviruses.

1. Routine serologic testing for SIV/HIV-2 is offered for participants using or caring for nonhuman primates which are known, or suspected to be infected with SIV/HIV-2. A baseline sample is collected and tested, and the employee is confidentially informed of the results.
2. Individuals potentially exposed to SIV/HIV-2 must be enrolled in the Bloodborne Pathogen Exposure Control Program. Individuals who sustain an exposure to material potentially containing SIV/HIV-2 will be offered Post Exposure Prophylaxis as indicated by CDC Guidelines.

D. Viral Hepatitis Screening

Nonhuman primates (e.g., rhesus, cynomolgus, African green, tamarin, and owl monkeys and chimpanzees) are used in research on hepatitis A, B, C, D, E, and G. Employees working with these research animals may be at risk for exposure to the virus used in the research. Participants working with nonhuman primates experimentally infected with hepatitis A or B are offered the appropriate vaccine(s).

E. Rabies immunization is offered to employees working with nonhuman primates in quarantine.

F. B-virus (cercopithecine herpes virus 1) testing

Injuries involving neurologic tissue or either oral or ocular secretions of rhesus, cynomolgus and other macaque monkeys (e.g., pig-tail, and stump-tail monkeys) very rarely result in human infection with B-virus. However, due to the extreme morbidity and mortality of this infection in humans, special effort is taken to ensure prompt medical evaluation and first aid following a potential exposure to B-virus.

**VIII. Non-Human Primate Tissues**

Participants who work with nonhuman primate tissues will receive the following services in addition to those listed in Section V.

- A. Individuals are enrolled in the University Bloodborne Pathogen Exposure Control Program and offered hepatitis B vaccination.
- B. Baseline and periodic tuberculin skin testing every six months is required for participants working with non-fixed lung or non-fixed lymph node tissue.

**IX. Surveillance Recall**

- A. Participants working with small and large animals are advised to return for Td boosting 10 years from the date of their last booster dose.
- B. Participants working with live nonhuman primates or non-fixed lungs or lymph nodes from nonhuman primates are reminded by letter to return for TB testing:
  - 1. If the prior tuberculin skin test was negative, the test is repeated every six months.
  - 2. If the prior tuberculin skin test was positive, regardless of whether chemoprophylaxis or treatment was received, the employee will be sent an informational TB health review with a letter asking the worker if he or she has any symptoms suggestive of active tuberculosis. The form is submitted to the medical director.
- C. Participants working with vaccinia are required to return for vaccinia booster every ten years

**X. Summary**

Requirements for certification of enrollment and continuing participation in the Animal Exposure Surveillance Program (AESP):

- A. Participants working with small animals

1. Medical counseling (Section V)
  2. Tetanus immunization (Section V)
- B. Participants working with large animals
1. Medical counseling (Section V)
  2. Tetanus immunization (Section V)
  3. Rabies immunization, if applicable (Section VI)
  4. Serologic testing for toxoplasmosis, if applicable (Section VI)
  5. Assessment and counseling for Q Fever, if applicable (Section VI)
- C. Participants working with live nonhuman primates
1. Medical counseling (Section V)
  2. Tetanus immunization (Section V)
  3. Tuberculosis screening (Sections VII)
  4. Rubeola immunization/protection (Section VII)
  5. Rabies immunization, if applicable (Section VI)
  6. Bloodborne Pathogen Program (Section VII)
  7. Retrovirus testing, if applicable (Section VII)
  8. Viral hepatitis screening, if applicable (Section VII)
  9. Counseling on B-virus (Section VII)
- D. Participants working with non-fixed tissues from nonhuman primates
1. Medical counseling (Section V)
  2. Bloodborne Pathogen Program (Section VII)
  3. Tuberculosis screening, if applicable (Section VII)
- E. Surveillance Program Compliance
1. A list of employees enrolled in the AESP is maintained by the University Employee Health Nurse and the Department of Environmental Health and Safety. Periodically, the IACUC is informed of the individuals who have failed to participate in the AESP. Individuals who work with animals, but do not participate in the AESP may have their privileges to utilize laboratory animals suspended until successful completion.
  2. The AESP database contains the following information for each participant:
    - name,
    - social security number or Pitt ID number
    - category of animal used or cared for,
    - date enrolled,
    - immunizations, tuberculin testing and other surveillance examinations
    - dates of visits, immunizations and surveillance activities