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POLICY

I. Purpose

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

- relevant 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.

The Program is an adaptation of the AESP that exists at the National Institutes of Health, modified to meet the requirements of insuring safety for the unique risks inherent in the Hopkins environment.

II. Eligibility

All Johns Hopkins University 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 Animal Protocol Profile Report. The Institutional Animal Care and Use Committee (IACUC) transmits copies of the Report monthly to Occupational Health Services (OHS) who enters the names into the AESP database. The Registrars' Office at the Schools of Medicine and Bloomberg School of Public Health are required to report all new appointments who will work with animals to OHS. These individuals are also entered into the AESP database.

OHS informs animal users enrolled in the database to present for evaluation within one month of receipt of notification. If the investigator 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 and one-half months 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. OHS also enrolls eligible non-faculty and contract workers when the individual, who is undergoing a pre-placement medical evaluation, indicates their involvement in either utilizing animals or their viable tissues.

At the completion of their assessment, information is entered into the AESP database which contains names, dates and times of appointments, immunizations recommended or required, immunizations administered and review dates. This database is maintained by OHS and updated monthly.

IV. Program Organization

The surveillance program is subdivided into four broad categories.

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

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

A medical evaluation which includes an occupational medical history (attachment I), safety and health counseling (attachment II), tuberculin skin testing, and appropriate immunizations are performed.

A. The occupational medical history includes a review of:

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

B. The participant is counseled regarding:

1. the bloodborne pathogen exposure control program,

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2. the Johns Hopkins Policy requiring of medical evaluation and treatment in the Occupational Injury Clinic (OIC) for all occupational injuries and illnesses, including allergies (see Section VII. below), and
3. information and handouts regarding relevant zoonoses based upon the animals used at the work site.
4. information on safety and health risks for animal handlers.

C. Tuberculosis Screening

1. Tuberculin skin testing (PPD) is administered if there is no history of a prior positive test.
2. A chest radiograph is also required, if the participant:
 - a. offers a history of a prior positive test and cannot provide documentation of a normal chest radiograph two years or more following the discovery of the positive tuberculin skin test; or
 - b. is discovered to have a positive tuberculin test reactor (see the OHS Tuberculosis Surveillance Program).

D. The participant is given a booster dose of Tetanus/Diphtheria (TD) toxoid, if clinically indicated.

E. Illnesses – infections

Employees are counseled by the OHS practitioner, during the enrollment evaluation, to report 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.

F. Illnesses – allergies

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

VI. Large Animals

A participant with large animal contact may receive the following services in addition to those listed in Section V above.

A. Rabies immunization

1. Rabies immunization is provided to employees who:
 - a. work with the rabies virus;
 - b. have direct contact with quarantined animals potentially infected with rabies;
 - c. work with potentially infected animal body organs or perform post mortem examinations on selected animals with a history of poorly defined neurological disorders;
 - d. capture or destroy wild animals as par of employment with Johns Hopkins; or,
 - e. inspect facilities where the rabies virus is used.

B. Serologic testing for toxoplasmosis

1. A toxoplasmosis antibody titer is obtained on female employees of childbearing capacity who anticipate an occupational exposure to cats or their feces.
2. Females of childbearing capacity who may be exposed, will be informed of their antibody status and provided information regarding their risk of exposure and the methods to eliminate their risk of contracting this disease.

C. Q Fever

1. Employees at risk of exposure to Q fever include those who:
 - a. have direct involvement with the organism *Coxiella burnettii* in a research capacity, or
 - b. 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.
2. At the time of the pre-placement medical evaluation, the participant will be evaluated for the likelihood of developing chronic sequelae of Q fever. Employees with valvular or congenital heart defects will be advised of the potential risks involved.

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VII. Non-Human Primates

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

A. Tuberculosis Screening

1. Tuberculosis is difficult to detect in non-human primates and spreads rapidly in nonhuman primate colonies. Because there is no effective treatment for this infection in non-human 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*.
2. If the participant has a history of a previous positive reaction to a tuberculin skin test, further skin testing is not performed.
 - a. A Tuberculosis Health Questionnaire is administered and the completed form is filed in the employee's OHS medical record.
 - b. A chest radiograph is obtained, if the employee's responses to the question suggest active pulmonary tuberculosis or the employee cannot provide documentation of a normal chest radiograph following the discovery of the positive reaction.
 - c. A chest radiograph is obtained if the participant received inappropriate chemoprophylaxis or treatment.
3. Participants working with non-human primates who do not have a history of a prior positive reaction to a tuberculin skin test receive one tuberculin skin test on enrollment. A second skin test is administered one to two weeks after the initial test.
 - 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.
 - b. 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.
 - c. 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. OHS offers prophylaxis.
 - d. If there is clinical or radiographic evidence of active pulmonary tuberculosis, the employee is medically restricted from returning to work. 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 OHS medical director is reasonably convinced that the individual does not represent a health risk to others. Continued compliance with treatment is monitored by OHS.
 - e. 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.
 - f. 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.
 - g. If both of the tuberculin skin tests are negative, and there are no other medical contraindications, the employee is medically cleared for work.

Evaluation of persons sustaining a potential work place exposure to *M. tuberculosis* is conducted as described in the Tuberculosis Surveillance Program.

B. Rubeola (measles) screening

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Rubeola is one of the most frequently reported viral diseases of non-human primates. Due to the potential personal and public health consequences associated with rubeola infection, all employees working in rooms containing nonhuman primates must have laboratory evidence of protection to rubeola.

C. Retrovirus testing

1. 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.
 - a. To date, there have been only a few documented occupational infections with SIV and the medical significance of these infections is not yet clear.
2. 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.
3. Individuals exposed to SIV/HIV-2 must participate in the Johns Hopkins Bloodborne Pathogen Program.
4. Individuals exposed to SIV/HIV-2 will be offered Post Exposure Prophylaxis as part of the Bloodborne Pathogen Program.

D. Viral Hepatitis Screening

1. Non-human 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.
2. Participants working with non-human primates experimentally infected with Hepatitis A or B are offered the appropriate vaccine(s).

E. Rabies immunization is offered to employees working with non-human primates in quarantine.

F. B virus Precautions and Training

1. 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, all individuals are required to immediately report the injury to their supervisor, clean site with the contents of the "Monkey Bite Kit" (located in facilities housing non-human primates) and report the incident to Bloodborne Pathogen Physician (5-STIX). Based on the exposure, the 5-STIX Physician may prescribe Acyclovir (800 mg, 5 times per day for 14 days) as prophylaxis. Follow-up and monitoring of individuals placed on Valtrex is provided by the Occupational Injury Clinic.

VIII. Non-Human Primate Tissues

Participants who work with non-human primate tissues may receive the following services in addition to those listed in Section V.

- A. Periodic tuberculin skin testing is strongly encouraged for participants working with non-fixed lung or lymph node tissue in Section X.
- B. A single tuberculin skin test is offered to participants working with all other nonhuman primate tissue.
 1. If the tuberculin skin test is negative and there are no other medical contraindications, the employee is medically cleared for work, and there is no follow-up.
 2. If the tuberculin skin test is positive the course of action is as described in Section VII.
- C. Tissues and/or biological materials obtained or derived from rhesus, cynomolgus, and other macaque monkeys (e.g., pig-tail and stump tail monkeys) may contain Herpes B virus. Due to the extreme morbidity and mortality of this infection in humans (see <http://www.cdc.gov/ncidod/diseases/bvirus.htm>) all individuals working with these tissues must work in a biological safety cabinet and wear lab coat and double gloves. In addition, eye/face protection must be worn in any manipulation that could involve a splash or spray that could expose the worker. Any exposure to these tissues must be immediately washed thoroughly, reported to the supervisor, and reported to the Bloodborne Pathogen Physician (5-STIX) immediately. The 5-STIX Physician may prescribe Valtrex (1000mg, 3 times per day for 14 days) as

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prophylaxis. Follow-up and monitoring of individuals placed on Valtrex is provided by the Occupational Injury Clinic.

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 to OHS as follows:
 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 annually with a letter asking the worker to call OHS if he or she has any symptoms suggestive of active tuberculosis.
- 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.)
- 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)
- D. Participants working with non-fixed tissues from nonhuman primates
 1. Medical counseling (Section V)
 2. Baseline tuberculosis screening (Section VII)

XI. Surveillance Program Compliance

- A. A list of employees enrolled in the AESP is maintained by OHS. Periodically, the IACUC is informed of the individuals who have failed to participate in the AESP for disciplinary action.
- B. The AESP database contains the following information for each participant:
 1. name,
 2. last four digits of the social security number,
 3. category of animal used or cared for,
 4. date enrolled,
 5. immunizations, tuberculin testing and other surveillance examinations
 6. dates of visits, immunizations and surveillance activities
- C. Individuals who work with animals, but do not participate in the AESP may have their privileges to utilize laboratory animals suspended until successful completion.

REFERENCES:

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NIH Animal Exposure Surveillance Program: <http://oacu.od.nih.gov/exposure/index.htm>

REVIEW CYCLE

Annually