

JOB SAFETY ANALYSIS	<b>Exposure to Blood Borne Pathogens</b>	NEW REVISED
DATE:	ANALYSIS BY: REVIEWED BY: APPROVED BY:	SUPERVISOR:

<b>REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT (PPE)</b>	plastic gloves, respirator, bleach solution, DEET, tweezers
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<b>Risk Information</b>		
	Lack of information about prevention and transmission Source: cdc.gov	<ul style="list-style-type: none"> <li>Consult the Centers for Disease Control Website: <a href="http://www.cdc.gov">http://www.cdc.gov</a> for current information on blood borne pathogens. A lot of the information on this JHA has been copied from the CDC website.</li> <li>Read materials distributed by park Safety Officer on prevention</li> </ul>
	Rabies natural history and transmission Source: cdc.gov	<ul style="list-style-type: none"> <li>Rabies virus causes an acute encephalitis in all warm-blooded hosts, including humans, and the outcome is almost always fatal. Although all species of mammals are susceptible to rabies virus infection, only a few species are important as reservoirs for the disease. In the United States, several distinct rabies virus variants have been identified in terrestrial mammals, including raccoons, skunks, foxes, and coyotes. In addition to these terrestrial reservoirs, several species of insectivorous bats are also reservoirs for rabies.</li> <li>Transmission of rabies virus usually begins when infected saliva of a host is passed to an uninfected animal. Various routes of transmission have been documented and include contamination of mucous membranes (i.e., eyes, nose, mouth), aerosol transmission, and corneal transplantations. The most common mode of rabies virus transmission is through the bite and virus-containing saliva of an infected host.</li> </ul>
	Hantavirus natural history and transmission Source: cdc.gov	<ul style="list-style-type: none"> <li>Hantavirus pulmonary syndrome (HPS) is a deadly disease transmitted by infected rodents through urine, droppings, or saliva. Humans can contract the disease when they breathe in aerosolized virus. There are several other ways rodents may spread hantavirus to people:</li> <li>If a rodent with the virus bites someone, the virus may be spread to that person-but this type of transmission is rare.</li> <li>Researchers believe that people may be able to get the virus if they touch something that has been contaminated with rodent urine, droppings, or saliva, and then touch their nose or mouth.</li> <li>Researchers also suspect people can become sick if they eat food contaminated by urine, droppings, or saliva from an infected rodent.</li> </ul>
	West Nile Virus natural history and transmission Source: cdc.gov	<ul style="list-style-type: none"> <li>West Nile Virus is a flavivirus commonly found in Africa, West Asia, and the Middle East. It is closely related to St. Louis encephalitis virus which is also found in the United States. The virus can infect humans, birds, mosquitoes, horses and some other mammals</li> <li>The main route of human infection with West Nile virus is through the bite of an infected mosquito. Mosquitoes become infected when they feed on infected birds, which may circulate the virus in their blood for a few days. The virus eventually gets into the mosquito's salivary glands. During later blood meals (when mosquitoes bite), the virus may be injected into humans and animals, where it can multiply and possibly cause illness.</li> <li>Even in areas where the virus is circulating, very few mosquitoes are infected with the virus. Even if the mosquito is infected, less than 1% of people who get bitten and become infected will get severely ill. The chances you will become severely ill from any one mosquito bite are extremely small.</li> </ul>
	Colorado Tick Fever natural history and transmission	<ul style="list-style-type: none"> <li>Colorado tick fever is an acute viral infection transmitted by the bite of the Dermacentor andersoni tick. This disease is limited to the western US and is most prevalent from March to September, with the highest numbers of infections occurring in May and June.</li> </ul>

<b>Prevention</b>	Lack of information about prevention Inadequate preventive measures	<ul style="list-style-type: none"> <li>• Study diseases and know risks and prevention procedures</li> <li>• Avoid situations where blood borne pathogens are more likely (such as standing water at dusk, confined spaces with mouse droppings, etc)</li> </ul>
	Rabies prevention	<ul style="list-style-type: none"> <li>• Animal proof homes or offices so wild animals cannot enter. Seal all entry holes of ¼ inch or wider with lath screen, lath metal, cement, wire screening or other approved patching material inside and out. This includes chimneys; keep flu closed when not in use.</li> <li>• If you find bats or other wild animals in your home, do not handle the animals bare handed, but use gloves, or open doors and windows to enable them to escape. If they appear to be sick or are easily captured, they should be tested.</li> <li>• Teach children never to handle unfamiliar animals, wild or domestic, even if they appear friendly.</li> <li>• Wash any wound from an animal thoroughly with soap and water and seek medical attention immediately.</li> <li>• Have all dead, sick, or easily captured animals tested for rabies if exposure to people or pets occurs.</li> </ul>
	Hantavirus prevention	<ul style="list-style-type: none"> <li>• Keep food and other perishable items tightly stored in closed containers. Clean up all food after preparation.</li> <li>• When working in enclosed spaces where mice and/or droppings are noticed or most likely occur (such as kitchen cabinets, closets, garages, feed bins or barns, closed buildings), wear a mask and plastic gloves. Spray all droppings with bleach solution (10% bleach solution: 1 part bleach to nine parts water). Do not use vacuum to clean up droppings.</li> </ul>
	West Nile Virus prevention	<ul style="list-style-type: none"> <li>• Avoid stagnant fresh water such as flowerpots and buckets, stopped-up rain gutters, discarded cans, and old tires where mosquitos breed.</li> <li>• Apply insect repellent containing 20% to 30% DEET (N,N-diethyl-meta-toluamide) as the active ingredient to exposed skin whenever outdoors. Follow label directions on how to safely apply DEET. Treating clothing with DEET or repellents containing permethrin will give extra protection. Do not apply DEET on the skin under your clothing.</li> <li>• When possible, wear long sleeve shirts, long pants and socks.</li> <li>• Report stagnant water sources to resource management.</li> </ul>
	Colorado Tick Fever Prevention	<ul style="list-style-type: none"> <li>• Apply DEET especially on ankles and legs. Tuck pant legs into socks.</li> <li>• Conduct tick checks regularly. Perform head-to-toe searches every couple of hours during a mountain excursion. Searches should be conducted regularly because it usually takes ticks an hour to find a place to embed. It usually takes a tick several hours of feeding to transmit enough of a disease organism to cause illness. Therefore, the quick discovery and removal of ticks can prevent illness.</li> <li>• When removing ticks, use tweezers or fingers covered with tissue paper. Grasp the tick where it has entered the skin and slowly and firmly pull it out in a rolling motion from front to back. Avoid twisting or jerking the tick. When the tick has been removed, wash the bite with soap and water. Other methods of removal such as oil, fingernail polish or heat from a match are not recommended as they may cause the tick to regurgitate into the wound, increasing the risk of disease transmission</li> </ul>

<b>Exposure</b>	Illness or death	<ul style="list-style-type: none"> <li>• Keep track of where you were working and what risks you encountered.</li> <li>• If illness and/or symptoms occur after field work (anywhere from 3 days to 5 weeks), see a doctor to be tested for blood borne pathogens. Remember that some symptoms reoccur.</li> </ul>
	Rabies symptoms	<ul style="list-style-type: none"> <li>• The first symptoms of rabies may be nonspecific flu-like signs — malaise, fever, or headache, which may last for days. There may be discomfort or paresthesia at the site of exposure (bite), progressing within days to symptoms of cerebral dysfunction, anxiety, confusion, agitation, progressing to delirium, abnormal behavior, hallucinations, and insomnia. The acute period of disease typically ends after 2 to 10 days (6). Once clinical signs of rabies appear, the disease is nearly always fatal, and treatment is typically supportive</li> </ul>
	Hanta virus symptoms	<ul style="list-style-type: none"> <li>• Early symptoms include fatigue, fever and muscle aches, especially in the large muscle groups—thighs, hips, back, and sometimes shoulders. These symptoms are universal.</li> <li>• There may also be headaches, dizziness, chills, and abdominal problems, such as nausea, vomiting, diarrhea, and abdominal pain. About half of all HPS patients experience these symptoms. Four to 10 days after the initial phase of illness, the late symptoms of HPS appear. These include coughing and shortness of breath, with the sensation of, as one survivor put it, a "...tight band around my chest and a pillow over my face" as the lungs fill with fluid. However, on the basis of limited information, it appears that symptoms may develop between 1 and 5 weeks after exposure to urine, droppings, or saliva of infected rodents.</li> <li>• Another important point to remember from the data that the CDC Special Pathogens Branch keeps on all reported cases of HPS, is that it appears many people who have become ill were in a situation where they did not see rodents or rodent droppings. Other people have had frequent contact with rodents and their droppings before becoming ill. This apparent inconsistency makes it very difficult to pin down the precise time when the virus was transmitted.</li> </ul>
	West Nile Virus symptoms	<ul style="list-style-type: none"> <li>• Most people who are infected with the West Nile virus will not have any type of illness.</li> <li>• It is estimated that about 20% of the people who become infected will develop West Nile fever: the symptoms include fever, headache, tiredness, and body aches, occasionally with a skin rash on the trunk of the body and swollen lymph glands.</li> <li>• The symptoms of severe infection (West Nile encephalitis or meningitis) include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis. It is estimated that approximately 1 in 150 persons infected with the West Nile virus will develop a more severe form of disease.</li> <li>• Symptoms of West Nile encephalitis usually appear in 3 to 14 days.</li> </ul>
	Colorado Tick Fever symptoms	<ul style="list-style-type: none"> <li>• Colorado tick fever is common. It is not transmitted person-to-person and has no specific treatment so many physicians do not confirm it with blood tests. Symptoms begin 3-5 days after the tick bite and include high fever, muscle pain, severe headache and fatigue. The symptoms last several days, clear up for a day or two, then reappear for a couple of more days. The entire illness lasts about a week. Persons who become ill following a tick bite should contact a physician to insure that it is Colorado Tick fever and not something more serious such as Rocky Mountain spotted fever.</li> </ul>
	All	<ul style="list-style-type: none"> <li>• Because of the potentially long-term illness or even mortality associated with blood-born pathogens all employees who have had an exposure and subsequently develop potential symptoms should be checked by a physician.</li> </ul>