Georgia Department of Public Health

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Multistate Lymphocytic Choriomeningitis Virus Outbreak, August 2012

Introduction

The Georgia Department of Public Health (DPH) and the Georgia Department of Agriculture are working with the Centers for Disease Control and Prevention (CDC) on a multi-state investigation of Lymphocytic Choriomeningitis virus (LCMV) infections in commercial feeder mice that were shipped from an Indiana breeding facility to distributors, purchasers, and pet stores in many states, including Georgia. Records indicate that your facility received at least one shipment of mice that may be infected with LCMV between January 2012 and June 2012. These mice can potentially infect other rodents and also pose a health risk to people who come into contact with them.

People can become infected with LCMV when exposed to infected rodents (mice, hamsters, guinea pigs) or their bedding and equipment. Infected rodents shed the virus in their bodily secretions, which can become aerosolized in high rodent density environments. People at risk of contracting LCMV include anyone that directly handles the rodents or their dirty bedding, and people who spend time in close proximity to infected animals. LCMV infection in people produces symptoms ranging from mild illness to aseptic meningitis (inflammation of the membranes surrounding the brain). Pregnant women may pass infection to the fetus, resulting in birth defects. Persons with weak immune systems are also at increased risk for developing severe disease.

The goal of this investigation is to ensure that all potentially infected rodents have been appropriately disposed and to determine whether there are people at high risk of complications from LCMV infection that may have been exposed to these mice or still have a risk of exposure.

Please complete a survey to assist us in determining if there is still a risk of exposure to potentially infected mice. The survey will be securely entered into our electronic system and can be accessed at this link: http://sendss.state.ga.us/survey/form/1897. If you are unable to access this survey, you can contact the DPH directly at 404-657-2588 to complete the survey by telephone.

Potentially Exposed Employees

We would like all employees who may have been exposed to these mice since January 1st, 2012 to complete a survey so we can assess their risk and determine whether they need to be tested for LCMV. The CDC will test potentially exposed people who had symptoms of illness that could be related to LCMV infection, or are immunocompromised and women who may have been pregnant when at the time of exposure. We have included information to distribute to your employees about the investigation. It includes information about LCMV, their risk of exposure, a link to the employee survey, a web site with

additional information and a phone line with pre-recorded information about the virus and when to seek care.

Potentially Infected Mice and Other Rodents
CDC recommends that euthanasia and safe disposal of all potentially LCMV-infected rodents (mice, hamsters, gerbils, guinea pigs) be undertaken. The animals that are potentially infected with LCMV include all rodents received from January 2012 to June 2012 from the affected distributor, and any rodents that have been commingled with these mice. State and local health authorities will determine the disposition of animals at locations in the individual states which have received shipments of potentially LCMV-infected mice. Details describing the processes for safe euthanasia and disposal are described below.

More information about LCMV is available at:
- 877-664-3092 (prerecorded information)
- The CDC website: www.cdc.gov
- Current information about the investigation can be found at the Georgia DPH website: www.health.state.ga.us

For further questions or concerns, contact the Georgia DPH at 404-657-2588

Q&A

Given that these mice were shipped back in May, why is it important to euthanize mice at our facility now? Is there possible ongoing transmission occurring at our facility?
Euthanasia should occur if LCMV-infected mice have commingled with a facility's other rodent population(s), as LCMV can spread through direct contact between rodents or via contaminated bedding or housing. When a mouse or other rodent becomes infected, they may shed the virus for months in their urine and saliva, showing no signs of illness. Facilities which have effectively isolated newly-arrived rodents from existing populations do not have to euthanize those rodents in the existing populations.

How do we distinguish between rodents that need to be euthanized and safely disposed of, and those that are not potentially infected?
There are three categories of rodents that should be identified for euthanasia and safe disposal:
- Those mice shipped from the Sun Pet before June 1st; this is the originally LCMV-infected population, consisting only of white mice;

- Rodents that have been commingled with the above population; these could include mice or other rodents at distribution facilities or pet stores , with which the potentially LCMV-infected mice were housed;
- Rodents that had shared equipment with the potentially LCMV-infected mice (cages, water bottles, holding containers, etc) that were not cleaned with soap and water and/or disinfectant before being moved between animals.

Given that LCMV might be present in rodents at our facility, what precautions should be taken by employers and employees?
Employers should educate all employees concerning risks of exposures and potential health effects related to work with rodents. During a known outbreak (such as the current situation) the education should be reinforced for groups at increased risk; women who are or may be pregnant should be educated concerning risks to the fetus, and all staff should be educated concerning increased health risks for persons who may be immunocompromised. If any staff are pregnant or immunocompromised and directly handled the potentially infected rodents, they should be tested to determine if they have been exposed to LCMV, CDC will perform this testing (see lest question). Any workers handling potentially LCMV-infected rodents should wear proper personal protective equipment (see next question).

What is the proper PPE (Personal Protective Equipment) to handle potentially LCMV-infected rodents?
Proper PPE for any persons handling potentially LCMV-infected rodents, cleaning their cages, or handling their bedding materials includes latex or nitrile gloves, an N95 filtering facepiece respirator or higher level particulate respirator, and eye protection. Because broken skin can be a portal for entry of the virus, breaks in the skin should be covered. Efforts should be made to minimize the generation of aerosols while cleaning cages. All respirator users should be fit-tested before use and respirators should be used within the context of a complete respirator program that meets the requirements in the OSHA respirator standard (29 CFR 1910.134). Hands should be washed with soap and water or an alcohol-based hand sanitizer after removing gloves. A lab coat, coverall, or work shirt that can be removed after exposure to the animals and laundered is also recommended.

What is the proper method for euthanasia and disposal of potentially LCMV-infected mice?
The best method for euthanasia is one that minimizes direct handling of the mice in order to reduce the risk of LCMV transmission to the person. In this case, we recommend using CO2 gas or another anesthetic agent. Once the rodents have been euthanized, they should be disposed of as follows: Wearing gloves, spray the rodents with a commercial disinfectant or with 5% bleach solution and let stand for 5 minutes. At the end of 5 minutes, pack the rodents into a plastic trash bag. Close the top of the bag. The bags of dead/disinfected rodents can be buried at a depth of 3 feet or greater, burned, or

double-bagged and transported to a landfill. Those engaged in rodent disposal activities should wear gloves when handling closed bags, and wash their hands after removing the gloves.

Can our mice be tested to determine if they are infected?
Yes, there is commercial testing available to detect LCMV, however the animals must be euthanized in order to determine if they are actively infected with the virus. If only blood tests are performed, there is the possibility that infection can be missed. In most cases, the cost of testing exceeds the value of the animals in question.

Is it possible for an LCMV-infected mouse to infect other rodents at our facility, like hamsters and gerbils?
Yes—any rodents that were in direct contact with potentially infected mice or shared the same housing (cage, water bottle, feed dish) without disinfecting between uses could become infected and these animals may potentially pass the infection to people.

We received frozen mice in addition to live mice from the implicated facility. Are these safe to use?
While frozen mice pose less risk of LCMV exposure than live mice, persons should wear gloves when thawing and handling them and wash their hands afterward. Frozen mice should be fed to animals whole.

Can the reptiles or birds that consumed these infected mice develop asymptomatic LCMV infection, symptomatic LCMV disease, or be able to transmit LCMV to their human handlers via contact with them or their feces?
Since LCMV infection in animals eating feeder mice has not been widely studied, we do not know whether reptiles or birds consuming such animals may themselves develop an infection. There is however a risk for challitrichid primates (marmosets and tamarins) who consume infected mice to develop infection, which results in hepatitis with high fatality rates. If there have been any unusual recent illnesses or deaths in the animals fed live mice, we would be interested in testing any available specimens.

Is CDC willing to conduct testing for LCMV for people who were potentially exposed to the virus?
Yes. CDC is especially concerned about pregnant or immunocompromised persons who may have come in contact with the mice, and would recommend testing these people because of the risk of more severe disease and congenital illness. They would also be interested in testing any persons who had exposure to the potentially LCMV-infected mice and were treated with symptoms of meningitis. Contact the Georgia DPH at 404-657-2588 for more information about testing.