

## Laboratory Contamination and Infection of Laboratory Worker in Illinois With Cowpox Virus

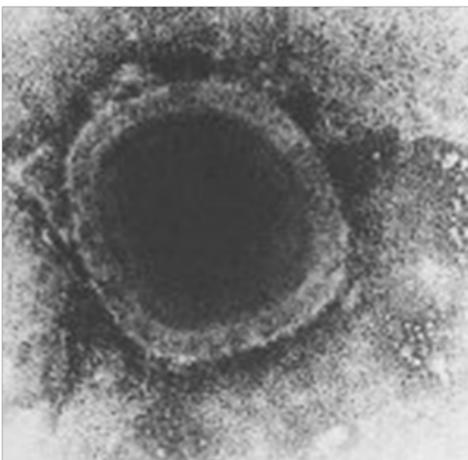
By Julien M. Farland

In 2010 a student laboratory worker at the University of Illinois was infected with cowpox virus, a less virulent form of the smallpox virus. This is the first known case of infection in a laboratory worker in the United States according to a report by the Centers for Disease Control (CDC) and Prevention in Atlanta. The CDC recommends vaccination of laboratory workers who work with cultures of animals orthopoxviruses that may infect humans, including cowpox viruses. Apparently this individual was offered a vaccination but declined.

In July of 2010 the lab worker became infected while working with the cowpox virus and developed a suspicious, painful, ulcerated lesion on a finger that lasted about three months. In October 2010, biopsy specimens were submitted to the CDC for testing. Real-time polymerase chain reaction assays on the biopsy tissue showed positivity for cowpox DNA and negativity for vaccinia virus. Investigation revealed cowpox virus stocks in the laboratory's freezer but no known use of cowpox in the laboratory in the previous 5 years.

Sequencing of an isolate from the laboratory worker revealed a recombinant region consistent with recombinant cowpox strains stored in the freezer. In addition, cowpox was detected in multiple viral stocks and 2 viral lines, including the viral stocks used by the

patient prior to the onset of illness. Orthopoxvirus DNA was also found in environmental swabs of several surfaces in the laboratory and a freezer room, although no live virus was recovered from the swabs.



Cowpox Virus. Transmission Electron Micrograph. Source: CDC

According to the CDC, the patient noticed a small cut at the site of the lesion a few days before the lesion developed. "The patient had no recollection of an accidental needle stick. Evidence suggests that the patient was likely infected by handling laboratory reagents or environmental surfaces that were contaminated with cowpox virus."

The CDC states that orthopoxvirus infections can be severe, particularly in individuals with risk factors for severe complications, including those with an immuno-compromising condition, eczema, or other similar skin conditions, and pregnant women. "Cowpox infections are transmissible by contact with lesions or matter from lesion exudates, and lesions are considered capable of producing infectious virus until a scab falls off and a fresh layer of skin forms. Prompt recognition, diagnosis, and reporting of orthopoxvirus infections to appropriate public health agencies can help reinforce appropriate infection control practices."

The CDC report on this infection is preliminary but a number of points should be stressed. Workers should consider receiving vaccinations offered for the agents they are using in the laboratory. All laboratory workers should report any potential exposures so proper medical attention can be received promptly. Work surfaces and equipment must be properly disinfected on a routine basis. Personal protective equipment, such as gloves, lab coats, and eye protection, must be worn in the lab. Hands must be washed before leaving the work areas.

Source: Promed mail

## Reducing Mercury Use and Disposal at Tufts

By Stephen R. Larson, Director

The Tufts community is well aware that mercury as a metal and in chemical compounds is a poisonous heavy metal and its hazards need to be controlled and where feasible eliminated. Fluorescent lamps (CFLs), thermometers, scientific devices, drugs, batteries often contain mercury. Research and teaching laboratory workers have taken many actions since 1992 to reduce the use of mercury containing devices, chemicals and ensure that no mercury is poured down the drain. The discharge limit in

Massachusetts is 1 part per billion in water that goes down the sink drain. Unfortunately, tests on many reagent biochemicals, organic and inorganic compounds that should not contain mercury (less than 50 part per trillion) reveal concentrations of mercury greater than 1 ppb. Cleaning and disinfectant agents such as bleach often contain mercury due to production methods.

Tufts will need the cooperation of the entire community to reduce and if possible eliminate mercury emissions to the environment.

*Cleaning and disinfectant agents such as bleach often contain mercury due to production methods.*



Image Source: <http://www.deq.state.va.us/waste/>