TETANUS
Tetanus (lockjaw) is an acute, often fatal disease caused by the toxin of the tetanus bacillus, *Clostridium tetani*. The bacterium usually enters the body in the spore form, often through a puncture wound contaminated with soil, dust, or animal feces, or through lacerations, burns, and minor unnoticed wounds. The organism is commonly found in the intestines of animals where it causes no negative effects. Humans infected through a wound or lesion frequently develop muscle rigidity and painful muscular contractions. Infection may be fatal.

All employees working with animals should be immunized against tetanus at least every ten years. All animal bite or scratch wounds should be thoroughly cleansed and evaluated by a physician.

Additional information regarding tetanus can be found at:
http://www.cdc.gov/nip/diseases/tetanus/default.htm

Information regarding the recommended treatment of animal bites that occur at the University of Michigan is available at:
http://www.oseh.umich.edu/pdf/bitescratchprotocol.pdf

HANTAVIRAL DISEASES
Hantaviral diseases are found in wild rodents, including mice and rats. The diseases can be induced by numerous viruses within the viral family, Bunyaviridae. Rodents bred and raised for use in research are extremely unlikely to harbor a Hantaviral disease. However, wild-caught rodents may be infected with the disease. Infected animals most frequently do not develop any signs of illness. Transmission to humans is by inhalation, wound contamination, conjunctival exposure, or ingestion of the virus shed in rodent urine, feces, and saliva. In the US, infected humans may develop acute fever, back pain, and respiratory distress lasting from days to months. The disease may be fatal in humans. Treatment is with supportive care. Prevention is best accomplished by using personal protective equipment, including respiratory protection, when working with wild rodents as well as screening all wild-caught rodents and their tissues or blood products for the disease. Good hygiene and disinfection of contaminated areas are important in preventing spread of the virus.

Additional information regarding Hantaviral diseases can be found at:
http://www.cdc.gov/ncidod/diseases/hanta/hps/index.htm
RAT BITE FEVER
Rat bite fever can be caused by 2 Gram-negative pleomorphic bacilli bacteria: *Streptobacillus moniliformis* and *Spirillum minus*. *Spirillum minus* is rarely found in the United States and is more frequently isolated in Asia and Africa. These bacteria may be present in the oral and respiratory tracts of many rodents, including rats, mice, and gerbils although it is believed that few animals raised for use in research are infected with these agents. Mice may have an acute fatal disease. If they survive, mice may develop infected, arthritic joints and swelling and loss of the digits or limbs. Rats do not usually develop any clinical signs of infection. In a laboratory setting, this bacteria is most frequently transmitted to humans via the bite of an infected rodent. However, transmission may occur secondary to handling an infected animal or contaminated equipment and may not require a bite injury. Infected humans may experience fever, chills, lymphadenopathy (swollen lymph nodes), vomiting, painful and enlarged joints and a rash on the hands or feet. Symptoms usually occur 2-10 days after exposure. If left untreated, it can lead to pneumonia, inflammation of the liver or intestines, and endocarditis (inflammation of the lining of the heart) with a 10% fatality rate. Infected humans are frequently treated with antibiotics. Preventative measures include proper handling and restraint of rodents to decrease the likelihood of animal bites, use of appropriate person protective equipment (such as gloves and gowns), and the prompt treatment and reporting of rodent bite wounds.

Information regarding the recommended treatment of animal bites that occur at the University of Michigan is available at:
http://www.oseh.umich.edu/pdf/bitescratchprotocol.pdf

Additional information regarding Rat Bite Fever can be found at:
http://www.cdc.gov/nczved/dfbmd/disease_listing/ratbitefever_gi.html

LYMPHOCYTIC CHORIOMENINGITIS (hamster, mice)
Lymphocytic choriomeningitis virus (LCM) is an arenavirus that can infect many species used in research including mice, rats, hamsters, guinea pigs, non-human primates, swine, and dogs. However, infection is highly unlikely in animals specifically bred and raised for use in research but must be considered for all rodents captured from the wild. Rodents, especially hamsters and mice, are the animal species most frequently implicated in disease transmission to humans. Exposure to infected rodent cell lines have also been linked to human disease. Rodents may or may not display clinical signs of infection including progressive weight loss. The LCM virus may be carried and excreted in the blood, cerebrospinal fluid, urine, saliva, secretions, urine, and feces of infected animals. Humans can be infected by contamination of skin wounds or mucous membranes with fluids from infected animals, equipment contaminated with
infectious fluids, bite wounds, or inhalation of contaminated particles. Humans may develop a flu-like illness up to 2 weeks following exposure and often recover without any complications or severe illness. However, meningitis (inflammation of the lining of the brain and spinal cord evidenced by severe headaches, neck stiffness, mental confusion and nausea), paralysis, and coma have been reported in severe cases. Severe disease may be fatal. The disease is diagnosed in humans through laboratory examination of the blood or cerebral spinal fluid. Transmission of the virus can be prevented through use of appropriate personal protective equipment including gloves and protective clothing and through appropriate environmental sanitation. All rodents captured from the wild or obtained from non-research-related sources must be screened for evidence of this disease.

Additional information regarding Lymphocytic Choriomeningitis can be found at: [http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/lcmv.htm](http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/lcmv.htm)

If you have had an exposure, illness symptoms, and need medical attention please refer to the information in the *Bite Scratch Protocol*.

Contact the UCUCA Office at 763-8028

**References:**


[Merck Veterinary Manual 2006](http://www.merckvetmanual.com/mvm/index.jsp)


Rodents

November 2012

Page | 3