

# How to act in positive TB cases - a practical guide

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## **1. Handling of tuberculous nonhuman primates**

### **1.1. In case of a suspicious TB-test**

The animal has to be taken into quarantine. Repeated testing according to the quarantine procedures is necessary. The use of alternative sites (other eyelid or abdomen) and possibly more potent tuberculin preparations or PPD bovis versus avium are advisable to compare the results of the skin test. Other diagnostic tools like chest X-rays, bacterial culturing and/or immune assays like the PRIMAGAM<sup>®</sup> test or QuantiFERON<sup>®</sup>-TB Gold Test should be considered. All animals in the group of the TB suspected animal should be regarded as possibly infected and, therefore, be tested up to five times. The quarantine period should be extended to 90 days.

### **1.2. In case of a positive tuberculin test**

Immediate euthanasia: When a clinical diagnosis of tuberculosis is made in a nonhuman primate, it has to be euthanized immediately and the carcass has to be submitted for necropsy to confirm the diagnosis. The cage and room, where the tuberculous nonhuman primate(s) was/were held, have to be sanitized and the remaining nonhuman primate(s) should be placed under a whole period of quarantine or be euthanized. In case of a positive TB test in an animal during quarantine, the quarantine period should be extended to 90 days. During this time, five tuberculin skin tests should be done.

Delayed euthanasia: Euthanasia of a tuberculous nonhuman primate can be delayed, if the animal is of great value for a research project and can be isolated in the facility to minimize the spread of tubercle bacilli to other nonhuman primates or humans. The room, in which such a nonhuman primate is held at the time of clinical diagnosis, has to be placed under quarantine. Biosafety level 3 practices and facilities are recommended for animal studies using nonhuman primates that are naturally or experimentally infected with *M. tuberculosis* and/or *M. bovis*. Therefore animals that

are tuberculin positive should be euthanized, if this level of containment is not available. Multidrug treatment may be considered, but only if appropriate isolation and containment facilities can be provided, if such containment and isolation is ethically justified and if accurate detection of infection is possible. Every animal that could have been exposed (via direct contact, air supply etc.) has to be handled according to quarantine conditions. All previously negative contact personnel should be tuberculin tested again, and personnel access should be kept to a minimum.

## **2. Quarantine sanctions:**

Notification to all workers and to government authorities and a clear signing of the infected room is essential.

- access to the room is limited to assigned personnel only,
- protective clothing (Tyvek® overall, N95 respirator masks, shoe covers, head bonnet, vinyl or rubber gloves and eye protection) has to be worn in the room and may not be removed from the room except for autoclaving,
- no other nonhuman primates are placed in the room; no animals are removed from the room,
- all nonhuman primates in the room should be tuberculin tested every two weeks until five tests have been performed with no reactions. The first of these tests is administered two weeks after the test that identified the tuberculous nonhuman primate.

All previously negative contact personnel should be tuberculin tested again and access personnel should be kept to a minimum.

If all animals are negative, the quarantine may be terminated after the 90 days period, but no nonhuman primate has to be placed in or removed from the room until a tuberculin test is administered four weeks after the last of the five tests with no reactions. A diligent effort will be made to locate all nonhuman primates that were housed in the room, in which the tuberculous nonhuman primate was housed over the last 60 days. These nonhuman primates will be tuberculin tested on the same schedule as the nonhuman primates currently housed in the quarantined room.

## **3. Protection of personnel and nonhuman primates**

### 3.1. Protection of personnel

Biosafety precautions must be taken when dealing with a suspected or diagnosed tuberculous nonhuman primate and when collecting and handling samples to be cultured for tubercle bacilli. Access to quarantine is limited to authorized personnel; they have to participate in seminars about the risks arising from nonhuman primates. They have to wear safety clothing. Serum of workers has to be stored as reference serum.

### 3.2. Protection of nonhuman primates

All humans working with nonhumans primates should have negative skin tests or be non-infectious. The skin test should be repeated every 6 months. People with positive reaction (>10 mm) (some due to BCG vaccination) have to undergo chest X-ray or any alternative TB diagnostic like the QuantiFERON<sup>®</sup>-TB Gold Test. These complementary diagnostic tests may be used in an alternating fashion, each of them being repeated every 12 months. Tuberculin test (Teinte Test or Goldmann Mantoux) positive people should be monitored medically, whenever they have respiratory symptoms that persist longer than those usually seen with transient viral upper respiratory infections. Human tuberculin converters should be referred to a physician for follow-up with radiographs, cultures, or other diagnostic procedures and treatment. TB positive people are not allowed to work with nonhuman primates. People, whose jobs require animal contact, should be assigned other duties until all diagnostic tests are completed and they are considered to be free of infection and do not shed tubercle bacilli.